Université Panthéon-Assas

Ecole Doctorale de Sciences économiques et de gestion - Sciences de l'information et de la communication

Thèse de doctorat en Sciences Economiques
soutenue le 26 Juin 2012

IMPACT DE LA STRUCTURE DU VOTE SUR LE FONCTIONNEMENT ET LES PERFORMANCES DES ORGANISATIONS INTERNATIONALES

Université Panthéon-Assas

Thèse de Doctorat / Juin 2012

Auteur : Michèle KHOURI épouse HAGOT

Sous la direction de Monsieur le Professeur Bertrand LEMENNICIER-BUCQUET

Membres du jury

M. Palani Gounder DURAISAMY, Professeur à l'Université de Madras (Inde), Rapporteur.

M. Bernard GROFMAN, Professeur à l'Université d'Irvine California (Etats-Unis), Suffragant.

M. Bruno JEROME, Maître de Conférences HDR à l'Université de Paris II, Suffragant.

M. Jean-Dominique LAFAY, Professeur à l'Université de Paris I, Rapporteur.

M. Bertrand LEMENNICIER-BUCQUET, Professeur à l'Université de Paris II, Directeur de thèse.

Avertissement

La Faculté n'entend donner aucune approbation ni improbation aux opinions émises dans cette thèse ; ces opinions doivent être considérées comme propres à leur auteur.

A Pierre et Karl

Remerciements

En premier lieu, je tiens à remercier avec beaucoup de gratitude et de reconnaissance mon Directeur de thèse, Monsieur le Professeur Bertrand LEMENNICIER-BUCQUET pour sa bienveillance, sa gentillesse et son soutien durant les moments les plus durs de ma thèse. Son esprit avisé et ses conseils précieux ont permis l'aboutissement de ce travail de recherche.

Mes remerciements vont également vers Messieurs les Professeurs Jean-Dominique LAFAY et Palani Gounder DURAISAMY qui m'ont fait l'honneur d'avoir accepté de juger ce travail et d'en être les rapporteurs. Ils ont également contribué par leurs nombreuses remarques et suggestions à améliorer la qualité de ce travail de recherche, et je leur suis très reconnaissante.

Ma gratitude va également à Monsieur le Professeur Bernard GROFMAN qui m'a fait l'honneur d'être membre de mon jury de thèse. Je le remercie profondément de m'avoir invitée en tant que 'visiteur-chercheur', pendant trois mois en 2009, au centre de recherche « The Centre For the Study of Democracy » en Irvine, Californie, et de l'intérêt qu'il a porté à mon travail de recherche. Cette visite était enrichissante et un tremplin pour la suite de ma thèse.

Mes sincères remerciements s'adressent aussi à Monsieur Bruno Jérôme de m'avoir fait l'honneur d'être membre de mon jury de thèse et pour son soutien et ses encouragements dernièrement.

Ensuite, je tiens à remercier tous mes collègues de travail à l'Institut de Recherche sur la Gouvernance et l'Economie des Institutions (IRGEI) en particulier Jamilée Yammine et Honorine Lescieux Katir.

Un immense merci à ma famille, ma belle-famille, mes amies en particulier Jocelyne Matta et Etienne Daibess, qui m'ont toujours encouragée et supportée moralement. Je remercie également Olga Luis et mes sœurs Caroline et Claire pour leur relecture d'une partie du manuscrit et de leur soutien.

Finalement, je tiens à remercier du fond du cœur mon mari Pierre de m'avoir supportée tout au long de ma thèse et de son aide précieuse.

Résumé :

Les études et les travaux empiriques consacrés à l'impact de la structure du vote dans les organisations internationales dans le cadre de la théorie des choix publics sont très rares. Par conséquent, cette thèse s'attache à étudier de plus près l'impact de la structure du vote sur le fonctionnement et les performances des organisations internationales. L'analyse dans ce travail de recherche se veut, en premier lieu, empirique et en second lieu, positive. Cette dernière nous permettra de comprendre comment les organisations internationales réellement fonctionnent et réagissent (Lafay et Lecaillon, 1993).

Nous avons montré que les organisations inter-gouvernementales avec une structure de vote 'un pays – une voix' assurent une redistribution, en termes de contributions et de dépenses, des riches vers les pauvres et la classe moyenne, tandis que la redistribution en termes de contributions est moindre dans les organisations inter-gouvernementales à 'vote pondéré'. Toutefois, la redistribution des prêts dans les organisations à 'vote pondéré' s'avère plus répartie parmi les classes de revenu. Ainsi, d'une part, les organisations avec une structure de vote 'un pays – une voix' sont plus performantes que les organisations à 'vote pondéré' en termes de contributions et conformément au principe 'd'équité' fondée sur la 'capacité de payer' des pays membres. D'autre part, en termes de prêts et dépenses, les organisations avec une structure de vote 'un pays – une voix' et à 'vote pondéré' sont aussi performantes les unes que les autres par rapport à la nature de leur structure de vote et de leurs activités ou missions.

Descripteurs: Organisations internationales, structure de vote, prêts, dépenses, choix publics, performance.

Abstract:

"IMPACT OF THE VOTING STRUCTURE ON THE FUNCTIONING AND PERFORMANCE OF INTERNATIONAL ORGANIZATIONS"

Empirical studies and literature on the impact of voting structure in international organizations within public choice theory are very scarce. Therefore, this thesis attempts to examine more closely the impact of the voting structure on the functioning and performance of international organizations. The analysis in this research is, first, empirical, and second, positive. The latter allow us to understand how organizations actually function and react (and Lecaillon Lafay, 1993).

We show that the redistribution of contributions and expenditures in 'one-nation, one-vote' inter-governmental organizations is from rich to poor and middle classes, while there is less redistribution in terms of contributions in 'weighted voting' inter-governmental organizations. However, the redistribution of loans in weighted voting organizations is more spread among income classes. Thus, on the one hand, 'one-nation, one-vote' organizations perform better than 'weighted voting' organizations in terms of contributions and in accordance with the principle of' 'fairness' based on 'capacity to pay' of member states. On the other hand, in terms of loans and expenditures, 'one-nation, one-vote' organizations and 'weighted voting' organizations are both effective relatively to the nature of their voting structure and their missions or activities.

Keywords: International organizations, structure of vote, loans, expenditures, public choice, performance.

Sommaire

Introduction Générale

Selon le Répertoire des Organisations Internationales Europa 2008, une organisation internationale peut être définie comme une structure formelle, continue établie par accord entre les membres (gouvernementaux et/ou non gouvernementaux) à partir de deux ou plusieurs Etats souverains dans le but de poursuivre l'intérêt commun de l'adhésion. Cette définition met l'accent sur l'importance de l'adhésion qui devrait être plus stable qu'une conférence et ne devrait pas seulement exister pour la commodité d'un membre. En outre, les organisations internationales sont délibérément et intentionnellement créées par les individus contrairement aux institutions qui sont un ensemble de règles spontanées de coopération qui permettent aux individus de survivre mieux ensemble que pris séparément. Les institutions sont souvent le produit non intentionnel de comportements humains. Les organisations internationales publiques, telles le Fonds Monétaire International (FMI) ou l'Organisation Mondiale de la Santé (OMS), sont le produit de la coopération entre hommes d'Etat. En revanche, l'ordre international (monétaire – étalon or, ou commercial – libre échange-) est le produit souvent non intentionnel de la libre coopération entre des individus vivants dans des Etats différents.

Les organisations internationales sont des acteurs essentiels mais controversés de la politique mondiale d'aujourd'hui. Elles sont censées reconstruire les sociétés déchirées par la guerre, réduire l'extrême pauvreté, stopper la propagation de la maladie, prévenir et atténuer les crises financières, traiter les problèmes mondiaux environnementaux, trancher les différends, rendre le commerce plus libre et équitable, promouvoir l'égalité entre les sexes, la réforme des systèmes juridiques nationaux, et réduire la corruption. Toutefois, les organisations internationales font face à des critiques incessantes comme étant inefficaces ou pire qu'elles exacerbent les problèmes qu'elles sont censées résoudre. Les critiques et les appels contradictoires de réformes font partie désormais de la vie quotidienne de la plupart des organisations multilatérales majeures (Gutner et Thompson, 2010, p.227-228).

D'un côté, ceux qui cherchent à développer la théorie des organisations internationales restent concentrés sur des questions distinctes comme de savoir pourquoi les Etats créent les institutions, comment poursuivent-ils leurs intérêts par le biais des institutions et de quelle manière les organisations internationales sont-elles importantes? (Gutner et Thompson, 2010, p.227-228).

De l'autre, la théorie des choix publics[1] applique une approche économique aux Organisations Internationales. La théorie des choix publics (TCP) qualifiée d'économie politique moderne par B. Frey (1978)[2] offre une analyse économique du comportement de l'Etat dans un environnement où sphères économique et politique interagissent. D'une part, cette approche se veut positive (ce qui est) dans la mesure où l'on explique et l'on prévoit pourquoi un gouvernement, un groupe d'intérêt, un parti politique, ou un bureaucrate agit comme il le fait dans des situations concrètes et non pas comment il devrait le faire selon les prescriptions du Prix Nobel M. Friedman[3]. D'autre part, elle s'efforce de proposer, de façon normative (ce qui devrait être) des institutions ou organisations politiques plus efficaces (au sens où cette institution ou organisation fonctionne à un moindre coût d'opportunité pour le contribuable) qui a donné naissance à ce que l'on appelle l'économie politique constitutionnelle.

La théorie des choix publics fait irruption dans les années soixante en appliquant l'approche dite « des choix rationnels » au-delà des frontières d'une science économique qui se prétendait « orthodoxe ». En considérant que la science économique est avant tout une science des choix[4], ce nouveau paradigme permet d'aborder des champs d'analyse qui étaient jadis l'apanage des politologues, des juristes ou des sociologues.

Ainsi**,** les « économistes des Choix Publics » comme J. Buchanan (Prix Nobel) et G. Tullock[5] sont à l'origine, avec les « politologues des Choix publics »[6] comme A.

---

[1] Frey, B. (1984). The Public Choice View of International Political Economy. *International Organization,* 38(1), 199-223.
[2] Frey, B. (1978). *Modern Political Economy*, London: Martin Robertson.
[3] Friedman, M. (1953). The Methodology of Positive Economics. *Essays in Positive Economics*, Chicago, The University of Chicago Press.
[4] Robbins, L. (1932). *Essai sur la nature et la signification de la science économique,* Paris Médicis.
[5] Buchanan, J. & Tullock, G. (1962). *The Calculus of Consent: the Logical Foundations of Constitutional Democracy*, University of Michigan Press.
[6] Grofman, B. (2004). Reflections on Public Choice. *Public Choice,* 118, 31-51.

Downs[7], d'une véritable « Analyse économique de la politique ». Buchanan et Tullock ont montré que l'étude des institutions (au travers des constitutions par exemple) et des règles qui les régissent (procédures de décision, règles de vote) relevaient aussi du champ de l'économie. De la même manière, l'école de Chicago, a utilisé l'analyse économique, sous l'impulsion des Prix Nobel G. Becker[8] et G. Stigler[9], et de S. Peltzman[10], pour expliquer des phénomènes comme la démocratie, les réglementations, les groupes de pression et le marché politique en général. Tous ces auteurs ont profondément modifié le point de vue non seulement des économistes sur ces thèmes, mais aussi ceux des sociologues et des politologues surtout aux Etats-Unis rendant l'approche économique incontournable. Il en résulte que la question du comportement des institutions internationales relève naturellement du champ de l'économie, et principalement d'une analyse en termes de Choix Publics.

Une organisation internationale peut offrir divers services: elle peut fournir des biens et services publics, former un cadre institutionnel pour les alliances et coordonner les activités des acteurs dans le système international. Les organisations internationales assurent aussi des objectifs privés (i.e. bénéficiant aux acteurs de ces organisations), ce serait donc une erreur de supposer qu'elles maximisent le bien-être économique collectif des individus d'un pays particulier ou du monde dans son ensemble.

Pour produire des biens publics, ces organisations ne disposent pas de la contrainte. La contrainte est souvent impossible à mettre en œuvre dans un contexte international, parce que les Etats membres ne veulent pas renoncer à leur souveraineté. Si chaque pays est incité à faire passager clandestin (free-rider), ce dilemme ne peut être résolu via un monopole de la force au niveau mondial qui n'existe pas. Dans ces circonstances, l'organisation sera seulement capable de fonctionner efficacement si : ou bien, elle contient un petit groupe de pays, permettant ainsi une interaction directe entre hommes d'Etat qui peuvent imposer un coût élevé sur les hommes d'Etat «free-riders » ; ou bien proposer des avantages

[7] Downs, A. (1957). *An Economic Theory of Democracy*, New York Harper.
[8] Becker, G. (1976). *The Economic Approach to Human Behavior*, The University of Chicago Press, Chicago and London.
[9] Stigler, G.J. (1972). Economic Competition and Political Competition. *Public Choice*, 13, 91-106.
[10] Peltzman, S. (1976). Toward a More General Theory of Regulation. *Journal of Law and Economics,* 19, 211-240.

privés (recaser des hommes politiques nationaux dont on ne veut plus sur le marché local) en leur offrant des places privilégiées dans l'organisation, ce qui incite les hommes d'Etat des pays pris individuellement à participer au financement de l'organisation.

Paul Samuelson[11] part de la notion de bien privé pour définir *a contrario* les deux caractéristiques majeures des biens publics : la non rivalité des bénéfices (ou indivisibilité des bénéfices) et la non-exclusion de la consommation[12]. Si ces deux caractéristiques coexistent on est en présence de biens publics purs (fort rares de l'aveu même de Samuelson). En 1986, C. Kindleberger[13], prenant en compte le contexte d'accélération de la globalisation reprend la définition théorique précédente et l'étend à ce qu'il appelle les biens publics internationaux (*International Public Goods*). Les biens publics internationaux sont particuliers puisqu'ils sont par essence mondiaux et générateurs d'externalités géographiques (ou effets de débordement). Par exemple, les émissions de carbone émanant des principaux pays industrialisés (mais pas seulement) touchent toute la planète et en particulier les pays en développement. Autre exemple, certains biens publics mondiaux sont détenus par certains pays (ou certains individus) et ont une dimension globale. C'est le cas de la biodiversité localisée essentiellement dans les pays en développement.

De la même manière, on peut considérer l'ordre international comme un bien public garantissant la liberté du commerce international. Son absence peut mener à une rupture sérieuse dans l'échange international. De même, les services rendus par les institutions monétaires internationales (étalon or) peuvent être considérés comme un bien public. Enfin, la lutte contre les épidémies est un problème de santé mondiale : le fait que le pays voisin soit touché par une maladie contagieuse ne peut laisser indifférent, si le risque de propagation est grand. La lutte contre les épidémies a donné naissance à l'Organisation Mondiale de la Santé (OMS), la libéralisation du commerce comme facteur améliorant de la paix mondiale (en réaction aux conséquences du protectionnisme des années 1930-1940) a donné naissance à l'Accord Général sur les Tarifs Douaniers et le Commerce ou à l'Organisation

[11] Samuelson, P. (1954). The pure theory of public expenditure. *The Review of Economics and Statistics.* 36; ou La théorie pure des dépenses publiques et de la fiscalité. *Economie Publique CNRS*, colloque Biarritz 2-9 Septembre 1966.

[13] Kindleberger, C.P. (1986). International Public Goods without International Government. *The American Economic Review*, 76 (1), 1-13.

Mondiale du Commerce (OMC). Les alliances militaires garantissant un équilibre des forces au plan mondial ont donné naissance à l'Organisation du Traité de l'Atlantique Nord (OTAN). D'une manière générale, à l'issue de la seconde guerre mondiale, la volonté de considérer la paix comme un bien public mondial, et de la maintenir en organisant les relations économiques entre nations sur la base de l'ouverture et de la coopération, a donné naissance aux grands piliers du nouvel ordre économique mondial : le FMI, la BIRD (la Banque Internationale de Reconstruction et de Développement), l'OIC (l'Organisation Internationale du Commerce) (puis le GATT puis l'OMC). La fourniture des biens publics mondiaux se situe donc au cœur des activités des organisations internationales.

Les règles formelles définissant comment les décisions collectives doivent être prises dans les organisations internationales peuvent avoir un effet important sur les coûts prévus pour fournir un bien public car il devient de plus en plus difficile d'arriver à un accord quand les règles deviennent plus strictes – avec la règle de l'unanimité n'importe qui peut bloquer la décision – et les intérêts des autres membres doivent être pris en compte. Généralement**,** les organisations internationales sont très conservatrices et seule la règle majoritaire simple ou qualifiée est considérée.

Par conséquent, cette thèse s'attache à étudier de plus près l'impact de la structure de vote sur le fonctionnement et les performances des organisations internationales. Le terme 'organisations internationales' se réfère dans ce travail de recherche aux organisations inter-gouvernementales. De même, nous définirons la performance en termes d'une redistribution équitable fondée sur la 'capacité de payer' des pays membres au sein des organisations internationales (Diamond et Dodsworth, 1976, p.412). En fait, Gutner et Thompson (2010, p.231) ont donné, pour commencer, une définition simple de la performance comme étant la capacité d'une organisation d'atteindre des objectifs convenus. Or une redistribution équitable constitue un des objectifs majeurs des organisations inter-gouvernementales lors de leur création.

L'analyse dans ce travail de recherche se veut, en premier lieu, empirique et en second lieu, positive. Cette dernière nous permettra de comprendre comment les organisations internationales réellement fonctionnent et réagissent (Lafay et Lecaillon, 1993, p.53).

Par ailleurs, l'objectif de la thèse est de montrer l'importance de la structure du vote au sein des organisations internationales.

L'intérêt du sujet réside, premièrement, dans le fait qu'il est original puisque les études et les travaux empiriques consacrés à l'impact du vote dans les organisations internationales dans le cadre de la théorie des choix publics sont, à notre connaissance, très rares.

Deuxièmement, ce sujet est d'actualité puisque la réforme post 2008 prévue au Fonds Monétaire International (FMI) afin d'augmenter les quotas et les poids de vote des pays émergents et des pays du Sud les plus pauvres, est entrée en vigueur le 3 Mars 2011.

Troisièmement, la structure du vote rentre dans les principales préoccupations des organisations internationales. En fait, il existe plusieurs manières d'aboutir à une prise de décision collective au sein d'une organisation internationale. Lorsque cette décision passe par le vote au moins deux aspects doivent être pris en considération :

- La règle électorale doit spécifier la procédure de vote à adopter (majorité simple ou qualifiée, veto ou unanimité –Buchanan et Tullock (1962) – etc.)
- La règle électorale doit spécifier les pondérations par pays ou par groupe de pays en fonction de la taille de la population du pays ou du poids politique et économique.

Ainsi, la question que nous nous posons dans cette thèse est la suivante: quel est l'impact de la structure de vote sur le fonctionnement et les performances des organisations internationales ?

Afin de répondre au mieux à cette problématique notre thèse s'articule autour de quatre chapitres.

Le premier chapitre, d'une part, présente une analyse théorique adaptant et étendant l'analyse de Buchanan et Tullock (1962, chapitres 6 et 8) - portant sur le choix de l'individu de la règle de vote lui permettant de déterminer les activités qui seront adoptées en privé ou collectivement en fonction des coûts engendrés - du niveau national au niveau international en l'appliquant au choix du pays membre de la structure de vote minimisant ses coûts (coûts externes et coûts de la prise de

décision) au sein des organisations internationales. D'autre part, le premier chapitre enquête principalement sur les différentes règles de vote formelles existantes en 2008 ('un pays - une voix', 'vote pondéré', majorité simple, majorité qualifiée, unanimité, veto et abstention) dans quarante-sept organisations inter-gouvernementales, excluant de l'analyse les organisations inter-gouvernementales purement régionales et les organisations non-gouvernementales. L'enquête, réalisée par l'auteur suite à des contacts directs avec les organisations en question ou en ayant recours à leurs sites officiels, permet grâce à une étude comparative d'évaluer et de mieux comprendre les structures de vote formelles et leur fonctionnement au sein des organisations internationales[14]. Le 'vote pondéré' et 'un pays - une voix' s'avèrent des structures de vote prépondérantes dans les organisations internationales, chacune de ces structures étant combinée avec une majorité simple ou qualifiée.

Le second chapitre, dans la continuité du premier chapitre, distingue le poids de vote du pouvoir de vote. Le poids de vote représente le nombre de voix attribuées à chaque pays membre tandis que le pouvoir de vote représente la capacité d'un pays membre d'influencer les résultats en changeant de coalitions. Après une présentation des indices de pouvoir les plus utilisés habituellement (i.e. indice absolu et indice normalisé de Banzhaf, indice de Shapley-Shubik et les indices de Coleman), nous retiendrons pour la suite de notre étude l'indice de pouvoir normalisé de Banzhaf, calculé par le rapport du nombre de coalitions pour lesquelles un pays est « pivot » sur le nombre total de coalitions possibles, et nous justifierons notre choix. Nous calculerons ensuite le pouvoir de vote, mesuré par le Banzhaf index, des pays membres dans notre échantillon de quatre organisations internationales à vote pondéré (la Banque Africaine de Développement (BAD), la Banque Internationale pour la Reconstruction et le Développement (BIRD), le Fonds International de Développement Agricole (FIDA) et le Fonds Monétaire International (FMI)) en ayant recours au programme d'algorithme de Leech prévu pour les larges organismes à vote pondéré. Nous nous efforcerons ainsi de démontrer l'impact des différentes majorités requises, propres à chaque organisation, sur les pouvoirs de vote (hormis les valeurs aberrantes) et nous examinerons l'évolution de ces derniers avec les poids de vote des pays membres. Nous estimerons également, à travers des régressions linéaires, les

[14] Nous rappelons que dans la suite de notre étude, 'organisations internationales' se réfèrent aux 'organisations inter-gouvernementales'.

pouvoirs de vote des valeurs aberrantes, ces dernières représentant les premiers contributeurs comme les Etats-Unis, afin de les comparer avec les pouvoirs de vote existants en 2008 et sous différentes majorités requises. Nous analyserons ensuite les effets de la réforme post 2008, entrée en vigueur le 3 Mars 2011, des poids de vote des pays membres du Conseil des Gouverneurs au FMI, et de la réforme post 2010, qui n'est pas encore entrée en vigueur, des poids de vote des membres du Conseil Exécutif au FMI, sur les pouvoirs de vote. Finalement, nous examinerons si les réformes du FMI vérifient l'existence du « Paradoxe de Redistribution » ; ce dernier signifie une diminution du pouvoir de vote d'un pays alors que son poids de vote augmente et inversement.

Le troisième chapitre traitera via une analyse positive l'impact de la structure de vote ('un pays-une voix' et 'vote pondéré) sur les contributions au sein des organisations internationales. Nous examinerons ainsi la structure de vote qui assurera un meilleur système de redistribution et donc une meilleure 'équité' dans le 'partage du fardeau' (à savoir les contributions par tête), en d'autres termes une meilleure performance. Pour ce faire, nous construisons pour l'année 2008 une base de donnée originale comprenant les contributions et les revenus par tête des pays membres de douze organisations inter-gouvernementales (IGOs) dont six avec une structure de vote 'un pays – une voix' et six avec une structure de vote pondérée. Nous évaluerons les contributions des pays membres, premièrement, en comparant le pays membre médian ou « pivot » avec l'électeur moyen dans les organisations avec 'un pays – une voix' et les organisations à 'vote pondéré' afin de vérifier la structure de vote qui permet une meilleure redistribution. Deuxièmement, nous calculerons le pourcentage des écarts de contributions de chaque pays (i.e. part des contributions du pays dans l'organisation diminuée de sa part dans le revenu par tête dans l'organisation) par rapport à sa part dans le revenu par tête dans l'organisation en question pour évaluer les pays qui 'sur- contribuent ou paient' et ceux qui 'sous-contribuent ou paient' nous permettant d'examiner ainsi l'*hypothèse d'exploitation.* Troisièmement, nous étudierons à travers un modèle de régression l'élasticité entre les contributions par tête et les revenus par tête et nous vérifierons si le 'partage des charges ou du fardeau' est progressif, proportionnel ou régressif et si les organisations avec 'un pays-une voix' ou les organisations à vote pondéré assurent

une meilleure ‘équité’ du ‘partage du fardeau’. Finalement, nous testerons l’impact du pouvoir de vote sur les écarts de contributions.

Le quatrième chapitre analysera, par l’intermédiaire d’une analyse positive, l’impact de la structure de vote sur la redistribution des dépenses et des prêts en faveur des pays membres respectivement dans les organisations avec une structure de vote ‘un pays-une voix’ et les organisations à ‘vote pondéré’, et évaluera ainsi leur performance. Par conséquent, nous construisons une base de donnée pour l’année 2008 comprenant les dépenses, les prêts et les revenus par tête des pays membres de onze organisations inter-gouvernementales dont six avec une structure de vote ‘un pays – une voix’ et six avec une structure de ‘vote pondéré’. Nous calculerons le pourcentage des écarts de prêts ou dépenses de chaque pays (i.e. part des prêts ou dépenses du pays dans l’organisation diminuée de sa part dans le revenu par tête dans l’organisation) par rapport à sa part dans le revenu par tête dans l’organisation pour examiner si les pays ‘reçoivent moins’ ou ‘reçoivent plus’ afin d’étudier la concentration ; si celle-ci est forte cela signifie qu’un petit nombre de pays bénéficie de la plus grande part de prêts ou dépenses. Puis nous étudierons quelle classe de revenu ‘reçoit plus’ et laquelle ‘reçoit moins’ afin de vérifier si les organisations avec ‘un pays - une voix’ ou les organisations à ‘vote pondéré’ assurent une meilleure redistribution respectivement dans l’allocation des dépenses et des prêts. Par la suite nous illustrerons cette inégalité par la courbe de Lorenz et quantifierons l’inégalité de redistribution des prêts et des dépenses par l’indice de Gini, et nous comparerons ces résultats avec ceux de l’inégalité de répartition des contributions obtenue dans le chapitre 3 afin d’évaluer la performance des organisations internationales avec une structure de vote ‘un pays – une voix’ et à ‘vote pondéré’. De même, nous effectuerons une étude par tranche de classe et nous examinerons de plus près les pays qui bénéficient de la plus grande part des prêts et des dépenses. Cette étude nous permettra de situer l’électeur médian dans la tranche de classe correspondante pour mieux comprendre la répartition des prêts et des dépenses existante dans les organisations internationales par tranche de classe et ainsi nous pourrons conclure sur l’impact de la structure de vote sur le fonctionnement et les performances des organisations internationales en termes de prêts et de dépenses. Finalement, nous testerons l’impact du pouvoir de vote sur les prêts et les écarts de prêts.

Chapter 1 - Structure of Voting within International Organizations

ABSTRACT

This chapter is a survey of voting rules across and within a set of major IGOs. We adapt and develop the theoretical analysis of Buchanan and Tullock (1962, chapters 6 and 8) of the individual's choice among the various decision-making rules in order to determine the activities that shall be organized either privately or collectively, to the member state's choice of the decision-making rule that reduces his costs within international organizations. Our sample includes the United Nations (main bodies, other United Nations bodies, specialized agencies within the UN system) and major non-UN organizations[15], excluding purely regional IGOs. This analysis provides a better understanding of various formal voting procedures and how they function within IOs which are either one-nation, one-vote or weighted voting organizations. Our comparative analysis shows that most UN organizations have an egalitarian one-nation, one-vote rule while most major Non-UN organizations have a weighted voting rule. The adoption of a one-nation, one-vote rule in most UN organizations can be simply explained by the principle of the sovereign equality. On the other hand, the adoption of weighted voting in most Non-UN organizations can be explained by the recognition of the power of particular members. Furthermore, there is a roughly equal use of simple and special majorities in one-nation, one-vote organizations, while major weighted voting organizations have a more important use of special majorities as compared to simple majority. Just as the combination of a weighted voting rule with a simple majority may favor influential countries to the detriment of other states by giving them a veto over certain operations, the combination of a one-nation, one-vote rule with a high majority requirement may allow a small minority to block a decision.

[15] We follow the same classification of IOs as in the Europa Directory of International Organizations. (2008). Europa Yearbook. See the sample of IOs in Table 1. in Appendix 2.

INTRODUCTION

Since Koo's study (1947) of voting procedures in international political organizations, Cobanoglu's focus (1949) on voting procedures in IOs, Jenks's study (1965) of different modes of decisions in IOs, and Zamora's analysis (1980) of voting in international economic organizations, studies of formal voting rules across and within a large sample of international organizations were very rare in recent years. We can only mention the preliminary draft of Erica Gould (2007), wherein she presents a comparative analysis of formal voting rules across a sample of twelve IOs in order to examine when do voting procedures of IOs matter, and the preliminary draft of Daniel J. Blake and Autumn Payton (2008), that focuses on variation in voting procedures across 64 intergovernmental organizations (IGOs) with major power membership in order to study, as a first step, how the demand for conformity versus control of international institutions lead to the selection of voting rules in the formation of IGOs. Nowadays scholars are rather focusing on voting in specific IOs or in a very limited sample of IOs. The most studied international organizations are the UN, the IMF, the World Bank, the GATT/WTO and the European Union.

Our survey is mainly inspired by the work of Zamora (1980) and Koo (1947), yet, it differs from the previous studies by its comparative analysis of voting rules across and within a set of major IGOs. We also adapt and develop the theoretical analysis of Buchanan and Tullock (1962, chapters 6 and 8) of the individual's choice among the various decision-making rules in order to determine the activities that shall be organized privately and collectively, to the choice of the decision-making rule within international organizations that reduces member state's costs. Our sample of forty seven IGOs includes the United Nations (main bodies, other United Nations bodies, specialized agencies within the UN system) and major non-UN organizations[16], excluding purely regional IGOs and international non-governmental organizations (INGOs)[17]. This analysis provides a better understanding of various formal voting procedures and how they function within IOs which are either one-nation, one-vote or weighted voting organizations. It is mainly in terms of formal voting and the formal constitution as set in the Articles of Agreements and

[16] We follow the same classification of IOs as in the Europa Directory of International Organizations. (2008). Europa Yearbook. See the sample of IOs in Table 1. in Appendix 2.
[17] INGOs are legally constituted organizations by legal persons that are not part of any government and are not-for-profit (see the explanation in more details in section 3 below).

its amendments. Even if many decisions in IOs are made by informal voting (i.e. consensus), formal decision-making remain influential by having a crucial effect on member states to reach a consensus. Indeed, if all efforts to achieve a compromise fail, IOs must use the default formal voting rules. On the other hand, the latest G20 Summits (in London April 2, 2009 and Pittsburgh September 25, 2009), which have paid a particular attention to increase voting power of less developed countries in the IMF and World Bank, constitute a palpable proof that formal voting rules remain essential to the functioning of IOs, thus, enhancing the interest of our study.

Therefore, our chapter is organized as follows: the first section provides a review of the studies on voting procedures within international organizations. The second section represents a theoretical analysis of the member's choice among decision-making rules in international organizations (IOs). The third section represents the main types of (IOs) and explains the choice of our sample of IOs. The fourth section analyzes voting rules within IOs including unanimity; veto; abstention; one-nation, one-vote; weighted voting; simple and special majorities; and consensus. In the conclusion, we summarize and evaluate formal decision-making mainly in one-nation, one-vote and weighted voting organizations.

N.B: All the official sites of international organizations cited in our chapter were visited in the fall of 2009 and some of the data were updated in 2011.

1. REVIEW OF THE LITERATURE

The available works on structure of voting within international organizations are rare. Most of the existing ones are case studies focusing on a specific international organization. Moreover, we have little empirical knowledge on the impact of the structure of voting on the performance and functioning of international organizations.

Among studies on voting procedures within international organizations we distinguish the studies of Bruno Frey (1984). He showed that public choice theory provides not only a useful analysis on the consequences of decision rules in international organizations but it may also help in choosing the most advantageous voting rules (veto rule, voting in proportion to the financial contribution and preference-revealing mechanism)[18] for given circumstances. Frey (1991, p.74) also showed that from the point of view of an individual

[18] We will see these voting procedures in more details below.

country, the formal rules defining how decisions must be made within an international organization can have a significant effect on the expected costs of providing a public good[19].

Frey (1997) also analyzed the public choice of international organizations. He was interested in comparing voting rules in national policies and in international organizations. He discussed three primordial aspects concerning first, what kind of decision rule must be applied and for what kind of issue? He noticed that the voting rules in international organizations are very conservative. Second, within the majority rule the size of the majority has to be determined (Buchanan and Tullock 1962, Rae 1969). In this respect, the situation in a national polity differs significantly from the situation in an international organization. In fact, in national polity the citizens can exit with considerable cost but in international organizations member states can exit easily. Third, the voting rules have to specify the number of votes given to a member nation. The allocation of voting weights has a quite straightforward effect on the expenditure behavior of the members of an international organization (Frey and Gygi, 1991).

R. Smith (1991, p.50) studied the public choice analysis of international agreements. He focused on the principle that "decision rules matter". Indeed, decisions of a political body are determined by decision rules as well as the preferences of the decision-makers. Therefore, even if preferences remain the same, changes in decision rules will modify policy outcomes. The policies adopted by an international organization will depend on how the economic interests determining the policy positions of national representatives interact with the voting rules established by the agreements[20].

Smith (1991) studied also a public choice perspective of the International Energy Program. He did a review of the committee structure, voting rules and policy mechanisms of International Energy Agency (IEA). He demonstrated that from a public choice perspective, committee structure within IEA and voting rules are important aspects of governance structure. The committee structure decides how policy proposals are devised

[19] Law, order, institution of the state and national monetary institutions may be regarded as public goods (Frey, 1991, p.67-68).

[20] "Agreements include rules on how governing boards of international agencies will make substantive policy decisions, define the range of permissible agency policies, and specify general obligations of member countries" (Smith, R.T. (1991). Canons of Public Choice Analysis of International Agreements. In R.Vaubel and T. D. Willett (Eds.), *The Political Economy of International Organizations: A Public Choice Approach* (pp.204-244). Boulder, CO: Westview Press, p.46).

and how the agenda is set for decisions by the governing board. The voting rules allocate formal political power among member countries.

On the other hand, Frey and Gygi (1991, p.60) tried to determine the output of an international organization. They noticed that the performance of an international organization emerges from the action of the relevant decision makers[21]. An international organization's performance or output cannot be set by a planner. The only way to influence performance is to place the rules under which the interaction takes place (see Buchanan and Tullock 1962, or Buchanan 1977, Brennan and Buchanan 1986).

Since there is a very large distance between individuals and international organizations, the rules desired by delegates in order to bring about a desired performance of international organizations are largely different from the rules preferred by individuals (taxpayers and consumers) in order to bring about a desired behavior of the delegates. As a consequence, researchers should concentrate on how rules govern the behavior of the actors in international organizations (Frey and Gygi, 1991, p.75). Fratianni and Pattison (1991) defined the major output of international organizations as being the promotion of policy coordination using information as an input.

Ross D. Eckert (1991) analyzed the United States (U.S.) policy and the law of the Sea Conference (1969-1982) using a public choice perspective. He showed that the United Nations Conference on the Law of the Sea (UNCLOS), a highly political institution, offered more opportunities for the U.S. to lose through power plays than to advance through logrolling. The United States failed to advance its interests[22] through multilateral negotiations in a one-nation, one-vote rule in UNCLOS.

The International Monetary Fund (IMF) was subject to many case studies of public choice analysis. For example, Dennis Leech (2002) examined how the rules of the IMF and their implementation affect the voting power of its member countries and its ability to make decisions and proposals for changes. He noticed that in general in an organization

[21]Decision makers within international organizations are: directors and other groups of employees, the delegates (national representatives), the national finance ministries, national parliaments, interest groups, bureaucracies, individual voters and taxpayers (Frey, B.S. and Gygi, B. (1991). International Organizations from the Constitutional Point of view. In R.Vaubel and T. D. Willett (Eds.), *The Political Economy of International Organizations: A Public Choice Approach* (pp.58-78). Boulder, CO: Westview Press, p.64).

[22] From the standpoint of getting an economically satisfactory treaty.

whose system of governance involves weighted voting, a member's voting weight is different from the formal power it represents. He found that countries' voting powers over ordinary decisions are much more unequal than their financial contributions. Moreover, the special majority requirement of 85% for major decisions limits the effectiveness of the decision-making system.

Jacob S. Dreyer and Andrew Schotter (1980) analyzed the power relationships in the IMF and the consequences of quota changes. They showed that many amendments were offered to the IMF's members for ratification in order to make quota changes. They demonstrated, using some simple game theoretical tools, that in many cases these amendments and quota changes have achieved a result that may be exactly the opposite of their intentions. For example, under the proposed changes, the percentages of the total vote of 38 countries within the Fund have decreased and their voting power within the organization increased when power is measured by the Banzhaf power index[23]. They also noticed that the analysis of power relationships as reflected in power indices, even though it is limited in scope[24], appears to be obviously superior to contemplation of voting shares.

Axel Dreher and Nathan Jensen (2005) analyzed the impact of U.S. interests on IMF conditions. Their empirical results revealed that countries that vote with the U.S. in the United Nations (UN) General Assembly receive systematically less conditions on IMF loans. Thus, the relationship between IMF programs and democratic elections are equally simple. Prior to democratic elections, countries that are not strongly allied with the United States receive tighter conditions. The United States remains a dominant player in influencing IMF policy.

On the other hand, Randall G. Holcombe and Russell S. Sobel (1994) studied the stability of international coalitions in United Nations voting from 1946 to 1973. They noticed that even though several factors might make UN voting blocs less stable, the data suggest that from 1946 to 1973 UN voting blocs were relatively stable. There were no cycles in United Nations voting blocs.

---

[23] This result is due to the fact that the power of a member is not only dependent on the percentage of the total vote that he has, but also on the distribution of the remaining votes between the other n-1 voters (Dreyer, J.S. and Schotter, A. (1980). Power Relationships in the International Monetary Fund: The Consequences of Quota changes. *The Review of Economics and Statistics,* 62 (1), p. 101).

[24] Because equity or fairness cannot be reflected adequately by numbers (Dreyer and Schotter, 1980, p.105).

We also distinguish many public choice analyses on voting within European Union (EU). For instance, Sanoussi Bilal and Madeleine O. Hosli (1999) attempted to associate the industrial structure in the European Union to the coalition formation process between European member states. Using the Banzhaf power index, they adopted the standard interest group model and examined the structure of European industry[25] as an indicator of its lobbying influence on domestic politics and governments' preferences. On the basis of both weighted votes and coalition-formation in the Council, they derived estimates on members' relative influence within the council for different policy areas.

Dennis Leech (2002) examined, from the perspective of enlargement of the European Union, the system of qualified majority voting used by the Council of EU. He analyzed first the question of the voting power of member countries from the standpoint of fairness. Second, he analyzed how the threshold number of votes required for qualified majority voting should be determined. He found that the weights stipulated in the Nice Treaty were close to being fair and that the threshold required for a decision was set too high for the Council to be an effective decision making body.

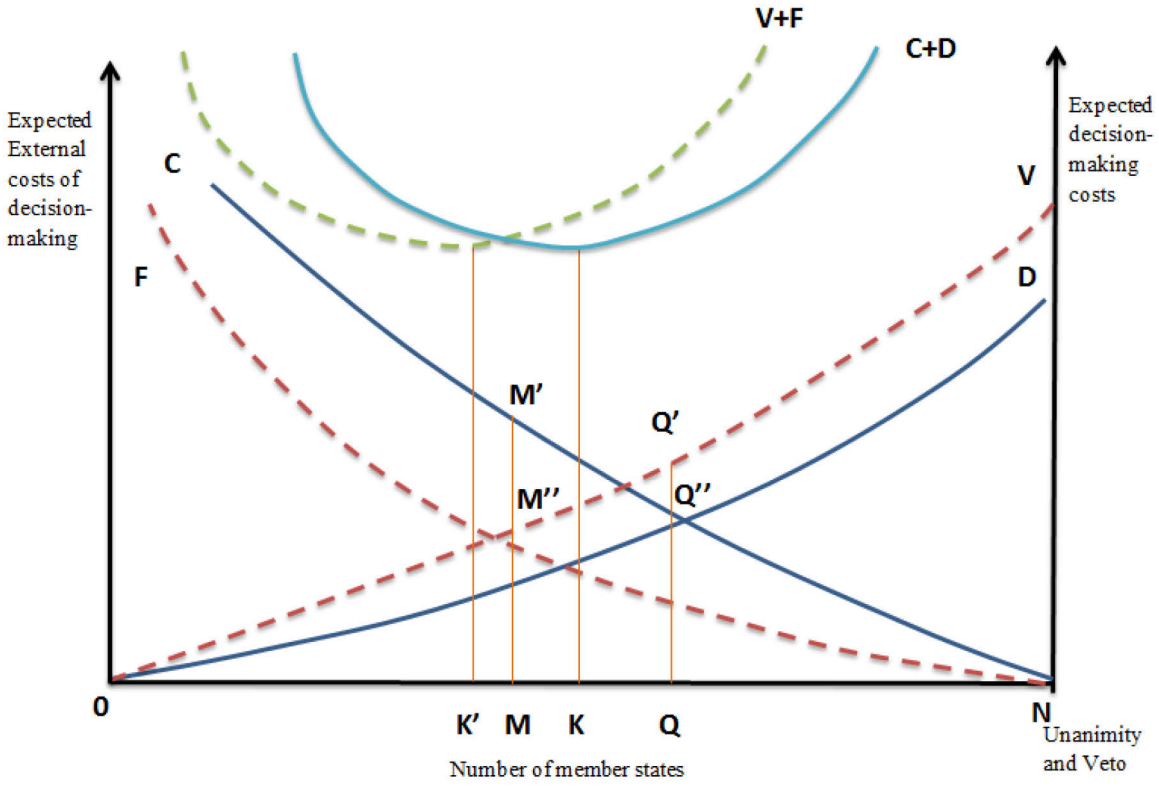
Domenico Da Empoli (2000) analyzed the structure and functions of a new international organization, the International Sea-Bed Authority, established in 1994. For a better understanding of how the Sea-Bed works and its mechanisms, Da Empoli analyzed the evolution of its decision making system. He explained the changes and improvements in the decision making process in order to protect the interests of the major contributors of the International Sea-Bed Authority.

Finally, Zamora (1980) provided an interesting survey on decision making within international economic organizations. He showed that there are many options in the way decisions are to be taken within an international organization.

[25] Mainly in terms of industrial concentration in the EU.

2. MEMBER'S CHOICE AMONG DECISION-MAKING RULES WITHIN INTERNATIONAL ORGANIZATIONS

Figure 1.1



In this section, as we have mentioned above, we adapt and extend the work of Buchanan and Tullock (1962, chapters 6 and 8) on individual's choice among decision-making rules to determine the activities that shall be organized privately and collectively, to an individual member state in international organizations who shall choose the decision-making rule that reduces his external costs.

The external-costs function in Figure 1.1 represents, for a member state with respect to a single activity, the relation between the costs that he expects to endure as a result of the actions of others and the number of member states who are required to agree before a final decision is taken for the group. This function can be written as follows:

$$C_i = f(N_a),\ i = 1,2,\ldots,N \text{ and } N_a \leq N$$

Where C_i is the present value of the expected costs on the i th member state by the actions of member states other than him, and where N_a is defined as the number of member states,

out of the total group N, who are required to agree before final decision is taken. N is reached under unanimity rule where all members should vote, therefore, every member has a veto power.

This function is represented geometrically in the Figure 1.1 (Curve C). On the ordinate we measure the present value of the expected external costs; on the abscissa we measure the number of member states required to agree on decision. This curve slope downward through - out most of its range, reaching zero at a point representing the consent of all members of the organization.

As we move to the right from point C in Figure 1.1, the net external costs expected by the individual tend to fall. These costs vanish only with the rule of unanimity.

On the other hand, the expected costs of decision-making increase as the size of member states required to agree increases. As unanimity is approached, the situation becomes radically different from that existing through the range of less inclusive rules[26]. At the lower levels there is little real bargaining. If one member of a potential agreement asks for exorbitant terms, the other members simply turn to someone else. As unanimity is approached, however, this convenient becomes more and more difficult. Individual investment in strategic bargaining becomes highly rational, and the costs imposed by such bargaining are likely to be high. With the most inclusive decision rule, unanimity, each voter is a necessary party to any agreement. Since each voter, then, has a monopoly of an essential resource (that is, his consent), each member state can aim at obtaining the entire benefit to agreement for himself.

Thus, our bargaining-cost function operates in two ranges: in the lower reaches it represents mainly the problems of making up an agreed bargain among a group of people, any one of whom can readily be replaced. Here, as a consequence, there is little incentive to invest resources in strategic bargaining. Near unanimity, investments in strategic bargaining are apt to be great, and the expected costs very high.

The decision-making-costs can be written as follows:

$$D_i = f(N_a),\ i = 1,2,\ldots,\ N \text{ and } N_a \leq N$$

[26] Less inclusive rules should not be inferior to a simple majority of 50% in order to avoid cycles.

where D_i represents the present value of those costs that i th individual is expected to incur while participating in the whole set of collective decisions defined by a single "activity". Curve D illustrates the relationship geometrically.

By employing the C_i and D_i functions, each of which relates expected costs of each member to the number of members in an international organization required to agree before a decision is made for the group, we are able to discuss the member state's choice of rules. These may best be defined in terms of the proportion of the total group that is to be required to carry a decision. For a given activity the fully rational member state tries to choose that decision-making rule which minimizes the present value of the expected that he must suffer. He does so by minimizing the sum of the expected external costs and expected decision-making costs, as we have defined these separate components. Geometrically, we add the two costs functions vertically. The "optimal" or most "efficient" decision-making rule, for the member state whose expectations are represented and for the activity or set of activities that he is considering, is that shown by the lowest point on the resulting curve (C+D).

Thus, the member state chooses the rule which requires that K/N of member states agree when decisions are made. By agreeing to more inclusive rules, he is accepting the additional burden of decision-making in exchange for additional protection against adverse decisions. In moving in the opposing direction toward a less inclusive decision-making rule, the member state is trading some of his protection against external costs for a lowered cost of decision-making.

The V curve shows that under the unanimity rule where the consent of all member states is required, the expected costs of decision-making to each country rise with the size of the international organization. Therefore, QQ' represents the expected costs of unanimous agreement among an international organization of Q member states, and NN' are the expected costs of unanimous agreement obtained among N member states.

On the other hand, the D curve represents the relation of the expected costs of decision-making, to a country, with the number of member states, out of an international organization of N member states, who are required to consent by various decision-making rules before choices are adopted for the whole group. Therefore, QQ'' constitutes the expected costs of obtaining the agreement of a given percentage (Q/N) of the specified group of member states N. At point N the two curves take on identical values. For any size

of international organization there may be derived a decision-rule curve similar to the unique curve D drawn with respect to an international organization of size N. We should note that, for any international organization, the D curve rises as the proportion of the group required for decision increases. The D curve lies beneath the unanimity curve V and D rises less rapidly than V until N is approached. In fact, the D curve does not rise as fast as the V curve because the use of less-than-unanimity rules sharply limits the benefit of member state investment in strategic bargaining. The D curve increases as the proportion of member states required for decision rises. In sum, the V and D curves rise because the cost of securing consent within the decision-making group, rise as the size of the international organization increases.

The F curve where the unanimity rule is required shows that the expected external costs to each member state decrease with the increasing size of the international organization. Thus, MM" represents the expected external costs of unanimous agreement among M member states. The C curve (as we have seen above) represents the relation of the expected external costs, to a member state in an international organization, with the number of countries who are required to agree by different decision-making rules before decisions for the whole group are made. Thus, MM' constitutes the expected external costs of having the consent of a given M members. The C curve remains above the unanimity curve F and C decreases less rapidly than F until N is approached. Actually, the C curve does not decrease as fast as the F curve because the use of less-than-unanimity rules severely limits the decrease in expected external costs for a member state that bears the action of others. Finally, both curves C and F decrease because the external costs of decision-making diminish with the rising size of the international organization.

The V+F unanimity curve compared to less-than-unanimity curve C+D shows higher expected costs of decision making with the increasing size of the international organization and lower expected external costs with decreasing size of the international organization. The member state of an international organization with K' members minimizes simultaneously, under unanimity rule, his expected costs of decision-making and his expected external costs.

3. TYPES OF INTERNATIONAL ORGANIZATIONS

There are two main categories of International organizations: intergovernmental organizations and nongovernmental organizations.

- Intergovernmental organizations (IGOs) have national governments as members. Membership can fluctuate from at least two member nations to almost all nations. For instance, the United Nations and its various agencies are IGOs. So are most of the world's economic coordinating institutions, such as the World Bank, the International Monetary Fund (IMF), the World Trade Organization (WTO) and the Organization for Economic Co-operation and Development (OECD). Furthermore, The Organization of Petroleum Exporting Countries (OPEC) which seeks to coordinate the production and pricing policies of its member states is an IGO. So is the International Atomic Energy Agency (IAEA) which works with its member states and multiple partners worldwide to promote safe, secure and peaceful nuclear technologies[27]. Moreover, military alliances, such as the North Atlantic Treaty Organization (NATO), and political groupings, such as the African Union and the Arab League, are also IGOs[28]. The number of IGOs, as we have seen above, is about 244 by 2007.

- International Nongovernmental organizations (INGOs) are private organizations created by natural or legal persons with no participation or representation of any government. NGOs' memberships and activities are international in scope. They do not possess the legal status of national governments. Nevertheless, the United Nations and other international forums identify many NGOs as important political institutions. NGOs include for instance Greenpeace, Doctors Without Borders (Médecins Sans Frontières), the Roman Catholic Church and the International Olympic Committee[29]. The number of NGOs, as we have seen above, is about 7,432 by 2007.

This chapter considers a range of forty seven major global intergovernmental organizations (IGOs) with broad aims including UN-organizations and major Non-UN

[27] http://www.iaea.org/About/index.html.
[28] http://encarta.msn.com/encyclopedia_761590313/international_organization.html
[29] http://encarta.msn.com/encyclopedia_761590313/international_organization.html

organizations. We exclude regional IGOs[30] in order to have a homogenous sample. Furthermore, the sample of IOs included in our study is chosen according to the database[31] that we were able to compile from the rules of procedure, articles of agreements and the annual reports of each IO and across many years. We use the *Europa Directory of International Organizations, 2008,* as an essential guide to have a better understanding of IOs and in order to select our draft sample. The bulk of this chapter is descriptive, comparing the decision-making practices across and within these international organizations rather than focusing on a single one.

Thus, in the following section we compare international organizations' modes of decision whose tend to fall into at least one of these categories:

1. Unanimity
2. Veto
3. Abstention
4. One-nation, One-vote
5. Weighted Voting
6. Simple and Special majorities
7. Consensus

[30] Our sample excludes regional IGOs, except the regional development Banks which are Multilateral Development Banks (MDBs). The MDBs are institutions providing financial support and professional assistance for economic and social development in developing countries. The term MDBs typically refers to the World Bank, the Inter-American, Asian and African Development Banks. These financial banks are characterized by a broad membership including regional and non-regional members. The MDBs maintain a high level of cooperation. See in http://web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/0,,contentMDK:20040614~menuPK:41699~pagePK:43912~piPK:44037~theSitePK:29708,00.html

[31] The database includes: Structure of voting, Revenue, Expenditure, Budget, Increase in Employees, and Member States Contribution shares within each International Organization. In this chapter, we will only be limited to the structure of voting and in the next chapter we will use the whole database.

4. VOTING RULES WITHIN INTERNATIONAL ORGANIZATIONS

4.1 Unanimity

The rule of unanimity gives each member state of an international organization a *liberum* veto over decisions. Therefore, the principle of unanimity requires that international decisions shall be taken by mutual agreement of all the participants[32], and no state could be bound without its approval[33]. Indeed, decisions must be binding on all the members or none at all[34]. The formal adoption of the unanimity rule was accepted up until 1914, while frequently violated in practice[35].

In the early days of the League of Nations, the Covenant proclaimed that decisions must be taken by unanimous consent. However, the rule of unanimity was gradually relaxed. In fact, all the important questions within the League of Nations were decided according to the unanimity rule, but procedural matters were taken according to the majority rule[36]. The General Agreement on Tariffs and Trade (GATT) also applied the rule of unanimity for its basic rules[37].

The advantage of the unanimity rule subsists in the protection of the small powers against excessive influence by the big powers, and in the protection of the big powers from adopting decisions which they disapprove[38]. Buchanan and Tullock (1962, p.88) assumed that if total costs of organizing decision-making were absent, the external costs from collective action estimated by the individual (member state or country) could be reduced significantly only under the rule of unanimity. The latter necessitates the agreement of all members of the group (of the international organization) prior to action. If it is accepted that net external costs are minimized to negligible proportions by the rule of unanimity, the

[32]Jenks, W.C. (1965). Unanimity, the Veto, Weighted Voting, Special and Simple Majorities and Consensus as Modes of Decision in International Organizations. In *Cambridge Essays in International Law: Essays in Honour of Lord McNair* (pp.48-63). London/New York., p.25.
[33]Zamora, S. (1980). Voting in International Economic Organizations. *American Journal of International Law,* 74, p.571.
[34]Koo, W. J. (1947). *Voting Procedures in International Political Organizations*. New York: Columbia University Press, p.17.
[35] Koo, 1947, p.12.
[36] Jenks, 1965, p.25.
[37] Zamora, 1980.
[38] Messner, M. and Polborn, M.k. (2004). Voting on Majority Rules. *The Review of Economic Studies,* 71(1), 115-132.

rational individual should always support the requirement of unanimous consent to make decisions.

External costs (as we have seen before) are defined by Buchanan and Tullock (1962, p.89) as being intrinsic in the process of any collective decision-making rule except for unanimity rule. In fact, external costs are obvious under majority voting since the minorities of voters are obliged to consent on decisions which they cannot prevent and which they are unable to ask for compensation for the resulting damages. However, the existence of external costs encourages affected individuals (member states) to develop mutually advantageous "bargains" or "trades" (Buchanan and Tullock , 1962, p.90). On the other hand, the fact that the rule of unanimity eliminates external costs does not imply that the utility of each member (member state of the international organization) rises (Buchanan and Tullock, 1962, p.91).

On the other hand, the unanimity rule is not practical to meet urgent problems. It proved to be a considerable weight to fast and effective action[39]. Thus, it slows down the functioning of an international organization and the strength of a decision must be diluted so as to satisfy everyone and to reach unanimous agreement[40]. Moreover, "a proposal benefiting all may be strategically "vetoed" by those seeking a greater share of the gains from collective action" and the status quo is extremely privileged (Mueller, 1979, p.86).

The welfare-political-economist approach shows that a single decision is Pareto-optimal only if all parties (member states) reach agreement. Though, negotiating and bargaining necessary to reach full agreement may be rather costly (Buchanan and Tullock, 1962, p.94). Each individual (member state) seeks his own utility and try to expand investment in decision-making to the point where the marginal benefits do not surpass the marginal costs (Buchanan and Tullock, 1962, p.98). The other rules of decision-making are established as variants from the unanimity rule. These variants do not provide 'better' collective decisions but are used to minimize the costs involved in reaching decisions unanimously (Buchanan and Tullock , 1962, p.96). Consequently, with the creation of the UN system, the unanimity rule has gradually been abandoned in favor of majority rule. The first IOs which started leaving the rules of unanimity and sovereign equality[41] were the international technical unions of the late 19th century, like the Universal Postal Union and the

[39] Koo, 1947, p.21.
[40] Zamora, 1980, p.574.
[41] The principle of sovereign equality supposes the adoption of a one-nation, one-vote system.

International Telegraph Union. However, "unanimity rule is still applied, either exclusively or partially, in a number of organizations of limited membership"[42], for instance, the Organization for Economic Co-operation and Development (OECD), the North Atlantic Treaty Organization (NATO) and the League of Arab States[43].

4.2 Veto

Veto is a Latin word meaning "I forbid". It denotes the power that blocks unilaterally a decision. In practice, the veto can be explicit (as in the UN Security Council whose permanent members can stop any decision) or implicit (as in the United States legislative process, where a presidential veto can be override by a two-thirds majority in both the House and Senate)[44]. In its origin the veto was a compromise in order to release the action of the United Nations from the heavy weight of unanimity which had limited the effective action of the League of Nations[45]. The UN Security Council (UNSC) veto was established at the Yalta Conference, 4-11 February 1945, to protect its founding members from any future operation against them[46]. The exercise of the veto was decisive in the actions of the UNSC. In fact, the veto is exercised when any of the five permanent members of the UNSC (the United States, Russia, the People's Republic of China, France and the United Kingdom) casts a "negative" vote on substantive matters, though not on procedural ones. Within the UNSC, resolutions except procedural ones require the consent of nine members, including the concurring votes of the permanent members. Only the five permanent members of the UN Security Council can take advantage of the veto power, because it prevents any military action without their approval.

Nevertheless, the disadvantage of the veto power is that it paralyzes the effective action of the Security Council especially during the cold war. Actually, by 1947 the Western states failed to pass resolutions[47] through the Security Council since it was vetoed by the Soviet Union. This situation lasted until well into the 1980s[48]. In fact, since the creation of the Security Council until 2007, the veto has been used as follows: 123 times by Russia/Soviet Union, 82 times by the United States, 32 times by the United Kingdom, 18

[42] Zamora, 1980, p.574.
[43] However, the last 2 regional organizations will not be included in our study.
[44] http://en.wikipedia.org/wiki/Veto
[45] Jenks, 1965, p.24.
[46] http://en.wikipedia.org/wiki/United_Nations_Security_Council_veto_power
[47] Especially concerning the admission of new members to the United Nations.
[48] Europa Directory of International Organization. (2008). Europa Yearbook, p.4.

times by France, and 6 times by China. Thus, the Soviet Union has exercised almost the half the vetoes and most of them in the first ten years of the establishment of the Security Council. The United States, on the other hand, has most frequently exercised its veto power since shortly before the fall of the Soviet Union in December 1991. Since 1984, the United States has vetoed 43 resolutions against 10 for the United Kingdom, 4 for Russia/Soviet Union, 3 for China, and 3 for France[49]. The misuse of the right of veto by the permanent members violates the principle of equality of states and especially of small states[50].

Many other international organizations use also the veto power. For example, in the World Bank and the International Monetary Fund (IMF), the United States has a veto over important decisions which require 85% of the voting power. Actually, in 2008, the United States holds 17,20% of the IMF vote share at the Board of Governors and after the entry into effect of the 2008 amendment on voice and participation on March 3, 2011, its voting share increases to 17,84%[51], while it holds currently 16%[52] of the World Bank vote share (which was 16,38%[53] in 2008) after the reform of 2009. Hence, the US with the largest share of votes can exercise a veto. Moreover, the most important decisions in the Inter-American Development Bank (IADB) require a three-fourth special majority and the United States with 30%[54] of voting share has a substantial veto power. The International Commodity Agreements and Organizations which include the International Natural Rubber Agreement, the International Coffee Organization, the International Grains Agreement, the International Sugar Organization, and the International Cocoa Organization, have similar voting structures and provide also a veto right. In fact, the exporting and importing groups have an initial distribution of one thousand votes each and a weighted distribution of votes in proportion to the percentages of exports or imports within each group. Decisions in each

---

[49] http://en.wikipedia.org/wiki/United_Nations_Security_Council

[50] Cobanoglu, R. (1949). *L'Evolution récente de la notion de souveraineté et les procédures de vote dans les organisations internationales*. Thèse de droit, Paris, p.137.

[51]International Monetary Fund. (2011). *IMF Members' Quotas and Voting Power, and IMF Board of Governors,* 'http://www.imf.org/external/np/sec/memdir/members.aspx

[52]International Bank for Reconstruction and Development. (2011). *International Bank for Reconstruction and Development Subscriptions and Voting Power of Member Countries.* Corporate Secretariat.

[53]International Bank for Reconstruction and Development. (2008). *Financial Statements and Internal Control Reports.* P.57.

[54] Inter-American Development Bank. 2008. *Annual Report.* P.44, http://idbdocs.iadb.org/wsdocs/getdocument.aspx?docnum=1924316

group require simple majority or two-third special majority to be adopted. The weighted voting assigns important producers and consumers a veto power over resolutions[55].

4.3 Abstention

The word abstention means that a voter does not cast a vote. The abstention is not considered as a negative or positive vote. It is not a "Blank vote" either. In the latter case, the participant casts a vote even if it was a "white" or an illegitimate one (e.g. drawing pictures on the ballot, etc…)[56]. In fact, the abstention even by a permanent member does not block a resolution favored by the other members[57], which is the opposite of the veto power. For instance, in the Security Council, the abstention by one or more of its members (even permanent members) is not admitted as a negative vote[58]. Thus, the abstention is a favorable and appropriate solution to free the action of the Security Council. In the International Monetary Fund (IMF), when decisions adopted are calculated according to the "majority of the votes cast", abstentions (i.e. votes not cast) are excluded from the calculation and are not considered as negative votes. However, since decisions adopted by a special majority are counted in accordance with the "total voting power" of the Fund (as compared to the number of "votes cast"), abstentions are treated as negative votes[59].

4.4 One-nation, One-vote

The concept of one-nation, one-vote was best known since the establishment of the first international organizations in the 19th century such as the International Telegraph Union (ITU) (later the International Telecommunication Union)[60] in 1865, the General Postal Union (which became later, in 1878, the Universal Postal Union (UPU)) in 1874 and the League of Nations, the main international organization that emerged from Versailles Peace

---

[55] Zamora, 1980, p.582. Also, see articles 10 and 12 in http://untreaty.un.org/unts/144078_158780/4/2/12119.pdf; Articles 14 and 17 in http://www.fco.gov.uk/resources/en/pdf/3706546/3892733/4190568/4379193/Com2; Articles 12, 14 and 15 in http://www.igc.org.uk/en/downloads/brochure/iga1995.pdf; Moreover, see http://www.ico.org/governance_e.asp?section=About_Us

[56] http://en.wikipedia.org/wiki/Abstention

[57] http://en.wikipedia.org/wiki/United_Nations_Security_Council_veto_power

[58] http://untreaty.un.org/cod/repertory/art27/english/rep_supp1_vol1-art27_e.pdf , p.272.

[59] International Monetary Fund. (2009). *IMF Governance – Summary of Issues and Reform Options*. Prepared by the Strategy, Policy, and Review Department and the Legal Department of the IMF. P.16.

[60] At Madrid Conference in 1932, the International Telegraph Convention of 1865 was combined to the International Radiotelegraph Convention of 1906 to form the new International Telecommunication Union. In http://www.itu.int/en/about/Pages/history.aspx

Conference in 1919. The one-nation, one-vote principle is associated with the principle of equality of independent states[61] "by giving equal votes to all states regardless of size or influence and by requiring unanimity for important decisions"[62]. Therefore, the one-nation, one-vote principle has gained a lot of interest and importance especially among developing countries. However, the main disadvantage of the one-nation, one-vote procedure is that it generally gives privileges and power to small countries over biggest countries.

The one-nation, one-vote rule is applied in many international organizations as in the UN Security Council (principal organ of the United Nations, concerned with the maintenance of international peace and security) where each member has one vote. Decisions of the Security Council on procedural matters are taken by an affirmative vote of at least nine out of fifteen members of the Council. Decisions on substantive matters are made by an affirmative vote of nine, including the concurring votes of the five permanent members (China, France, Russian Federation, the United Kingdom, and the United States). The approval of all five permanent members on important matters refers to the veto power[63], as we have discussed before. Also, each member of the UN General Assembly (UNGA) (the main "deliberative, policymaking and representative organ in the UN", established in 1945)[64], the UN Economic and Social Council (ECOSOC) (one of the principal organs of the UN, coordinating economic, social and related work of all UN agencies)[65] and the Trusteeship Council (one of the main organs of the United Nations, established to supervise the decolonization of those dependent territories placed under the international trusteeship system)[66] has one vote, and we will see in the next section more details on voting within each Council. For the Assembly[67] and the Council[68] of the International Seabed Authority (ISA), the rule of one-nation, one-vote is applied. The ISA is an autonomous international organization related to the United Nations, it exists since 1994 and was established under the 1982 United Nations Convention on the law of the sea[69]. The United Nations Conference on Trade and Development (UNCTAD) is a subsidiary organ of the UN General Assembly established in 1964, it supports the

[61] Jenks, 1965, p.52.
[62] McIntyre, 1954, p.485.
[63] http://www.un.org/sc/members.asp
[64] http://www.un.org/ga/about/background.shtml
[65] www.un.org/ecosoc/about/
[66] http://en.wikipedia.org/wiki/United_Nations_Trusteeship_Council
[67] http://www.isa.org.jm/files/documents/EN/Regs/ROP_Assembly.pdf, p.15.
[68] http://www.isa.org.jm/files/documents/EN/Regs/ROP_Council.pdf, p.15.
[69] http://www.isa.org.jm/en/about

development and the integration of developing countries into the world economy[70]. It privileges the equality of states and thus each member has one vote. The UNCTAD is characterized by a bloc voting and is conceived as a "developing country institution" since least developed countries (Group 77) owe the largest majority[71].

In the International Civil Aviation Organization (ICAO), a major agency of the United Nations drawn up in 1944 and ensuring safety through joint aviation regulation, each contracting state represented by an accredited delegation shall have one vote[72]. The ICAO cooperates closely with the International Telecommunication Union (ITU "is the leading UN agency for information and communication technology issues")[73], the Universal Postal Union (UPU "coordinates postal policies among member nations, and hence the worldwide postal system")[74], the World Meteorological Organization (WMO, established in 1950, promotes the international cooperation for the development of "meteorology (weather and climate), operational hydrology and related geophysical science")[75], the International Maritime Organization (IMO was adopted in Geneva in 1948 and it first met in 1959. IMO's main task consists in improving safety and preventing pollution from ships)[76] and the World Health Organization (WHO founded in Geneva in 1948, seeks to fight disease and to promote the general health of the people of the world)[77]. These organizations are specialized and technical agencies of the United Nations, their main governing bodies follow the same one-nation, one-vote rule as the UN[78]. The International Labor Organization (ILO), established in 1919 and dealing with labor issues by seeking social justice and decent treatment of working people[79], is the only "tripartite" United Nations agency. "It brings together representatives of governments, employers and workers to jointly shape policies and programmes"[80]. The main bodies of the ILO are the Secretariat, the Governing Body and the International Labor Conference. Each member state is represented by two governments' delegates, one worker and one employer delegate. All

[70] http://www.unctad.org/Templates/Page.asp?intItemID=1530&lang=1
[71] Zamora, 1980, p.580. Also See Veschraegen, B. and Rheinstein, M. (2004). *International Encyclopedia of Comparative Law,* part 5, p.35.
[72] http://www.icao.int/icaonet/dcs/7600/7600_3ed.pdf
[73] http://www.itu.int/net/about/index.aspx
[74] http://en.wikipedia.org/wiki/Universal_Postal_Union
[75] http://www.wmo.int/pages/about/index_en.html
[76] http://www.imo.org
[77] http://en.wikipedia.org/wiki/World_Health_Organization
[78] http://www.un-ngls.org/orf/documents/publications.en/ngls.handbook/2intro.htm
[79] http://www.ilo.org
[80] http://www.ilo.org/global/About_the_ILO

countries have equal voting power. Employer and worker delegates vote according to instructions given by their organizations, they are free to vote against each other or even against their government delegates[81].

On the other hand, in order to ensure a balance of interests in organizations based on equal voting, differences of power between member states are recognized by allotting certain members permanent representation on the executive organ. This is the case of ILO Governing Body in which ten states[82] of "chief industrial importance" hold permanent seats. This pattern is also recognized in the ICAO, IMO and the International Atomic Energy Agency (IAEA a specialized agency in the UN established in 1957, promotes safe, secure and peaceful nuclear technologies)[83]. The remaining representatives are selected regarding an equitable geographical distribution[84] (Zamora, 1980, p. 598). The geographical distribution applies also, as Zamora has shown, to the WHO, the WMO and the United Nations Educational, Scientific and Cultural Organization (UNESCO established in 1945, contributes to peace and security by promoting international cooperation through education, science and culture)[85]. The latter organizations are specialized agencies in the UN and use the one-nation, one-vote rule[86].

Furthermore, the Organization for Economic Co-operation and Development (OECD superseded officially in 1961 to the Organization for European Economic Co-operation created in 1948. It deals with economic, environmental and social issues)[87] and the Organization of the Petroleum Exporting Countries (OPEC created in 1960, coordinates and unifies petroleum policies among member countries)[88] also use equal voting in their decision-making. Finally, the General Agreement on Tariffs and Trade/World Trade Organization (the WTO established at the end of the Uruguay Round in 1995, replacing its

---

[81] http://www.ilo.org/global/About_the_ILO
[82] Brazil, China, France, Germany, India, Italy, Japan, the Russian Federation, the United Kingdom, and the United States.
[83] http://www.iaea.org/About/index.html
[84] The basis of calculation of an "equitable geographical distribution" differs widely between the international organizations concerned. The principle of an "equitable geographical distribution" is intended to create a balance between the various geographical regions. The share received by each region is in proportion of the number of countries existing in the respective region. For this reason, this approach is based on the principle of equality of states. See Wolfrum, R. (1997). The Protection of Regional or other Interests as Structural Element of the Decision-Making Process of International Organizations. In *Max Planck Yearbook of United Nations Law*, 1, p.270.
[85] http://en.wikipedia.org/wiki/UNESCO
[86] http://www.un-ngls.org/orf/documents/publications.en/ngls.handbook/2intro.htm
[87] http://en.wikipedia.org/wiki/Organization_for_Economic_Co-operation_and_Development
[88] http://www.opec.org/aboutus/history/history.htm

predecessor the GATT which began in 1947. It deals with the rules of trade between nations)[89], which cooperates with the UN but is not officially a part of it, follows the one-nation, one-vote principle.

4.5 Weighted Voting

Weighted voting is a concept known before 1914. It was used in the International Hydrographic Bureau, the International Institute of Agriculture and the International Office of Public Health, among others[90]. There are different types of weighted voting since "weighted voting structures differ according to the criteria selected for weighting" (Zamora 1980, p.593). The first type consists of allocating votes according to the financial contributions or subscriptions to the capital of member states, such as in Bretton Woods agencies and the financial specialized agencies of the United Nations (IMF, World Bank, International Finance Cooperation and International Development Association). The second type consists of allocating votes according to the activity; for instance, the relative volumes of exports and imports, such as in the International Commodity Agreements Councils. The third type consists of allocating votes according to the resources as in the General Assembly of the International Union of Railways where votes are distributed proportionally to the total kilometers of railway lines operated by each member administration (Zamora 1980, p.593). The fourth type requires the allocation of vote proportionally to the size of the population as in the European Union (EU).

The advantage of weighted voting is that it can be a pertaining rule when applied in organizations with precise functions agreed by their members and requiring their support. "Weighted voting can be a relatively simple and effective device"[91] in such organizations where interests and responsibilities of the members are not shared equally. Thus, members with greater obligations are able to defend their interests (Zamora 1980, p.592).

However, developing adequate and logical criteria for weighted voting regarding the varied functions of international organizations is very complicated and difficult (Jenks

[89] http://www.wto.org/english/thewto_e/whatis_e/whatis_e.htm
[90] Jenks 1965, p.52.
[91] McIntyre 1954, p.492.

1965, p. 52-53). Moreover, weighted voting has long been criticized for deviating from the concept of the sovereign equality of states[92].

Thus, weighted voting is devised in a limited number of international organizations. For instance, the International Monetary Fund (IMF), a financial institution of the United Nations established in 1944 at the Bretton Woods monetary Conference in order to "foster global growth and economic stability"[93], applies weighted voting in its decision-making process. Each member is assigned a quota[94] - based on its relative size in the world economy - which determines its voting power in IMF decisions. Therefore, the basic votes prior to the current reforms have been fixed at 250 per member (1.96% of total votes) plus one additional vote for each part of its quota equivalent to one hundred thousand special drawing rights (SDR)[95]. Accordingly, developed countries were holding 60.6% of IMF voting rights while developing and emerging countries were holding 39.4% of voting share (Table1.2, appendix 1). After the current Fund reforms, the basic votes will be 750 per member which constitute 5.502% of total vote and the voting weight of developing and emerging countries would increase by 2.7% to stand at 42.1% while voting weight of developed countries would decrease to stand at 57.9% of total votes (Table 1.2 , appendix 1). Under these reforms, Basic votes will not be fixed as a specified number but as a percentage of total votes[96]. In the next section, we will study the majority voting required to make decisions.

---

[92] McIntyre 1954, p.485.

[93] http://www.imf.org/external/about/overview.htm

[94] A member's quota subscription determines the maximum amount of financial resources the member must pay in full upon joining the Fund. The amount to be paid is up to 25 percent in SDRs or in one of the four key international currencies, while the rest is paid in the member's own currency. "The newly agreed quota formula is a weighted average of GDP (weight of 50 percent), openness (30 percent), economic variability (15 percent), and international reserves (5 percent). For this purpose, GDP is measured as a blend of GDP on market exchange rates (weighted of 60 percent) and on PPP exchanges rates (40 percent). The formula also includes a "compression factor" that reduces the dispersion in calculated quota shares members". See in http://www.imf.org/external/np/exr/facts/quotas.htm

[95] "The SDR is an international reserve asset, created by the IMF in 1969 to supplement its member countries' official reserves". Its value is based on a basket of four main international currencies (Euro, Japanese Yen, Pound Sterling and US Dollars). On September 9, 2009 the amount of SDRs increases from SDR 21.4 billion to SDR 204.1 billion (currently equivalent to about $317 billion). See in http://www.imf.org/external/np/exr/facts/sdr.htm

[96] World Bank Development Committee Meeting. (2008). *Enhancing Voice and Participation of Developing and Transition Countries in the World Bank Group: Options for Reform*, report prepared by the staff of the World Bank, p.6.

The World Bank, founded in 1944 at the Bretton Woods Conference in order to provide financial[97] and technical assistance to developing and countries in transition, has expanded from a single institution (the International Bank for Reconstruction and Development (IBRD)) to a closely associated group of five development institutions with the International Development Association (IDA)[98], the International Finance Corporation (IFC)[99], the Multilateral Investment Guarantee Agency (MIGA)[100] and the International Center for the settlement of Investment Disputes[101] (ICSID)[102]. The World Bank voting system is identical to the IMF (except for the greater use of high majority requirements in the IMF agreement). Fundamental decisions in the World Bank are made by the Board of Governors[103]. In fact, each member state is represented by a Governor who has 250 votes "plus one additional vote for each share it holds in the Bank's capital stock"[104]. Since 1979, each member was also able to subscribe to an additional 250 shares of the Bank stock. "There is a consensus at the Bank that the level of Basic Votes should be increased and that the increase should take the form of specifying Basic Votes as a percentage of total votes, as in the Fund". Currently, voting power of developed countries, using the World Economic Outlook (WEO) classification, is 57.4% of the World Bank voting share (Table 1.2, appendix 1)[105].

Weighted voting also is applied in the International Fund for Agricultural Development (IFAD), founded in 1977 in order to fight rural poverty in developing countries through low-interest loans and direct assistance[106]. The decision-making process in the IFAD is influenced by bloc voting. A set of 1800 votes is divided equally into three groups or

---

[97] Long-term with low-interest loans.
[98] The main task of IDA is to lend the poorest developing countries on lenient terms.
[99] Established in 1956, it facilitates the financing of privately-owned enterprises.
[100] An independent agency set up in 1988 to insure eligible projects against non-commercial losses. See http://www.miga.org/guarantees/index_sv.cfm
[101] http://web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS
[102] "ICSID is an autonomous international institution established under the Convention on the Settlement of Investment Disputes between States and Nationals of Other States. Each member state to the Convention is equally represented in the institution and there is no shareholding". See supra note 2, in World Bank Development Committee Meeting. (2008). *Enhancing Voice and Participation of Developing and Transition Countries in the World Bank Group: Options for Reform*, report prepared by the staff of the World Bank, p.5.
[103] Wolfrum, R. (1997). The Protection of Regional or other Interests as Structural Element of the Decision-Making Process of International Organizations. In *Max Planck Yearbook of United Nations Law*, 1, p.266.
[104] http://web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS
[105] World Bank Development Committee Meeting. (2008). *Enhancing Voice and Participation of Developing and Transition Countries in the World Bank Group: Options for Reform*, report prepared by the staff of the World Bank, p.6.
[106] www.ifad.org

blocs: 600 votes to OECD countries (Category I), 600 votes to OPEC countries (Category II) and 600 votes to developing countries (Category III). Within the groups, the distribution of votes is different. The developed and OPEC countries chose weighted voting systems, while the developing countries chose an equal allocation of votes. In fact, in category I, 17.5 percent of the votes are distributed equally among the members. The remaining 82.5% are allocating according to financial contributions. In category II, 25% of the votes are distributed equally among the members while 75% are distributed according to the "countries' capital assets". Finally, in category III, votes are allocated equally among the members. Their Executive Directors, each of them holding 100 votes, are selected in accordance to regional criteria[107].

International Commodity Agreements[108] and Organizations (e.g. International Grains Agreement[109], International Natural Rubber Agreement[110], International Coffee Organization[111], International Sugar Organization[112], International Cocoa Organization[113]) dating from the post-World War II period and seeking to join importer and exporter interests to control fluctuations in the price and supply of commodities[114], apply weighted voting system. The agreements have a remarkably similar voting structure with two voting groups: Exporting and Importing countries. One thousand votes are allocated equally within each groups and a weighted distribution of votes in proportion to the "pro rata share of exports and imports, within each group"[115]. This weighted voting gives a substantial veto power to a few large producers or consumers. Each agreement is administered by a

---

[107] Wolfrum, R. (1997). The Protection of Regional or other Interests as Structural Element of the Decision-Making Process of International Organizations. In *Max Planck Yearbook of United Nations Law*, 1, p.274.
[108] "They are generally of limited duration (usually 3 to 5 years), at the end of which the agreement is renegotiated and renewed". See Zamora 1980, p.581.
[109] The International Grains Agreement supersedes to the International Wheat Agreement, under the Grains Trade Convention of 1995. See in https://www.igc.org.uk/en/aboutus/default.aspx#history
[110] Set up in 1995 in order to promote the development and growth of the natural rubber industry to the benefit of importers (consumers) and exporters (producers).
[111] Set up in London in 1963 to administer the International Coffee Agreement because of the great economic importance of coffee.
[112] ISO administers the International Sugar Agreement of 1992.
[113] Set up in 1973 to administer the International Cocoa Agreement.
[114] Zamora 1980, p.581.
[115] Articles 10 and 12 of the International Cocoa Agreement, 2001, in http://untreaty.un.org/unts/144078_158780/4/2/12119.pdf; Articles 14 and 17 of the International Natural Rubber Agreement, 1995, in http://www.fco.gov.uk/resources/en/pdf/3706546/3892733/4190568/4379193/Com2; Articles 12, 14 and 15 of the International Grains Agreement, 1995, in http://www.igc.org.uk/en/downloads/brochure/iga1995.pdf; And http://www.ico.org/governance.asp.

Council, and in some cases, an Executive Board[116]. For instance, in the International Coffee Agreement, each group of exporters and importers holds one thousand votes in the Council. Within the exporting group, votes are distributed by giving five votes to each member and "in proportion to the average volume of their exports or imports of coffee in the preceding four calendar years"[117]. Within the importing group, votes are distributed equally in general. The distribution of votes in the Council of the International Natural Rubber Agreement is mostly decided regarding the average amount of exports or imports, respectively[118].

The Inter-American (IDB), African (AfDB) and Asian (ADB) Development Banks, which are multilateral regional development banks established respectively in 1959, 1964 and 1966 and engaged in promoting economic and social progress in their regions, have all adopted a weighted voting system. According to this statute, each member shall have basic votes distributed equally among all members and, in addition, proportional votes depending upon the member's subscription to the capital stock of the Bank[119]. However, the basic votes differ largely among the banks. Basic votes in the IDB are only 3.2 percent of the total votes (i.e. 135 votes per member)[120] which is the least egalitarian, while in the AfDB basic votes are 45 percent of the total votes (i.e. 625 votes per member)[121] which is the most egalitarian. On the other hand, unlike the other agreements where a fixed number of basic votes are accorded to each member, the ADB basic votes are a percentage figure of 20%[122] of the total vote equally distributed so that the basic votes would increase with an increase of capital subscriptions. Today, there are 48 member states in the IDB, of which 26 are borrowers from Latin America and the Caribbean. The United States holds 30% of the Bank's shares, while the countries of Latin America and the Caribbean combined hold 50%[123], which gives the United States a blocking power. ADB's shareholders are 48 members of developing and developed countries within the Asia and Pacific region, in addition of 19 OECD members. In the ADB, the United States and Japan

[116] Zamora 1980, p.581.
[117] http://www.ico.org/governance.asp
[118] Wolfrum, R. 1997, p.277. Also see http://www.fco.gov.uk/resources/en/pdf/3706546/3892733/4190568/4379193/Com2
[119] Wolfrum, R. 1997, p.268.
[120] http://idbdocs.iadb.org/wsdocs/getdocument.aspx?docnum=2050216, p.24.
[121] http://www.afdb.org/fileadmin/uploads/afdb/Documents/Legal-Documents/30718627-EN-AGREEMENT- ESTABLISHING-THE-AFRICAN-DEVELOPMENT-BANK-6TH-EDITION.PDF
[122] Article 33 in http://www.adb.org/documents/reports/charter/charter.pdf
[123] Strand J.R. (2003). Measuring voting power in an international institution: the United States and the inter-American development bank. *Economics of Governance,* 4, pp. 23-24.

are the largest shareholders, each one of them holding 12.75% of the shares[124]. Finally, the AfDB's shareholders are 53 regional member countries (African countries) and 24 non-regional member countries (non-African countries). Regional members hold 60% of voting weight[125].

4.6 Simple and Special majorities

The winner alternative under simple majority rule must receive at least one more vote than half the votes. Most organizations use a simple majority rule for most decisions especially for procedural matters but the more the issues become important, the higher the normal majority requirement.

The main advantage of simple majority rule is that it "facilitates the taking of decisions while ensuring against minority rule"[126]. Moreover, Buchanan and Tullock (1962, p.127) showed that net 'harm' can be produced under any rule less than unanimity if minorities feel more intensely about particular issues than majorities. Without logrolling or vote-trading, the preferences of voters who are even totally indifferent on a specific issue will be given the same weight as those of the most concerned individuals (member states). On the other hand, with or without logrolling, the outcome does not differ if the intensity of preferences of the majority is equal or greater than that of the minority, unless the intensity of preferences of the minority exceeds those of the majority; in that case the logrolling process will change the outcome (Buchanan and Tullock, 1962, p.133). Thus, the assumption on different intensities of preferences appears to be more plausible than the assumption of equal intensities (Buchanan and Tullock, 1962, p.134).

Buchanan and Tullock (1962, p.143) demonstrated that the simple majority rule will almost always inflict external costs on the individual. The remedy to these external costs is bargains among voters which can be mutually beneficial. In fact, the voter should pursue his bargains until the marginal cost of voting for an issue where his preferences are weak exactly coincides with the expected marginal benefits of voting for another issue in which his feelings are stronger. In doing so, his welfare can be improved (Buchanan and Tullock, 1962, p.144).

---

[124] Asian Development Bank. (2009). *Asian Development Bank Sustainability Report 2009*, http://www.adb.org/documents/books/sustainability-report/2009/SR2009.pdf, p.17.
[125] http://www.afdb.org/fileadmin/uploads/afdb/Documents/Boards-Documents/2009-vp-eng-June.pdf
[126] Zamora 1980, p.595.

A supermajority or a qualified majority are a majority of three-fifths (60%) or two-thirds (66%), and in some cases a three-fourths (75%) or four-fifths (80%) may be required. The two-third majority is most commonly required and it can be either simple or absolute. A simple two-thirds majority suppose the agreement of two-thirds of the members present and voting. However, an absolute two-thirds majority is more stringent and supposes the agreement of two-thirds of the entire membership of a body[127].

The main advantage of special majorities is that it reduces the probability of cycles. It allows substantive decisions[128] to be adopted by obtaining the necessary consensus. Indeed, weighted voting and high majority requirements are used as alternative methods in order to attain a consensus decision-making[129]. In addition, expected external costs, which represent the damages supported by minorities because they are obliged to apply decisions agreed by majorities, would be lower if more than a simple majority is required for carrying a decision (Buchanan and Tullock, 1962, p.211).

On the other hand, Buchanan and Tullock (1962, p.211) showed that the costs of decision-making would be greater under more inclusive voting rules since the larger the coalition required to reach an agreement the larger the investment in bargaining will be needed inducing higher costs. Moreover, special majority rules are too conservative. They give some influential members a veto power over certain decisions within the organization. Just as weighted voting, a supermajority of votes does not afford an equal share of decision-making and may allow a small minority to block a decision[130].

Decisions within international organizations are increasingly made according to majority rule. For example, in the United Nations General Assembly, substantive decisions require a two-thirds majority of the member present and voting. Substantive decisions shall include: "recommendations with respect to the maintenance of international peace and security, the election of the non-permanent members of the Security Council, the election of the members of the Economic and Social Council, the election of members of the Trusteeship Council, the admission of new Members to the United Nations, the suspension of the rights and privileges of membership, the expulsion of Members, questions relating to the

[127] http://en.wikipedia.org/wiki/Supermajority
[128] Like "questions of membership and finance, the exercise of pre-legislative and quasi-legislative powers, the adoption of constitutional amendments and certain elections"
[129] Zamora 1980, p.595.
[130] Zamora 1980, p.595.

trusteeship system, and budgetary questions"[131]. Other decisions shall be made by a simple majority of the members present and voting, which means the members of the Assembly participating in the session and casting an affirmative or negative vote. "Members who abstain from voting are considered as not voting"[132]. In the UN Economic and Social Council, decisions require a simple majority of the members present and voting[133]. Decisions within the Trusteeship Council shall be made also by a simple majority of the members present and voting[134].

The Constitution of the International Labor Organization provides that matters within ILO conference shall be made by a simple majority of the votes cast by the members present, except on certain specified questions requiring a two-thirds majority. The votes cast include negatives and positive votes while abstentions are not counted[135]. ILO Committees take decisions by a majority of the votes cast[136].

In the Board of the World Health Organization, decisions require a simple majority of the members present and voting, except for important matters which require a two-thirds majority. Important questions include: "(a) recommendations on: (i) the adoption of conventions and agreements, (ii) the approval of agreements bringing the Organization into relation with the United Nations and intergovernmental organizations and agencies in accordance with articles 69, 70, 72 of the Constitution, (iii) amendments to the Constitution, (iv) the effective working budget, and (v) suspension of the voting privileges and services of a Member State under Article 7 of the Constitution; and (b) decisions to suspend or amend these Rules of Procedure". The Health Assembly has the same voting procedure as in the Board[137].

In the UNESCO's General Conference, decisions shall be made by a simple majority except in cases in which a two-thirds majority is required (e.g. Admission of new Member States which are not Members of the United Nations, on the recommendation of the

---

[131] Rule 83 in http://www.un.org/ga/ropga_plenary.shtml
[132] Rule 86 in http://www.un.org/ga/ropga_plenary.shtml
[133] Rule 60 in http://www.un.org/ecosoc/about/pdf/rules.pdf
[134] http://untreaty.un.org/cod/repertory/art89/english/rep_orig_vol4-art89_e.pdf
[135] http://www.ilo.org/global/What_we_do/Officialmeetings/ilc/Rulesfortheconference/lang--en/index.htm# Article 21. Also see http://ilomirror.library.cornell.edu/public/english/about/iloconst.htm
[136] Boockmann, B. (2006). Participation and voting in committees: Evidence from the ILO. *Public Choice*, 126, pp.405-427.
[137] http://apps.who.int/gb/bd/PDF/bd46/e-bd46_p6.pdf and http://apps.who.int/gb/bd/PDF/bd46/e-bd46_p7.pdf

Executive Board; admission of Associate Members; adoption of international conventions submitted for ratification by Member States; Amendments to the Constitution). The Executive Board of the UNESCO takes also decisions by a simple majority of the Members present and voting, except where otherwise specified. A two-thirds majority is required for decisions like reconsideration of proposals; consultation by correspondence; amendment of Rules of Procedure and suspension of Rules of Procedure[138].

Procedural matters in UNCTAD Conference are subject to a simple majority rule while all substantive decisions are made by a two-thirds majority of the representatives present and casting a vote. On the other hand, the UNCTAD Board decides on all matters by a simple majority of representatives present and voting[139]. In the Council and the Assembly of the International Seabed Authority, if all efforts to reach a decision by consensus have been exhausted, decisions on procedural matters shall be taken by a simple majority of members present and voting, and decisions on important matters shall be taken by a two-thirds majority of members present and voting[140]. In the International Civil Aviation Organization, except as otherwise specifically provided, decisions shall be made by a simple majority of the votes cast by the members present[141].

Among the International Commodity Organizations, decisions in the International Coffee Organization, for instance, require a simple majority or a distributed two-thirds majority in each group of the exporting and importing countries. A two-thirds majority is required for important matters such as amendments to the Agreement[142]. In the Council and Executive Board of the IFAD, special majorities of two-thirds or more are required for major decisions and a simple majority for matters of procedure. For instance, in the Governing Council, major decisions include: lending policies, criteria and regulations regarding financing, and approval of the budget. Furthermore, a quorum for any meeting supposes the attendance "not only of members holding two-thirds of the total votes but also the members exercising one-half of the total votes in each of the three categories"[143]. This

[138] http://unesdoc.unesco.org/images/0015/001568/156826e.pdf
[139] Verschraegen, B. and Rheinstein, M. (2004). *International Encyclopedia of Comparative Law,* part 5, p.36.
[140] http://www.isa.org.jm/files/documents/EN/Regs/ROP_Assembly.pdf
[141] http://www.icao.int/icaonet/dcs/7600/7600_6ed.pdf
[142] http://www.ico.org/governance.asp
[143] Woods, N. 1998. Governance in International Organizations: The case for reform in the Bretton Woods institutions. *International Financial and Monetary Issues* (UNDP, 1998), p.20.

provides developed countries (Category I) a veto power over the combined strength of OPEC and developing countries[144].

All matters, in the African Development Bank, shall be decided by a majority of sixty-six or two-thirds of members present and voting. In case of a specified question declared by a member as being of great importance, such question "shall be decided, at the request of the member, by a majority of seventy percent of the total voting power". A quorum for any meeting of the Board of Directors requires a majority of seventy percent of the total voting power of the members[145]. All decisions of the Inter-American Bank "concerning the operations of the Fund shall be adopted by a three-fourths majority of the total voting power of the member countries"[146]. In the Board of Governors of the Asian Development Bank, "all decisions shall be made by a majority of the voting power represented at the meeting"[147]. The chairman may ascertain consensus instead of a formal vote but "a formal vote shall be taken whenever requested by any Governor"[148].

Most decisions within the IMF "may be adopted by a majority of the votes cast" and certain key matters require a special majority of "either 70 percent or 85 percent of the "total voting power". The special majority of 85 percent on specific matters gives the United States, with 16.77%[149] of the total votes, a veto power - although it gives such veto power "to any other small group of countries that is able to form a blocking minority"[150]. Any change in quota shall require an 85% of the total voting power[151]. The 70% of special majority are used for important decisions but not of the same importance as the decisions requiring a majority of 85%[152]. For instance, a special majority of 70% of the total voting power is used by the Fund in order to distribute, at any time, any part of the general reserve

---

[144] Woods 1998, p.20.
[145] http://www.afdb.org/fileadmin/uploads/afdb/Documents/Legal-Documents/30718627-EN-AGREEMENT-ESTABLISHING-THE-AFRICAN-DEVELOPMENT-BANK-6TH-EDITION.PDF
[146] www.iadb.org/leg/documents/pdf/convenio-eng.pdf
[147] http://www.adb.org/Gov/Rules_Procedure_Brd_Gov.pdf
[148] http://www.adb.org/Gov/Rules_Procedure_Brd_Gov.pdf
[149] http://www.imf.org/external/np/sec/memdir/members.htm
[150] International Monetary Fund. (2009). *IMF Governance – Summary of Issues and Reform Options*. Prepared by the Strategy, Policy, and Review Department and the Legal Department of the IMF, p.15.
[151] Article III, section 2 (c), in International Monetary Fund. (2009). *IMF Governance – Summary of Issues and Reform Options*. Prepared by the Strategy, Policy, and Review Department and the Legal Department of the IMF.
[152] International Monetary Fund. (2009). *IMF Governance – Summary of Issues and Reform Options*. Prepared by the Strategy, Policy, and Review Department and the Legal Department of the IMF, p.16.

in proportion to members' quotas[153]. Some decisions require even a double majority as in the case of a "compulsory withdrawal of a member" which requires not only 85% majority of the total voting power but also a majority of the Governors[154]. Furthermore, Amendments of the Fund's Articles require a double majority of three-fifths (60%) of the members holding 85% of the total voting power[155].

All matters in the Bank shall be decided by a simple majority, except as otherwise specifically provided[156]. For example, a Capital Increase of the Bank supposes a 75% of the total votes of the Board of Governors[157]. In the General Conference of the International Atomic Energy Agency (IAEA), substantive matters[158] require a two-thirds majority of the members present and voting and decisions on other questions[159] are made by a simple majority of the members present and voting[160].

WTO's major decisions are taken "by the membership as a whole, either by ministers (who meet at least once every two years) or by their ambassadors or delegates (who meet regularly in Geneva)"[161]. Normally, decisions are made by consensus. However, where efforts to reach a consensus are exhausted, the WTO agreement allows for a formal voting. Specific situations involving voting are as follows: the interpretation of any of the

---

[153] Article XII, section 3 (d), in International Monetary Fund. (2009). *IMF Governance – Summary of Issues and Reform Options*. Prepared by the Strategy, Policy, and Review Department and the Legal Department of the IMF.

[154] Article XXVI, section 2 (c). See supra note 1 in International Monetary Fund. (2009). *IMF Governance – Summary of Issues and Reform Options*. Prepared by the Strategy, Policy, and Review Department and the Legal Department of the IMF, p.16.

[155]International Monetary Fund. (2009). *IMF Governance – Summary of Issues and Reform Options*. Prepared by the Strategy, Policy, and Review Department and the Legal Department of the IMF, p.17.

[156] Article V, section 3. See in http://web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/

[157] In the Bank as in the IMF, "a quorum for any meeting of the Board of Governors shall be a majority of the Governors, exercising not less than two-thirds of the total voting power" and "a quorum for any meeting of the Executive Directors shall be a majority of the Governors, exercising not less than one-half of the total voting power". See in Article V, section 2 and 4 (respectively) in http://web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/

[158] Substantive matters in the General Conference include: "A decision on any financial question; A decision on a proposal for amendment to the Statute; A decision, upon recommendation of the Board of Governors, to suspend any Member from the exercise of the privileges and rights of membership; A decision on amendments to proposals relating to matters referred to in this Rule and on parts of such proposals put to the veto separately; and A decision which, pursuant to Rules 15, 19, 66 and 102 of these Rules, requires a two-thirds majority of the Members present and voting". In the Board of Governors substantive matters include for instance: the Amount of the Agency's budget; the Appointment of the Director General; Decisions to reconsider a proposal or an amendment which has been adopted or rejected; Decisions of the Board on amendments to proposals which require a two-thirds majority, and decisions on parts of such proposals put to the vote separately.

[159] Including additional questions to be decided by a two-thirds majority.

[160]http://www.iaea.org/About/Policy/GC/gcrules.html and http://www.iaea.org/About/Policy/Board/bgrules1.html

[161] http://www.wto.org/english/thewto_e/whatis_e/tif_e/org1_e.htm

multilateral trade agreements can be adopted by a three-fourths special majority of the members; The withdrawal by the Ministerial Conference of an obligation imposed on a member by a multilateral agreement, requires a three-fourths majority; Amendments of the multilateral agreements provisions can be adopted either by an approval of all members or by a two-thirds majority depending on the nature of the provision concerned; The admission of new members requires a two-thirds majority in the Ministerial Conference, or the General Council in between conferences[162].

Decisions within the International Telecommunication Organization shall be made by a majority of the members present and voting (Zamora 1980, p.575). In the Universal Postal Union (UPU), if decisions cannot be reached by consensus shall be decided by a majority of the members present and voting[163]. Proposals submitted to Congress (the supreme body of the UPU) and relating to amendment of the Constitution require at least a two-thirds majority of the UPU members to be adopted[164]. Decisions in the International Maritime Organization (IMO) shall be made by a simple majority of the members present and voting, and substantive decisions require a two-thirds majority of the votes cast[165].

In the Organization of the Petroleum Exporting Countries (OPEC), decisions in the Conference (the supreme authority of the Organization), "other than procedural matters, shall require the unanimous agreement of all Full Members"[166]. A quorum of three-fourths of member countries is necessary for holding a Conference[167]. Decisions in the Board of Governors are adopted by a simple majority of the members present and voting, and a special majority is required for important matters. For example, the admission of a country[168] to become a Full Member[169] of the Organization, require a three-fourths majority

---

[162] http://www.wto.org/english/thewto_e/whatis_e/tif_e/org1_e.htm
[163] http://www.upu.int/document/2009/an/cep_c_4_gn-1/src/d007_ad00_an01_p00_r00.pdf, http://www.upu.int/dmab/en/dmab_rules_of_procedure_en.pdf and http://www.state.gov/p/io/rls/rpt/30742.htm
[164] http://www.upu.int/acts/en/constitution-vienna_1964_en.pdf
[165] Article 57 (renumbered as Article 62). In http://www.imo.org/blast/blastDataHelper.asp?data_id=22582&filename=A724(17).pdf
[166] Article 11 in http://www.opec.org/library/Opec%20Statute/pdf/OS.pdf
[167] Article 11, section B in http://www.opec.org/library/Opec%20Statute/pdf/OS.pdf
[168] The country must be characterized by "a substantial net export of crude petroleum" and similar interests to those of OPEC member countries. See in http://www.opec.org/library/Opec%20Statute/pdf/OS.pdf
[169] "Full Members shall be the Founder Members, as well as those countries whose application for membership has been accepted by the Conference". Article 7, section B in http://www.opec.org/library/Opec%20Statute/pdf/OS.pdf

of Full Members, "including the concurrent vote of all Founder Members[170]". If the country is not qualified to join Full members, it may be admitted as an Associate member by the Conference once accepted by a three-fourths majority, including the concurrent vote of all Founder Members[171]. Moreover, a two-thirds majority is required to suspend the membership of any Governor if it is harmful to the interests of the Organization[172]. A quorum of two-thirds is necessary for holding a meeting of the Board of Governors[173].

In the Governing Board of the OPEC Fund for International Development, a quorum for the meetings of the Board shall be constituted by "a two-thirds majority of the members representing seventy percent of the contributions of the Fund's resources"[174]. The same majority used for a valid quorum is also used to made decisions in the Board of Governors, unless otherwise specifically provided in the Agreement. The rules of procedure adopted in the Ministerial Council for decisions and for constituting a valid quorum, are also identical with those followed in the Board. "Amendments to this Agreement may be proposed to the Ministerial Council by the Governing Board acting on the basis of a three-fourths majority of its Members. Amendments shall be adopted by the Ministerial Council, upon the recommendation of the Governing Board or on its own initiative, by a three-fourths majority of Members contributing four-fifths of the contributions to the Fund (Article 10, § 1). The Ministerial Council may decide to suspend or terminate the operations of the Fund at any time by a four-fifths of the contributions to the Fund (Article 11, § 1). Moreover, if a Member fails to fulfill any of its obligations to the Fund, the Ministerial Council may suspend its membership by a three-fourths majority of the Members contributing seventy percent of the Fund's resources (Article 13, § 3)"[175].

Finally, in the Congress[176] of the World Meteorological Organization (WMO), a quorum of a simple majority of all members should be at least present. In general, decisions are taken by a majority of the votes cast of the members present. An approval by two-thirds majority of all Members States is required for important decisions such as: "Amendments

---

[170] Founder Members are those countries which signed, in Baghdad, the original agreement of the establishment of the Organization. Article 7, section A in http://www.opec.org/library/Opec%20Statute/pdf/OS.pdf
[171] Article 7, section D in http://www.opec.org/library/Opec%20Statute/pdf/OS.pdf
[172] Article 23 in http://www.opec.org/library/Opec%20Statute/pdf/OS.pdf
[173] Article 17 in http://www.opec.org/library/Opec%20Statute/pdf/OS.pdf
[174] Article 5, § 5.06 in http://www.ofid.org/publications/PDF/AE-engl_Fund.pdf
[175] http://www.ofid.org/publications/PDF/AE-engl_Fund.pdf
[176] The supreme Body of the Organization.

to the Convention not involving new obligations for Members; Requests for membership; and Relations with the United Nations and other intergovernmental organizations"[177].

4.7 Consensus

The consensus is an informal mode of decision requiring a general agreement in a peaceable and constructive atmosphere. There are different interpretations of Consensus; while some authors consider consensus as referred to unanimity (e.g. Heisenberg, 2005 and Steinberg, 2002) others consider that consensus is not unanimity; the latter is not necessarily reached (e.g. Woods, 1998). In fact a member must insist on opposing a decision just when he finds it very unacceptable[178]. Many decisions of international organizations are made by consensus rather than formal voting rules[179]. Under consensus, decisions or resolutions are adopted without vote, as long as there is no clear opposition. Buchanan and Tullock (1962, p.115) argued that in order to reach an agreement a homogeneous group requires less investment in bargaining than in a heterogeneous group. In fact, in a heterogeneous group, uncertainty of a member state regarding the preferences of his fellows will guide him to be more stubborn in his bargaining than in a homogeneous group in which the member state knows better his fellows.

The main advantage of consensus is that it arouses negotiations in order to find the most adequate decision, enhancing thus the cooperation between states.

Whereas the disadvantage of consensus is that much time is spent on negotiations to develop a consensus decision-making and the final outcome may lead to different interpretations[180]. Actually, bargaining and trading effort will continue among member states until an 'efficient' decision is achieved. An over-investment in bargaining by devoting too much time and effort in order to make a decision may more than compensate the total gains from trade (Buchanan and Tullock, 1962, p.105). Furthermore, the cost of decision-making for a member state increases with the size of the bargaining group in the international organization. Consensus can be broken more easily by biggest countries than small and medium ones. Moreover, it lacks transparency since it does not show the true

[177] http://www.wmo.ch/pages//meetings/documents/Cg-XV_Procedures_E.pdf
[178] http://www.economicexpert.com/a/World:Trade:Organization.htm
[179] Zamora (1980), p. 568.
[180] http://www.economicexpert.com/a/World:Trade:Organization.htm

power relations between member states[181] and important decisions are taken outside of formal meetings[182].

Many international organizations use consensus as a mode of decision-making. For instance the members of the UN Security Council take key decisions by consensus. They proceed by informal consultations in small groups[183]. Even procedural matters are decided in informal meetings before the votes cast[184]. Many decisions[185] in the General Agreement on Tariffs and Trade (GATT)/World Trade Organization (WTO) were/are taken in practice by consensus[186]. The United Nations Development Programme (UNDP) encourages the practice of seeking consensus in decision-making[187].

Jenks also showed that the Executive Directors of the IMF and of the World Bank and its affiliates (the International Development Association (IDA) and the International Finance Corporation (IFC)) "meet in private and do not publish minutes of their meetings". Either in the Board of Directors or in the Board of Governors, most decisions are taken by consensus to avoid conflict through formal voting (Zamora 1980, p. 568). The International Commodity Agreements and Organizations including the International Sugar Organization, the International Coffee Organization, the International Cocoa Organization, the International Grains Agreement and the International Natural Rubber Agreement, also are familiar with the concept of consensus. Nevertheless, there are variations between Commodity Agreements regarding the mechanisms used to achieve a satisfactory consensus (Jenks 1965, p.57). In the Council[188] and Assembly[189] of the International Seabed Authority, the decision-making should be made by consensus. However, a formal vote is requested if all efforts to reach a consensus decision are exhausted.

On the other hand, even where decisions are made by consensus (i.e. informal vote), the recourse to the formal voting is still a solution – where consensus is not possible -and can

[181] Cottier, T. (2009). A Two-Tier Approach to WTO Decision Making. NCCR Trade Working Paper, p.14.
[182] Woods (1998), p.15.
[183] Woods (1996), cited in Woods 1998, p.15.
[184] Woods (1996), cited in Woods 1998, p.15.
[185] Like implementing agreements.
[186] http://**www.economicexpert.com/a/World:Trade:Organization.htm**
[187] **http://www.undp.org/execbrd/pdf/9719131e.pdf**
[188] http://www.isa.org.jm/files/documents/EN/Regs/ROP_Council.pdf, p.15
[189] http://www.isa.org.jm/files/documents/EN/Regs/ROP_Assembly.pdf, p.15

have a notable effect on achieving an agreement or compromise[190]. Formal voting remains crucial for the functioning of international organizations and it may deeply affect the decision-making process[191]. In addition, as Zamora has shown, important changes in formal voting rules, "such as increasing the votes of a bloc of countries, or appreciably changing the majorities required for decision , may have profound effect on decision-making". We are mainly interested in formal voting procedures; informal vote will not be included in our empirical study.

Let us recapitulate in the following Table 1.1 the main advantages and disadvantages of formal procedures within international organizations.

[190] Zamora 1980, p.568.
[191] Zamora 1980, p.569.

Table 1.1

Formal Procedures	Advantages	Disadvantages
One-nation, One-Vote	• The one-nation, one-vote principle gives equal votes to all states regardless of size or influence and requires unanimity for important decisions.	• It generally gives privileges and power to small countries over biggest countries.
Weighted Voting	• It can be a pertaining rule when applied in organizations with precise functions agreed by their members and requiring their support. • It can be a relatively simple and effective device in such organizations where interests and responsibilities of the members are not shared equally. • Members with greater obligations are able to defend their interests.	• Developing adequate and logical criteria for weighted voting regarding the varied functions of international organizations is very complicated and difficult. • It has long been criticized for deviating from the concept of the sovereign equality of states.
Unanimity	• Protection of the small powers against excessive influence by the big powers. • Protection of the big powers from adopting decisions which they disapproved. • External costs (i.e. when minorities suffer from decisions taken by majorities) are reduced to negligible proportions.	• Not practical to meet urgent problems, it slows the functioning of an international organization. • The costs of decision-making increase. • The strength of a decision must be diluted so as to satisfy everyone and to reach unanimous agreement. • A proposal benefiting all may be strategically "vetoed" by those seeking a greater share of the gains from collective action.

Formal Procedures	Advantages	Disadvantages
Veto	• It benefits only to member states having the veto power since substantive decisions could not be taken without their approval.	• The misuse of the right of veto paralyzes the effective action of an international organization. • The misuse of the right of veto violates also the principle of equality of states and especially of small states.
Simple Majority	• It facilitates the taking of decisions while ensuring against minority rule. • It reduces decision-making costs.	• It inflicts external costs on members.
Special Majority	• It allows substantive decisions to be adopted by obtaining the necessary consensus. • It reduces external costs.	• It is too conservative. • It gives some influential members a veto power over certain decisions within the organization. • It does not afford an equal share of decision-making and may allow a small minority to block a decision. • It increases decision-making costs.

CONCLUSION

The theoretical analysis inspired by the work of Buchanan and Tullock (1962) shows that a member state of an international organization with fewer members chooses unanimity rule that minimizes his external costs and the cost of decision-making. If the number of member states is important, an individual member by choosing more inclusive rules, he is accepting the additional costs of decision-making in exchange of additional protection against external costs imposed on him by other members. However, by choosing less inclusive decision-making rule, the member state is trading some of his protection against external costs for a lowered cost of decision-making.

Our comparative analysis shows that most UN organizations (Graph 1.1.1 and Graph 1.2; Appendix 3) have an egalitarian one-nation, one-vote rule while most major Non-UN organizations (Graph 1.3and Graph 1.4) have a weighted voting rule. Actually, 31 out of 47 IOs in our sample have a one-nation, one-vote voting structure while 16 out of 47 have a weighted voting structure. The use of simple majority procedure is relatively more important in one-nation, one-vote than in weighted voting organizations. Furthermore, there is a roughly equal use of simple and special majorities in one-nation, one-vote organizations, while major weighted voting organizations have a more important use of special majorities as compared to simple majority.

The adoption of an egalitarian voting rule (one-nation, one-vote) in most UN organizations can be simply explained by the principle of the sovereign equality[192] of states on which the UN is based since its inception. However, what it seems to be an egalitarian voting rule is in effect coupled with other rules to ensure a balancing of interests; for instance, the use of special majorities for important decisions, the attribution of permanent seats to larger members in some organizations recognizing thus the differences of power, or the attribution of a veto power over substantive decisions as in the Security Council.

The adoption of weighted voting in most Non-UN organizations can be explained by the recognition of the power of particular members. Even developing countries, which have always supported the one-nation, one-vote rule, have adopted weighted voting in organizations in which they hold the major power. This is the case of the African and Inter-

[192] See p.19 in this chapter.

American Development Banks where developing countries form a majority. The OPEC Fund for International Development, controlled by developing countries, applies a weighted voting system according to financial contributions. In addition, the International Commodity Agreements, in which developing countries have the largest share of votes, use a weighted voting system according to the relative volumes of exports and imports[193].

Moreover, we notice that decisions in one-nation, one-vote and weighted voting organizations are increasingly made by majority rule. Just as the combination of a weighted voting rule with a simple majority may favor influential countries to the detriment of other states by giving them a veto over certain operations, the combination of a one-nation, one-vote rule with a high majority requirement may allow a small minority to block a decision. Furthermore, the combination of a weighted voting system with a sufficiently stringent majority requirement results in "a far-reaching form of protecting the individual states' interests"[194] by giving them an implicit veto power. Wolfrum, Rudiger (1997, p.269) showed that "technically the veto may be regarded as a form of weighted voting since the negative vote of one particular state carries more weight than the affirmative vote of the majority". On the other hand, as we have seen before, most organizations use a simple majority to establish a quorum and a simple majority of the votes cast (positive or negative votes; abstentions are not counted) for procedural matters. Special majorities are used for most important questions in order to ensure the agreement required to make them effective[195]. Generally, important questions include finance and membership matters, adoption of constitutional amendments, and certain elections.

Since international organizations began making decisions by majority voting, conflicts have increased over decision-making controls[196]. In fact, developing countries claim repeatedly for a more equitable distribution of voting power. The latest G20 Summits (in London April 2, 2009 and Pittsburgh September 25, 2009) are the obvious example of this situation with all the commitments to reform the IMF (a shift of quota share to dynamic emerging markets and developing countries of at least 5% from over-represented countries to under-represented countries using the current quotas formula), the World Bank (an increase of basic votes from 250 to 500 per member and of at least 3% of voting power for

[193] Zamora 1980, p. 600.
[194] Wolfrum, R. 1997, p.264.
[195] Zamora 1980, p.595.
[196] Zamora 1980, p.566.

developing and transition countries to the benefit of under-represented countries) and to increase their resources and those of regional development banks in order to empower smallest countries. Today, the delivered promises are the increase in IMF Basic votes from 250 to 750 per member and the contribution of over $500 billion to a renewed and expanded IMF New Arrangements to Borrow[197]. On the other hand, the current emphasis on bloc voting (as in UNCTAD, IFAD, the regional development banks and the international commodity agreements) is directly related to the demands of less-developed countries to strengthen their relative voting power in the decision making processes of international organizations[198].

Thus, the adoption of appropriate voting rules in order to take important decisions and give them the weight necessary to make such decisions effective in practice, is the most complicated issue confronting international organizations since its creation. Today the problem remains and still far from reaching any satisfactory solution. In fact, voting rules in international organizations remain very conservative (Frey, 1997).

Now, our major task in the next chapter is to study the difference between voting weight and voting power, then to compute the voting power of each member state in a sample of weighted voting organizations.

[197] See "Leaders Statement The Global Plan for Recovery and Reform – London, 2 April 2009" and "Leaders' Statement, the Pittsburgh Summit, 25 September 2009" in http://www.g20.org/pub_communiques.aspx
[198] Zamora 1980, p.600.

Chapter 2 - Distribution of members' voting powers at weighted voting organizations

ABSTRACT

Voting weight and voting power cannot be equated. The former represents the number of votes allocated to each member while the latter represents the ability of a member to influence voting outcomes. How majority requirements affect member states voting power, measured by the normalized Banzhaf index, and how the latter evolved with voting weights? What are the implications of 'outliers' estimated voting power in weighted voting organizations? What is the impact of recent IMF applied and proposed reforms on member states voting power under simple and qualified majority requirements and if a "paradox of redistribution" is observed? In order to give answers to these questions we proceed as follows: first, we use 2008 data of voting weights gathered from the official websites and annual reports 2008 of our sample of four weighted voting organizations (AfDB, IBRD, IFAD and IMF). Second, we estimate voting powers of 'outliers' using linear regressions and we study its implications. Third, we study voting powers and weights of IMF members after the reform of 2008 for the Board of Governors and the proposed reform of 2010 which are not yet effective for the Executive Board and we also examine the "paradox of redistribution". Our main findings show that supermajority of 85% limits the power of top contributors, especially the USA. On the other hand, supermajority equalizes voting power between member states at a greater extent. Simple majority requirement favors disproportionately top contributors particularly the USA, while remaining member states have slightly less power than weights. Thus, the distribution of power under simple majority is more unequal. Through linear regressions, estimated voting powers permit to remedy to the disproportionately great power of the United States relatively to its voting weights under a simple majority requirement

and to the loss of power of largest contributors under qualified majority requirements. Finally, the "Paradox of Redistribution" is observed under both IMF reforms.

INTRODUCTION

In general, international financial organizations which are of increasing importance in the world economy, especially with globalization, are characterized by a weighted voting system as we have seen in the previous chapter. In our study, we use the term 'weighted voting organizations' to international organizations that operate according to the weighted voting power of their members. Felsenthal and Machover (1998, p.156) showed that there is a widespread fallacy among the general public, reporters and politicians, which equates the voting weight and the relative voting power of each member state. Actually, the voting weight represents the number of votes assigned to each member state usually on the basis of its financial contributions while the voting power measures the ability of a member to influence or control voting outcomes.

Brams and Affuso (1976) argued that when admitting new members to the European Economic Community (EEC) the voting power, measured by the Banzhaf, Shapley-Shubik and Coleman indices, of an existing member may increase even though its voting weight decreased as it is the case of Luxembourg when adding to the EEC the Great Britain, Ireland and Denmark. They termed this as the "Paradox of New members".

Fischer and Schotter (1978) illustrated that in voting bodies the redistribution of voting weights may increase some members' voting power, measured by the Banzhaf and Shapley-Shubik power indices, while their voting weights are reduced. They demonstrated that such a "Paradox of Redistribution" always occur when the number of voters in a voting body is sufficiently large. Fischer and Schotter concluded that this paradox could be avoided if the organizations planning the reallocation of votes identify the difference between voting power and voting weights.

Dreyer and Schotter (1980) showed that the changes in 1978 in the distribution of quotas of IMF's members, in order to reflect the changing power relationships among its members, have achieved the opposite result. Actually, thirty-eight countries have found that their voting weights diminished while their voting power, as measured by the Banzhaf index, increased On the other hand, the reallocation of votes in the IMF increased the voting weights of Belgium, Holland, Japan and West Germany whereas their voting power diminished.

Felsenthal and Machover (1998) commented several times in their book the difference between voting weight and voting power. Moreover, they argued (1998, p.236-237) that the power of a voter does not depend on its own quota and weight but in general on the whole distribution of weights among all voters. For that reason, it should not be surprising to observe with the introduction of a new member, while decreasing the weights of the old ones, higher chances of forming winning coalitions[199] with some of the members increasing consequently their voting power.

Leech (2002c)[200] used Banzhaf and Coleman indices in order to distinguish the difference between United States' voting weight and its voting power in the International Monetary Fund (IMF). He found that, in 1999, the voting power of the United States (US) as measured by the Banzhaf index is greater than its 17% voting weight. He also demonstrated that the distribution of voting power depends strongly on the majority requirement. The latter, actually, influence the power of the IMF to act, and the power of members to prevent and to initiate action as measured by the Coleman indices. Leech noticed that the power of the United States is severely reduced under the special 85% majority.

Leech (2002a)[201] described the computation of Shapley-Shubik (1954), Banzhaf (1965) and Coleman (1971) power indices and focused on the fact that in a weighted voting body the distribution among members of voting power, which represents the ability of each member to influence the voting outcomes by adding his votes to those of a losing coalition so that it wins, is completely different from the distribution of votes or voting weights.

The power indices cited above are used in small voting bodies. However, Leech (2003) and Leech & Leech (2006) developed new methods for computing power indices in large voting games.

[199] Coalitions comprise members with the same preferences. A 'winning coalition' represents the set of voters in a division with positive outcome; the other set of voters with negative outcome is called a 'losing coalition'.
[200] Leech, D. (2002c). Voting power in the Governance of the International Monetary Fund. *Article to be published in the Annals of Operations Research*, 109, 373-395.
[201] Leech, D. (2002a). Computation of Power Indices. *Warwick Economic Research Papers,* no. 644.

To our knowledge, none of the previous or recent studies have extended the analysis of voting power to more than one international organization (especially the IMF or the European Union) and to all member states, which enlarge the scope of the study and permit comparisons. Moreover, none of them have estimated voting powers of the 'outliers' proportionately to their weights through linear regressions in order to analyze the voting power distribution and the impact of majority requirements in weighted voting organizations. Finally, the IMF distribution of voting weights and powers after the reform of 2008 for the Board of Governors, that entered into force in March 3, 2011 and the proposed reform of 2010 for the Executive Board, not yet effective, has not been analyzed yet.

Main questions are: how majority requirements affect member states voting power, measured by the normalized Banzhaf index, and how the latter evolved with voting weights? What are the implications of 'outliers' estimated voting power in weighted voting organizations? What is the impact of recent IMF applied and proposed reforms on member states voting power under simple and qualified majority requirements and if a "paradox of redistribution" is observed?

Consequently in this chapter, we present the most commonly used power indices, then we explain the use in our study of the normalized Banzhaf index and the method adopted in order to compute it. After that we study the distribution of members' individual voting powers relatively to their voting weights, in 2008, under simple majority and qualified majority requirements corresponding to our sample of four weighted voting organizations (AfDB, IBRD, IFAD and IMF) by using linear regressions. We then estimate voting powers of 'outliers' using linear regressions and we will study its implications. Moreover, we analyze the voting powers and weights of IMF members after the amendment of 2008 and the proposed amendments and changes of 2010 which are not yet effective and we also examine the "paradox of redistribution". Finally, we summarize and evaluate the relevance of our findings.

1. A PRIORI AND ACTUAL DISTRIBUTION OF VOTING POWER

The power indices are used to find the *a priori* distribution of voting power in a voting body and they misrepresent or do not provide a valid measure of the *actual* voting power (termed sometimes as *a posteriori* voting power) of members on given issues. Actually, the *a priori* voting power which illustrates how much a member control the voting outcomes, absolutely or relatively to other members, is based on informative but idealized and limited assumptions (Leech, 2002c, p.384). The latter ignore the members' specific interests and preferences, political pressures, diplomacy, the degree of affinity between voters, the effects of coalition formation and the range of issues to be decided while to measure the *actual* voting power it would be essential to take into account these assumptions (Felsenthal and Machover, 2004, p.15).

In fact, the assessment of actual voting power requires empirical data on real voting behavior, the cohesiveness of coalitions and their probability of being formed. The *a priori* voting power is a component of *actual* voting power and hence a worthwhile analysis (Leech, 2002c, p.384). Felsenthal and Machover (1998, p.21 and 2004, p.17) explained that the *a priori* voting power is a benchmark, with which any measurement of the *actual* voting power of a given member shows how much of the *actual* voting power is due to the decision rule itself and permits to estimate the real world interactions and preferences. Therefore, the measurement of *a priori* voting power remains a fundamental basis for the measurement of *actual* voting power. The former is prescriptive and normative whereas the latter is descriptive and empirical (Felsenthal and Machover, 2004, p.17).

In our chapter, we are concerned with *a priori* voting power and we will refer to it briefly as 'voting power.'

2. THE I-POWER AND P-POWER DISTINCTION

In the literature of voting power there are two different analyses of a member's ability to influence the voting outcomes. These two analyses are the policy-seeking and the office-seeking viewpoints that are rarely distinguished. This distinction was first made explicitly by Felsenthal and Machover (1998).

The policy-seeking viewpoint assumes that the voting outcome is simply the passage or failure of the bill in question. From this policy-seeking viewpoint, a member's voting power is the degree to which that member is capable to control the voting outcome whether the bill in question will pass or fail. This notion of voting power is termed as I-power (Felsenthal and Machover, 1998, p.36). The Banzhaf measure (also called the non-normalized Banzhaf Index) is a measure for *absolute* I-power which is not constant, although the Banzhaf Index (also called the normalized Banzhaf Index) measures *relative* I-power which is normalized to unity and representing a voter's influence in relation to all other voters (We will analyze the normalized and non-normalized Banzhaf indices in more details below).

The office-seeking viewpoint on voting presumes that the real outcome is the distribution of a fixed reward, which is the prize of power, among the winners. From this viewpoint, the voting power of a member is to be measured by that member's assessed or expected share in the fixed total prize. This notion of voting power is called as P-Power. The well-known Shapley-Shubik Index is the only reasonable measure of P-power (we will study this index in more details below).

3. COMPUTATION OF THE MOST COMMON POWER INDICES

We will consider a weighted voting body with n members denoted by a set N={1, 2,….,n} whose voting weights are w_1, w_2, ….., w_n. A coalition is a subset of all members represented by T $\subseteq$ N and the combined voting weight of a coalition is w (T) =

that T_i is losing while $T_i + \{i\}$ is winning. In terms of voting weight, T_i is a swing if $q - w_i \leq w(T_i) < q$ (Leech, 2003, p.832).

3.1. Banzhaf Indices

The pioneering work of Penrose (1946 and 1952) on measuring voting power was ignored by mainstream social choice theorists. His main idea was so natural and simple: *the more powerful a voter is, the more often will the outcome go the way s/he votes*. This means that a more powerful voter is more able to influence the outcome and is more often on the winning side of a division (Felsenthal and Machover, 2004, p.5).

Without knowing of Penrose's work, Banzhaf (1965) an American jurist was the first, among many other scholars, who reinvented some of his ideas. Banzhaf addressed the problem of measuring the voting power in much the same way as Penrose. However, he was not interested in absolute voting power but in relative voting power, in other words, in the ratio of one voter's power to another's. The Banzhaf index is represented by ß.

The Banzhaf index considers all coalitions Ti as equiprobable, such that, voters are arranged randomly and in no particular order. The Banzhaf index for a member i represents the number of swings for that member divided either by the total number of coalitions of other members measuring in that case the probability of a swing, or by the total number of swings for all members measuring thus the member's relative capacity to swing. The number of swings for a member i is

The Non-Normalized Banzhaf index measures the absolute voting power of each voter and illustrates relative voting powers of different members but without giving a direct interpretation of power distribution (Leech, 2002a, p.11).

For that reason the Normalized Banzhaf index, $ß_i$, is used to measure the relative voting power among members. It represents the number of swings for member i as a fraction of the total number of swings for all members. Hence, the Banzhaf index can be written as follows:

$$ß_i =$$

different decision rules. In the latter case, the Penrose index should be used (Felsenthal and Machover, 2004, p.6-7).

3.2. The Shapley-Shubik index

The Shapley–Shubik power index was formulated by Lloyd Shapley and Martin Shubik in 1954, usually expressed by Φ, to measure the voting power of members in a voting body. The Shapley Shubik index (SSI) measures the probability that a member (or a voter) i swings if all orderings of voters are equally likely (Leech, 2003, p.832). The power of a member or a voter is computed by the fraction of the possible sequences in which the member casts the vote that first guarantees the passage or failure of a decision. The SSI represents the fixed prize (or payoff) shared among the members of a winning coalition. The agreement of victorious voters regarding the share of the fixed prize must be reached and decided in advance of the division (Felsenthal and Machover, 2004, p.9).

The power index is normalized between 0 and 1. A power of 0 shows that a coalition has no effect at all on the voting outcome while a power of 1 shows that a coalition determines the outcome by its vote. Moreover, the sum of the powers of all members is equal to 1.

To summarize, the Shapley–Shubik index of a voter under a given decision rule ('simple game') is therefore a prior estimation of that voter's expected payoff which measures his voting power. For convenience, the value of the fixed prize to be shared out is established as 1 unit; so that the sum of the values of this index for all the voters is equivalent to 1 (Felsenthal and Machover, 2004, p.9).

To compute the SSI, we list all possible orderings of N members expressed by n!, we start then through one of these orderings sequentially, presuming that each voter in turn casts the vote in favor of the decision. If the member i by casting his vote, in this sequence, made the total votes equivalent or over the required quota, the member i swings or is 'pivotal'. The members preceding and comprising i in this sequence are represented by the subset T_i. The total number of swings i would appear t! (n - t - 1)! times in the list of all orderings, where t is the number of members of T_i, n is the number of voters, t! represents the number of orderings of the subset T_i and (n – t – 1)! defines the number of orderings of the complement of the subset T_i, that is, N - T_i – {i} which excludes the voter i. Hence, the SSI, Φ_i, is the total number of swings for

voter i, denoted by

C**A**B

CB**A**

Consequently, A is decisive 4 times; B is decisive 1 time; and C is decisive 1 time. Thus, the Shapley-Shubik power distribution for each member is: A= 4/6 = 2/3; B = 1/6 and C = 1/6.

3.3. Coleman indices

Coleman (1971) criticized the SSI because, first, the use of orderings of members giving different weight to coalitions of different size is arbitrary and, second, the description of voting as a group of opponents who bargain among themselves over a fixed prize (or payoff) in a game (Leech & Leech, 2006, p.295).

Actually, Coleman discussed that voting was not intrinsically linked to bargaining and that in many actual voting situations the consequences of a collective action are fixed. Coleman (1971, p.271) explained that collective decisions concern action rather than how to divide up a given fixed prize among the voters: *The action is ordinarily one that carries its own consequences or distribution of utilities, and these cannot be varied at will, i.e. cannot be split up among those who constitute the winning coalition. Instead, the typical question is the determination of whether or not a given course of action will be taken or not [sic], that is, the passage of a bill, a resolution, or a measure committing the collectivity to an action.* Therefore, the consequences of any action are fixed and not subject to bargaining. In this perspective a voting power index measures absolute not relative power and is then useful for explaining the effect of members' participation in coalitions on power changes (Leech & Leech, 2006, p.295 and Felsenthal and Machover, 2004, p.11).

Coleman's approach focused mainly on the relationship between the powers of individual members and that of the collective body rather than analyzing the relative powers of the members in relation to each other. This relationship is subject to actual preoccupation in discussing institutions. In this context, more precisely, when all voting results are considered equiprobable, a power index represents the probability of an action to be made. Leech & Leech (2006, p.295) also argued against the SSI due

to the lack of realism of its assumptions and its unacceptable results from an empirical perspective.

Even though Coleman indicates the conceptual distinction between the two notions of voting power (absolute and relative voting powers); he does not elaborate on it or introduce a lexicon for referring to it. He distinguished three measures of voting power: first, 'the power of the body to act'; second, negative or blocking power, 'the power of a member to prevent action'; and three, positive power, 'the power of a member to initiate action'. These are measures of I-power. Nevertheless, it was shown that Coleman's measures when normalized provide the same 'relative' distribution of Banzhaf, because the notion of absolute voting power was not generally understood at that time as well as the true significance of Coleman measures (Felsenthal and Machover, 2004, p.11).

The three indices suggested by Coleman are represented as follows:

3.1.1 The Power of the Body to Act (PTA)

The PTA for the body itself shows *the ease with which members' interests in a vote can be translated into actual decisions* (Leech, 2002c, p.390). It is the number of winning votes, denoted by w, divided by all possible voting outcomes 2^n that satisfy the majority requirement q, that is, PTA is expressed as follows:

PTA =

decision by changing side[202].

Therefore, the PPA is defined as follows:

PPAi =

information that you cannot get by looking at β ′ (the Banzhaf index) alone' (Felsenthal and Machover, 1998, p.51)[203].

4. THE CHOICE OF THE NORMALIZED BANZHAF INDEX (ßI)

In our study we use the normalized Banzhaf index among the most common power indices presented above. Actually, we apply the Leech algorithm method[204] to compute power indices – that is, the Shapley-Shubik index, the absolute Banzhaf index, the normalized Banzhaf index, the Coleman power to prevent action and the Coleman power to initiate action – for member states in our sample of weighted voting organizations (i.e. Asian Development Bank (ADB), African Development Bank (AfDB), Inter-American development Bank (IDB), International Bank for Reconstruction and Development (IBRD), International Fund for Agricultural Development (IFAD) and the International Monetary Fund (IMF)).

We notice that even though the Shapley-Shubik index provides different results compared to the Banzhaf index, it shows similar disproportions for different quotas, but at a lesser extent, between voting weights and voting power especially for countries with large voting weights.

On the other hand, we observe that Coleman indices (the power to prevent action and the power to initiate action) have the same percentage of voting power as the normalized Banzhaf power index ($ß_i$). This can be explained by the fact that the Coleman indices are merely a linear transformation of the Banzhaf index (Dreyer and Schotter, 1980, p.99). Slomczynski, W. and Życzkowski, K. (2007, p.3-4) explained that the " *indices reflecting the power to block a decision (i.e. Coleman preventive power index) and the power to form a coalition capable of forcing a decision (i.e. Coleman initiative power index) are both mutually proportional and depend proportionally on the Banzhaf index. However, the ratio of the proportionality depends on the decision rule. Nevertheless, under any decision rule, if one country has more preventive power than another, then it also has initiative power. So both phenomena form, simply, the two sides of the same coin".*

[203] See in Barua, R., Chakravarty, S.R. and Roy, S. (2006). On the Coleman Indices of Voting Power. *European Journal of Operational Research,* 171 (1), p. 275.
[204] We will explain this method and the programs used in more details in the next section.

Regarding the absolute Banzhaf index, it is used for the analysis of the majority requirement as well as the distribution of weights since it illustrates the ease with which decisions can be adopted (Leech, 2002c, p.389). However, as we have seen above, the absolute Banzhaf index does not provide a direct interpretation of a power distribution. For that reason we use the normalized Banzhaf index that shows that the voting power of a member state depends not only on its voting weights but on the distribution of the weights among all the remaining members too. Actually, it analyses the relative power of member states with the current existing weights and quotas. Finally, Dreyer and Schotter (1980, p.99) noted that the normalized Banzhaf index "*does have the advantage of being widely used and possessing an intuitively appealing interpretation"*.

5. THE METHOD USED TO COMPUTE POWER INDICES

The indices are computed using the Leech algorithm for power in large games. The power indices are computed for each international organization for each majority requirement using the weights for 2008. The weights are gathered from the official website or annual report 2009 of each international organization (see chapter I for more details).

The program that we chosoe to compute the Banzhaf indices and Coleman indices is the *ipmmle*. The latter uses the Leech's modification of Owen's multilinear approximation method for large bodies in terms of number of members and votes with good approximation. The program chose to compute the Shapley-Shubik indices is the *ssmmle* that also uses the Leech's modification of Owen's multilinear approximation method for large bodies in terms of number and votes with good approximation[205].

We note that in the scope of our study, as we have explained in the previous section, only the normalized Banzhaf index is adopted.

[205] See URL : http://homepages.warwick.ac.uk/~ecaae/index.html

6. RESULTS AND IMPLICATIONS

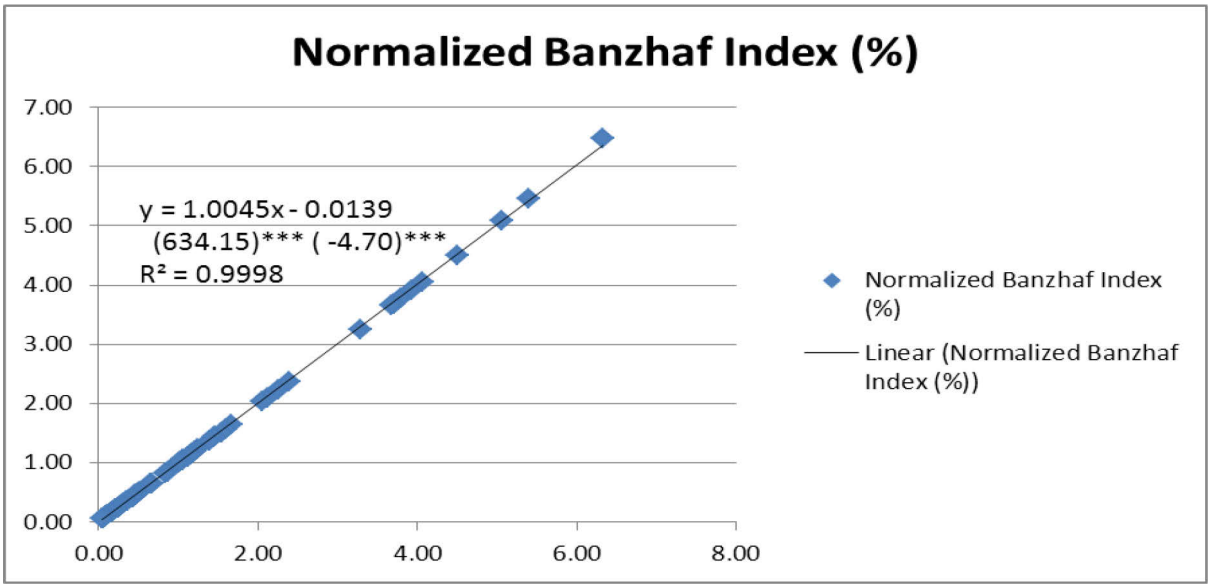
Note: All the following graphs represent the relationship between voting weights (horizontal axis) and voting power (normalized Banzhaf index on vertical axis) ***excluding the 'outliers'*** *(for graphs including all members see Appendix 5);*

The sources of voting weights in 2008, as we have mentioned above, are gathered from official websites or annual reports 2008 of the international organizations;

Normalized Banzhaf Index, as we have explained before, is computed by the algorithm method of Leech who adapted the approximation method of multilinear games approach of Owen, G. (1972, 1975a, 1975b, 1995); (To access to the computer software that calculate voting power indices in weighted voting bodies see http://homepages.warwick.ac.uk/~ecaae/#Progam_List);

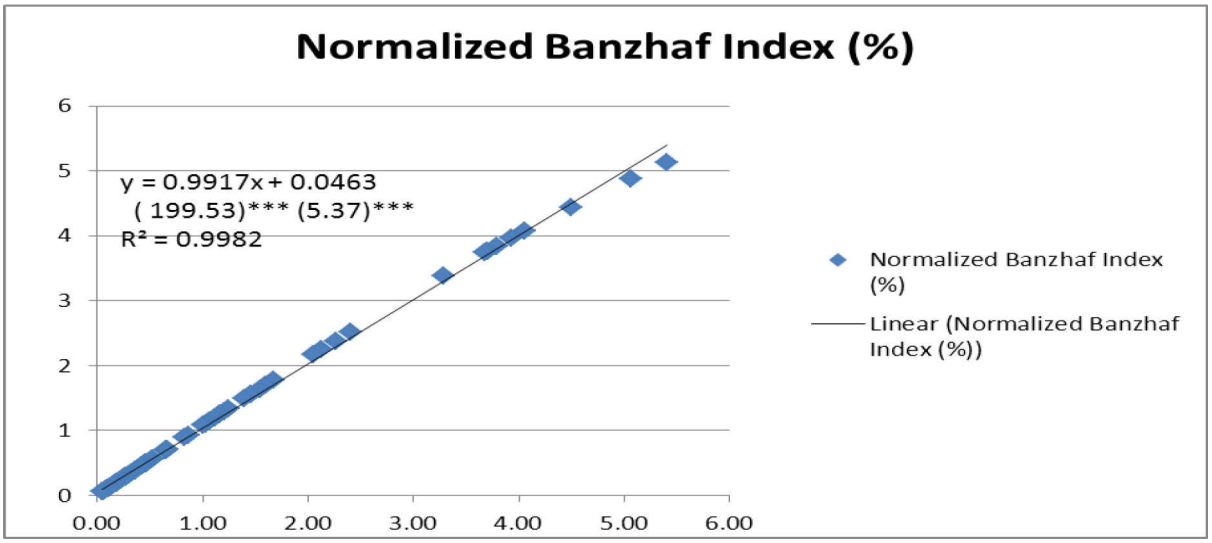
Equations are linear regressions with the normalized Banzhaf index (y) as dependent variable and voting weights (x) as independent variable.

Figure 2.1 - AfDB (q = 50%)



This graph represents the relationship between voting weights and voting power at the AfDB for a majority requirement q of 50%. Voting weights are on horizontal axis (x) and voting power (normalized Banzhaf index) on vertical axis (y);
t-student are shown in parenthesis;
R^2 is the R-squared;
**** significant at 1% level;*

Figure 2.2- AfDB (q = 70%)



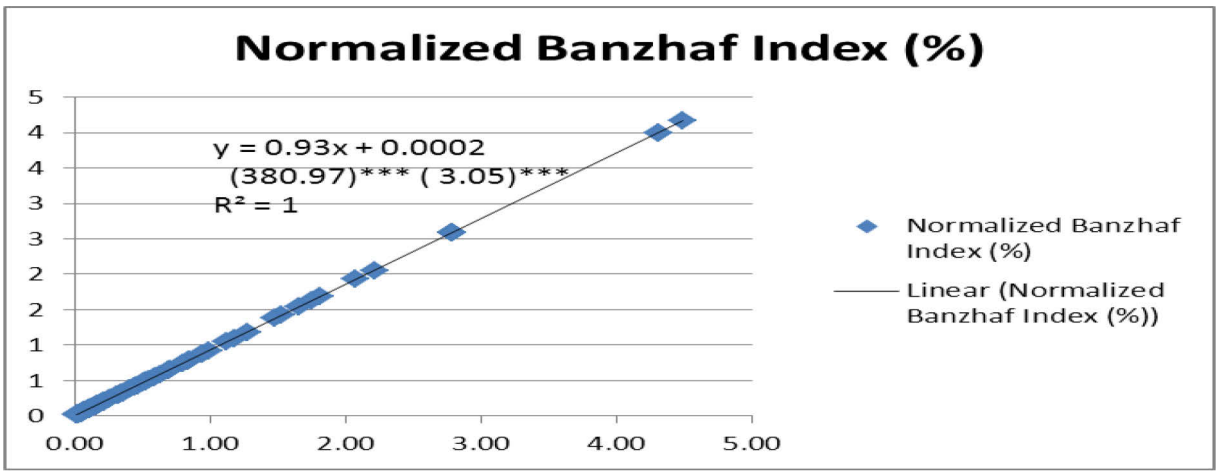
This graph represents the relationship between voting weights and voting power at the AfDB for a majority requirement q of 70%. Voting weights are on horizontal axis (x) and voting power (normalized Banzhaf index) on vertical axis (y);

t-student are shown in parenthesis;

R^2 is the R-squared;

**** significant at 1% level;*

Figure 2.3 - IBRD (q = 50%)



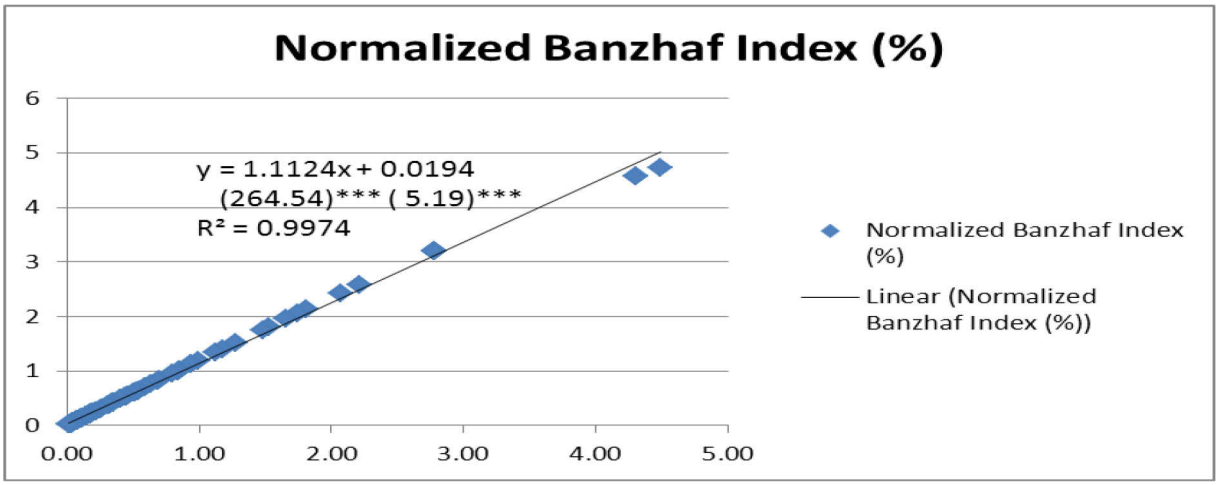
This graph represents the relationship between voting weights and voting power at IBRD for a majority requirement q of 50%. Voting weights are on horizontal axis (x) and voting power (normalized Banzhaf index) on vertical axis (y);

t-student are shown in parenthesis;

R^2 is the R-squared;

**** significant at 1% level;*

Figure 2.4- IBRD (q = 75%)



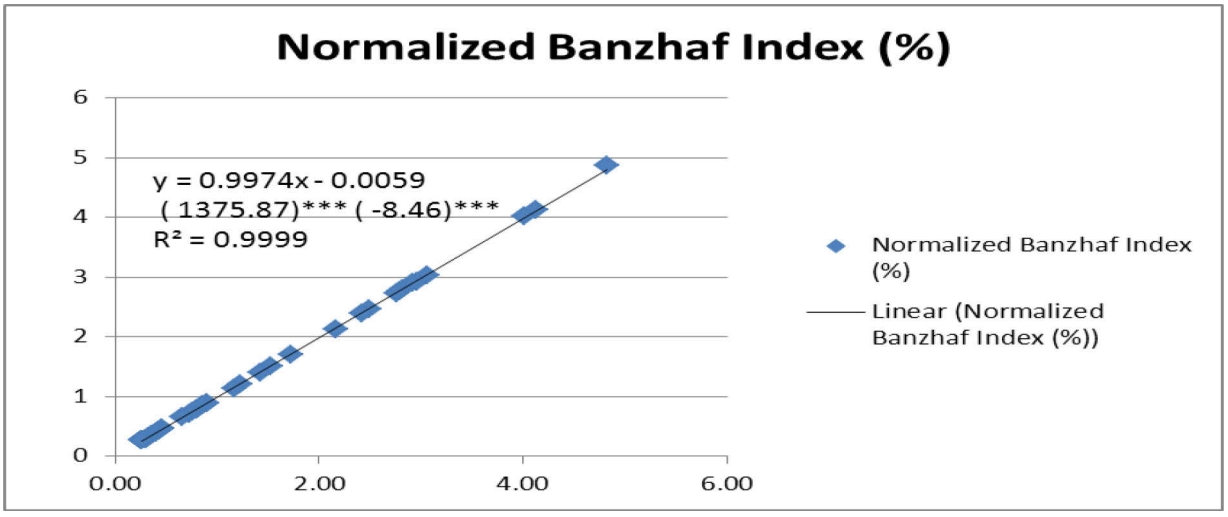
This graph represents the relationship between voting weights and voting power at IBRD for a majority requirement q of 75%. Voting weights are on horizontal axis (x) and voting power (normalized Banzhaf index) on vertical axis (y);

t-student are shown in parenthesis;

R^2 is the R-squared;

**** significant at 1% level;*

Figure 2.5- IFAD (q = 50%)



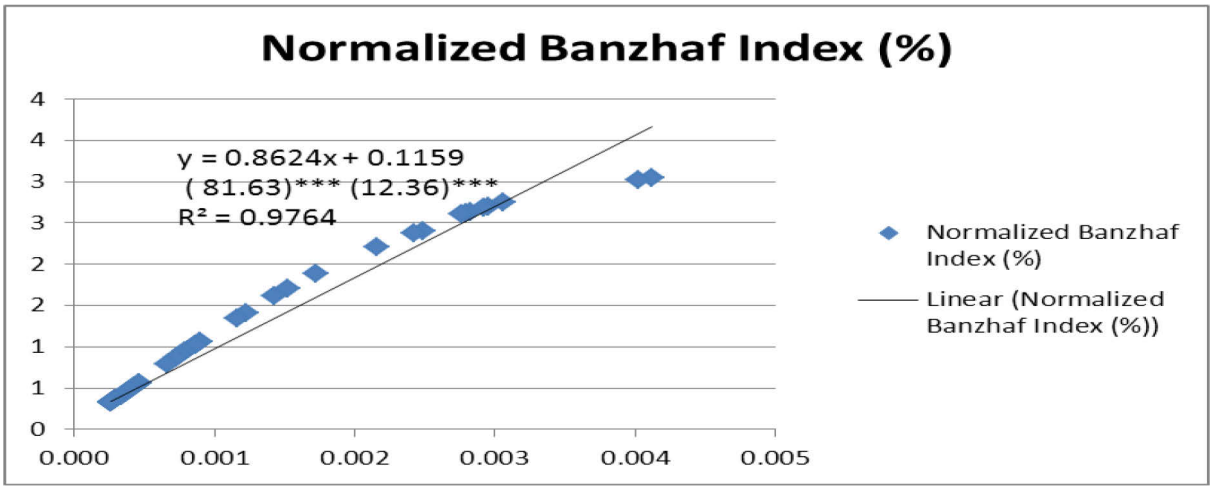
This graph represents the relationship between voting weights and voting power at IFAD for a majority requirement q of 50%. Voting weights are on horizontal axis (x) and voting power (normalized Banzhaf index) on vertical axis (y);

t-student are shown in parenthesis;

R^2 is the R-squared;

**** significant at 1% level;*

Figure 2.6- IFAD (q = 75%)



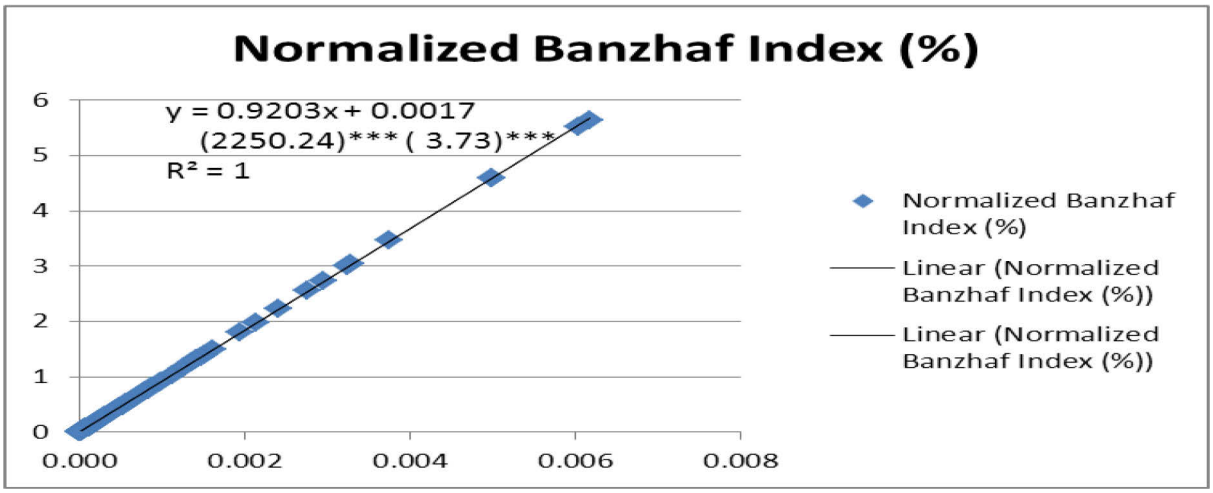
This graph represents the relationship between voting weights and voting power at IFAD for a majority requirement q of 75%. Voting weights are on horizontal axis (x) and voting power (normalized Banzhaf index) on vertical axis (y);

t-student are shown in parenthesis;

R^2 is the R-squared;

**** significant at 1% level;*

Figure 2.7- IMF (q = 50%)



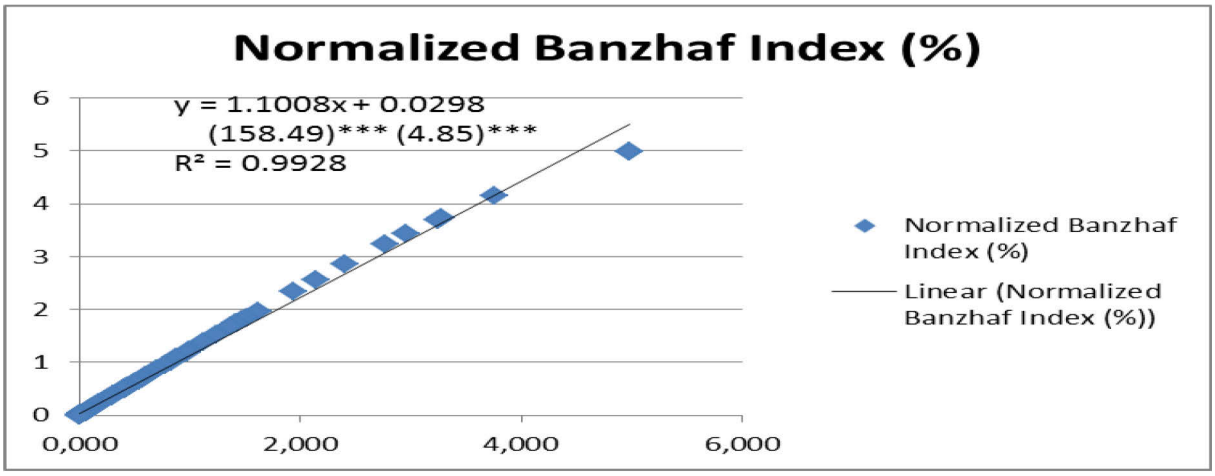
This graph represents the relationship between voting weights and voting power at the IMF for a majority requirement q of 50%. Voting weights are on horizontal axis (x) and voting power (normalized Banzhaf index) on vertical axis (y);

t-student are shown in parenthesis;

R^2 is the R-squared;

**** significant at 1% level;*

Figure 2.8- IMF (q = 75%)



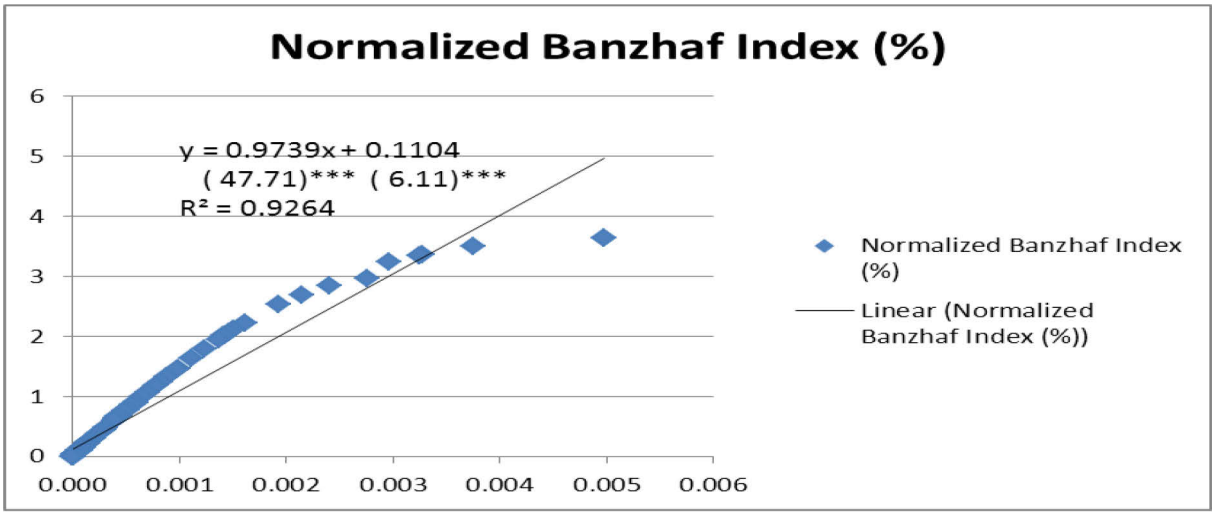
This graph represents the relationship between voting weights and voting power at the IMF for a majority requirement q of 75%. Voting weights are on horizontal axis (x) and voting power (normalized Banzhaf index) on vertical axis (y);

t-student are shown in parenthesis;

R^2 is the R-squared;

**** significant at 1% level;*

Figure 2.9- IMF (q = 85%)



This graph represents the relationship between voting weights and voting power at the IMF for a majority requirement q of 85%. Voting weights are on horizontal axis (x) and voting power (normalized Banzhaf index) on vertical axis (y);

t-student are shown in parenthesis;

R^2 is the R-squared;

**** significant at 1% level;*

We observe that the relationship between voting power, measured by the Banzhaf index, and voting weights, allocated to member states in our sample of weighted voting organizations, is linear except for largest contributors. In fact, for issues involving qualified majority, in our sample of weighted voting organizations, the linear relationship between voting power (i.e. the dependent variable) and voting weights (i.e. independent variable) fail to hold for largest contributors for which the curves flattened considerably and are concaves; this concavity is more pronounced for issues involving supermajority requirement. On the other hand, for issues involving simple majority, in our sample of weighted voting organizations, the relationship between power and weights is linear except for largest contributors for which the curves bowed downward and are convex.

Therefore, top contributors with extreme values represent the 'outliers'. Consequently, linear curves in the graphs above denote the relation between voting power, the dependent variable, at the ordinate axis and voting weights, the independent variable, at the abscissa axis of member states excluding the 'outliers'.

We consider now that existing 'outliers' are along the linear curves. We estimate for each one of the 'outliers' the value of its voting power (y; dependent variable) through replacing its existing voting weights (x; independent variable) in 2008 in the corresponding linear regression. We then compare the value of the estimated voting power with the existing voting power of the 'outlier' in order to verify if he has currently more or less power.

Let us explain and interpret these linear curves for each international organization and under different majority requirements presented in the graphs above.

For AfDB (Figure 2.1) under a 50% of majority requirement the linear curve (without the 'outliers') shows a similar increase in members' individual voting weights and voting powers. The United States, the second largest contributor, with 6.34% of voting weights and 6.47% of voting power is situated at the end of the linear curve. The top contributor Nigeria, the 'outlier' has a percentage of 8.72% of voting weights while it has 9.37% of voting power. Therefore, the United States and Nigeria under a 50% of majority requirement have more power than weights.

Consider now that Nigeria is along the linear curve, the value of its voting power is 8.75% for 8.72% of voting weights while its voting power in 2008 is 9.37%. We notice that Nigeria on the linear curve has 0.62% (9.37% minus 8.75%) less power than weights.

For AfDB (Figure 2.2) when decisions involve 70% of majority requirement, the linear curve indicates that member states (i.e. 72 members) have slightly more power than weights except for the two 'outliers' and the top three contributors along the linear curve. Actually, the top three contributors which have less power than weights are: South Africa with 4.44% of voting power and 4.50% of voting weights, Egypt with 4.88% of voting power and 5.06% of voting weights and Japan with 5.12% of voting power and 5.40% of voting weights. The 'outliers', the United States and Nigeria, have respectively 5.70% of voting power versus 6.34% of weights and 6.59% of voting power for 8.72% of voting weights.

If we suppose now that the 'outliers' are along the linear curve, the estimated voting power of the United States is therefore 6.33% (while its current power in 2008 is 5.70%) and Nigeria voting power is 8.69% (while its existing power in 2008 is 6.60%). We notice that, with 70% qualified majority and with the current 2008 distribution of power, the United States has 0.63% less power and Nigeria has 2.09% less power compared to their estimated power along the linear curve.

For IBRD (Figure 2.3, without the 'outlier') and with 50% majority requirement along the linear curve, voting powers are similar to voting rights for countries with the lowest voting weights (86 members) while voting powers for the remaining member states (97 members) are slightly less important than their voting weights. Germany the second largest contributor has 4.49% of weights and 4.17% of voting power. The top contributor, the United States, is the 'outlier' with 22,70% of voting power versus 16.38% of voting weights. Along the linear curve, the estimated voting power of the United States became 15.23%. Consequently, under 50% of majority requirement, the United States has more power with the existing distribution in 2008 than along the linear curve.

The linear curve of IBRD (Figure 2.4) for decisions requiring a qualified majority of 75% illustrates a greater percentage of voting power than weights for member

states except for the top two contributors Japan and Germany (the second and third largest contributors) at the end of the linear curve which have less power (6.00% and 4.72% respectively) than weights (7.86% and 4.49% respectively). The United States is the 'outlier' with just 6.20% of voting power relatively to 16.38% of voting weights in 2008.

We suppose now that the United States is not an 'outlier' anymore and is along the linear curve, the estimated voting power (the dependent variable) if we replace its voting weights 16.38% (the independent variable) in the linear regression ($y = 1.1124x + 0.0194$) is 6.92%. We notice that with a qualified majority the existing voting power (6.20%) in 2008 is less than the estimated power (6.92%).

The linear curve of IFAD (Figure 2.5) for decisions requiring a majority of 50% that the contributor at the top of the linear curve, the Saudi Arabia, has a voting power slightly higher than its voting weights (4.86% versus 4.82% respectively). Next contributors, Germany and Japan respectively has similar voting weights and powers (4.12% for Germany and 4.02% for Japan), the next 25 members have each one of them less voting powers than weights while each one of the remaining members (i.e. 137 members) have similar voting power and weights. The 'outlier', the United States, has greater voting powers than weights (9.71% versus 8.51% respectively).

If the United States is along the linear curve the estimated voting power (the dependent variable) is 8.48%. Therefore, the United States has a voting power in 2008 (9.71%) greater than the estimated power (8.48%) through the linear regression ($y = 0.9974x – 0.0059$); where voting weights are the independent variable (x) equal to 8.51%.

Under a qualified majority requirement of 75%, the IFAD linear curve (Figure 2.6) shows that the higher the voting weights the lower are the increase in voting power. The first 10 contributors along the linear curve have less power than weights (the first 10 contributors are respectively, Germany, Japan, Netherlands, Italy, France, United Kingdom, Sweden, Canada, Venezuela and Norway). The remaining 153 members have slightly more power than weights. The 'outliers' the United States (8.51% of voting weights versus 3.22% of voting power) and Saudi Arabia (4.82% of voting

weights versus 3.13% of voting power) have less power than weights.

We suppose now that the United States and Saudi Arabia are along the linear curve, their estimated voting powers are respectively 8.06% and 4.60% which are less than their existing power in 2008.

Regarding the IMF, the linear curve (Figure 2.7) under a simple majority requirement indicates that the largest contributors, at the top of the linear curve, Japan and Germany have less power than weights (respectively, 5.64% of power versus 6.17% of weights and 5.52% versus 6.03%). Moreover, France and United Kingdom have at about 0.4% less power than weights, China has 0.3% less power than weights, Italy, Saudi Arabia, Canada and Russia have at about 0.2% less voting power than voting weights. All the remaining countries (i.e.178 members) also have less power than weights but at a lesser extent than the most developed countries cited above and for some of the least developed countries their voting powers are the same as their voting weights (for instance, Antigua and Barbuda, Djibouti, Eritrea, Ghana, Guinea-Bissau and Saint Lucia). The 'outlier', the United States, with the highest voting weights (17.20%) has a greater voting power (23.49%).

If the United States is along the linear curve, its estimated voting power through the linear regression ($y = 0.9203x + 0.0017$) is 15.83% which is less than its existing voting power 23.49% for the same voting weights 17.20%.

Under a special majority of 75%, the linear curve of the IMF (Figure 2.8) illustrates a general increase in power relatively to the voting weights for the remaining countries especially Canada, China, Italy, Netherlands, Russia and Saudi Arabia which have at about 0.4% more power than weights; Australia, Brazil, Korea, Mexico and Spain have 0.3% more power than weights; Argentina, Austria, Indonesia, South Africa, Sweden and Venezuela have at about 0.2% more power than weights. Regarding the 'outliers', Germany, Japan and the United States, they have less power than weights respectively 6.03% of voting weights and 5.43% of voting power, 6.17% of voting weights and 5.48% of voting power, and 17.2% of voting weights and 5.9% of voting power.

If we replace voting weights, the independent variable, of each 'outlier' in the

linear regression (y = 1.1792x + 0.0109), the estimated voting power, the dependent variable, is 7.12% for Germany, 7.29% for Japan and 20.29% for the United States. We observe thus that under a qualified majority of 75%, the estimated voting power is higher than the existing voting power especially for the United States.

Under a special majority of 85% as we can see in Figure 2.9, the linear curve illustrates that top contributors France and United Kingdom have 1.3% less power than weights and China 0.2% less power than weights. However, remaining member states have greater power than their weights especially Australia, Brazil, India, Korea, Mexico, Spain and Switzerland with an increase at about 0.6% of power relatively to their individual voting weights; Venezuela and Belgium have 0.5% more voting power than weights and Netherlands 0.4% more power than weights. The 'outliers', Germany, Japan and especially the United States have less power than weights respectively 6.03% of voting weights and 3.68% of voting power, 6.17% of voting weights and 3.68% of voting power, and 17.2% of voting weights and 3.69% of voting power.

If we consider now that Germany, Japan and the United states follow the linear curve and are not 'outliers' anymore, the estimated voting power, the dependent variable, of each one of them in the linear regression (y = 1.3592x + 0.026) is 8.22% for Germany, 8.41% for Japan and 23.40% for the United States. Therefore, estimated voting powers are higher than existing voting powers of the 'outliers' particularly for the United States and we notice that the estimated voting powers under 85% of majority requirements are even higher than under a 75% of majority requirement.

Table 2.1 Summary of 'outliers' points if along linear curves under different majority requirements in weighted voting organizations

Weighted voting organizations	Majority requirem-ents (q)	Linear Regressions	Existing voting weights in 2008 of the 'outliers'	Existing voting power in 2008 of the 'outlie-rs'	Estimated voting power of 'outliers' if along linear curves
AfDB	50%	y=1.0045x – 0.0139	Nigeria: 8.72%	9.37%	8.75%
AfDB	70%	y=0.9917x + 0.0463	USA : 6.34% Nigeria : 8.72%	USA : 5.70% Nigeria : 6.60%	USA : 6.33% Nigeria : 8.69%
IBRD	50%	y= 0.93x + 0.0002	USA : 16.38%	22.70%	15.23%
IBRD	75%	y= 1.1124x + 0.0194	USA : 16.38%	6.2%	6.92%
IFAD	50%	y= 0.9974x – 0.0059	USA: 8.51%	9.71%	8.48%
IFAD	75%	y= 0.937x + 0.0869	Saudi Arabia: 4.82% USA: 8.51%	Saudi Arabia: 3.13% USA: 3.22%	Saudi Arabia: 4.60% USA: 8.06%
IMF	50%	y= 0.9203x + 0.0017	USA : 17.2%	23.49%	15.83%

Weighted voting organizations	**Majority requirem-ents (q)**	**Linear Regressions**	**Existing voting weights in 2008 of the 'outliers'**	**Existing voting power in 2008 of the 'outlie-rs'**	**Estimated voting power of 'outliers' if along linear curves**
IMF	75%	y= 1.1792x + 0.0109	Germany : 6.03% Japan : 6.17% USA: 17.2%	Germany: 5.43% Japan : 5.48% USA: 5.9%	Germany: 7.12 % Japan : 7.29% USA: 20.29%
IMF	85%	y= 1.3592x + 0.026	Germany : 6.03% ; Japan : 6.17% ; USA : 17.2%	Germany: 3.68% ; Japan : 3.68% ; USA : 3.69%	Germany: 8.22% ; Japan : 8.41% ; USA : 23.40%

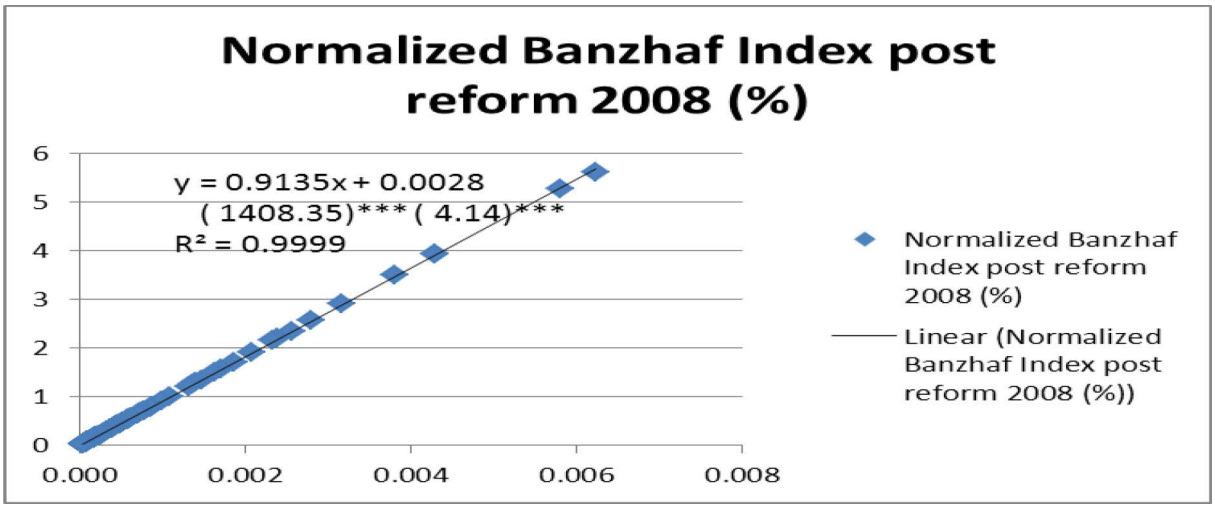
In sum, we notice from our data of 2008 that the most affected member states by the qualified and supermajority requirements are largest contributors to weighted voting organizations, particularly the United States whose voting power measured by the Banzhaf index $ß_i$ declines steeply as q increases. On the other hand, we notice that under qualified majority requirements member states with less voting weights have slightly greater voting power. Therefore, qualified majorities appear to equalize voting power between member states and do not privilege higher contributors. These results are consistent with Leech (2002c) results when he studied the effect of the majority requirement on major contributors at the IMF in 1999. Moreover, under qualified majorities, estimated voting powers along linear curves are greater than existing voting powers for 'outliers' in 2008. Thus, top contributors, the 'outliers', should have more powers if the latter were proportional to the voting weights.

Furthermore, we observe that a simple majority requirement favors disproportionately top contributors giving them more power than their voting weights while all other members have slightly less power. Consequently, the distribution of power is more unequal under simple majority requirement (q=50%). In addition, estimated voting powers along linear curves are lower than existing voting powers for 'outliers' in 2008. Therefore, largest contributors, the 'outliers', should have less powers if the latter were proportional to the voting rights.

Consequently, our findings lead us to conclude, as Leech (2002c) argued in the case of United States at the IMF in 1999, that supermajority conceived to protect the largest contributors by giving them a veto power seems to limit their power and to be damaging to their sovereignty. Indeed, John Maynard Keynes, the leader of the British delegation at the original Bretton Woods conference, has criticized the plan of special majorities granted to the United States over important decisions at the IMF and the World Bank, because special majorities favors coalitions between smaller member states being capable of blocking United States own proposals (Leech 2002c, p.375).

7. IMPACT OF THE AMENDMENTS OF 2008 AND 2010 ON MEMBERS' POWERS AT THE IMF

Figure 2.10- IMF 50%



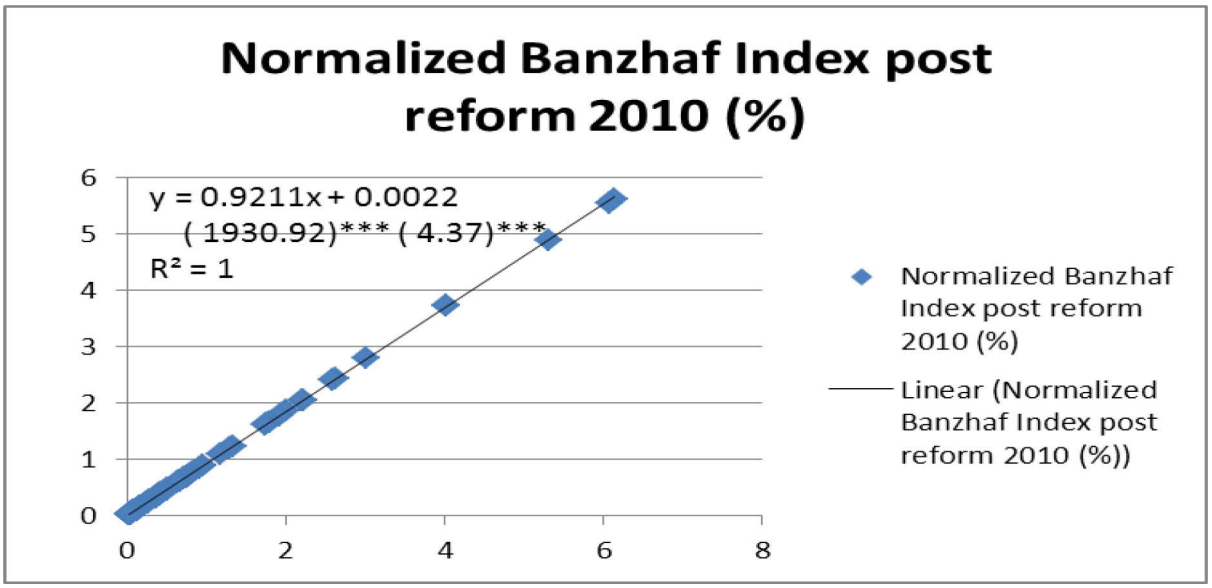
This graph represents the relationship between voting weights and voting power at the IMF for a majority requirement q of 50%. Voting weights are on horizontal axis (x) and voting power (normalized Banzhaf index) on vertical axis (y);

t-student are shown in parenthesis;

R^2 is the R-squared;

**** significant at 1% level;*

Figure 2.11- IMF 50%



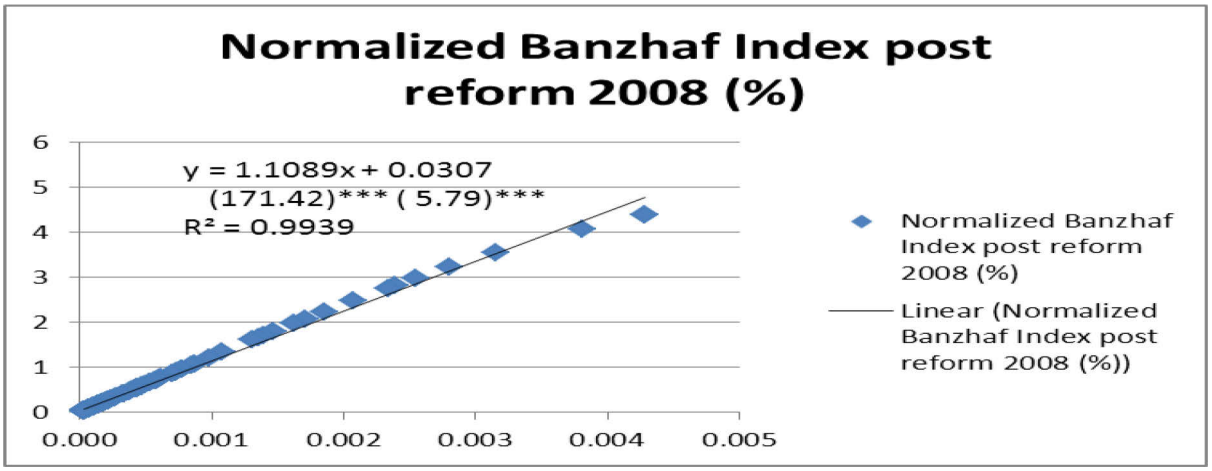
This graph represents the relationship between voting weights and voting power at the IMF for a majority requirement q of 50%. Voting weights are on horizontal axis (x) and voting power (normalized Banzhaf index) on vertical axis (y);

t-student are shown in parenthesis;

R^2 is the R-squared;

**** significant at 1% level;*

Figure 2.12- IMF 75%



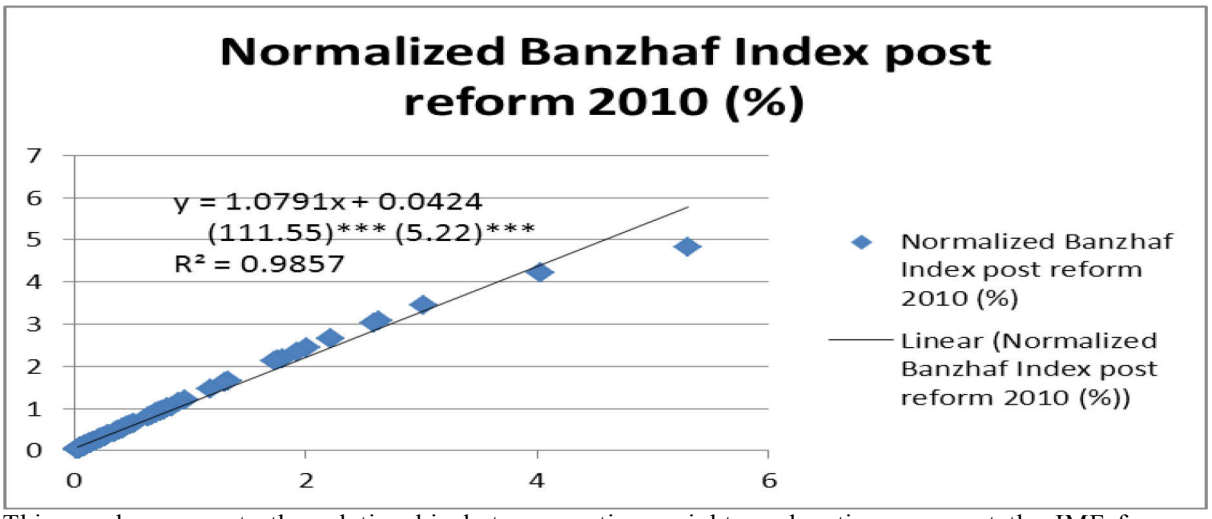
This graph represents the relationship between voting weights and voting power at the IMF for a majority requirement q of 75%. Voting weights are on horizontal axis (x) and voting power (normalized Banzhaf index) on vertical axis (y);

t-student are shown in parenthesis;

R^2 is the R-squared;

**** significant at 1% level;*

Figure 2.13- IMF 75%



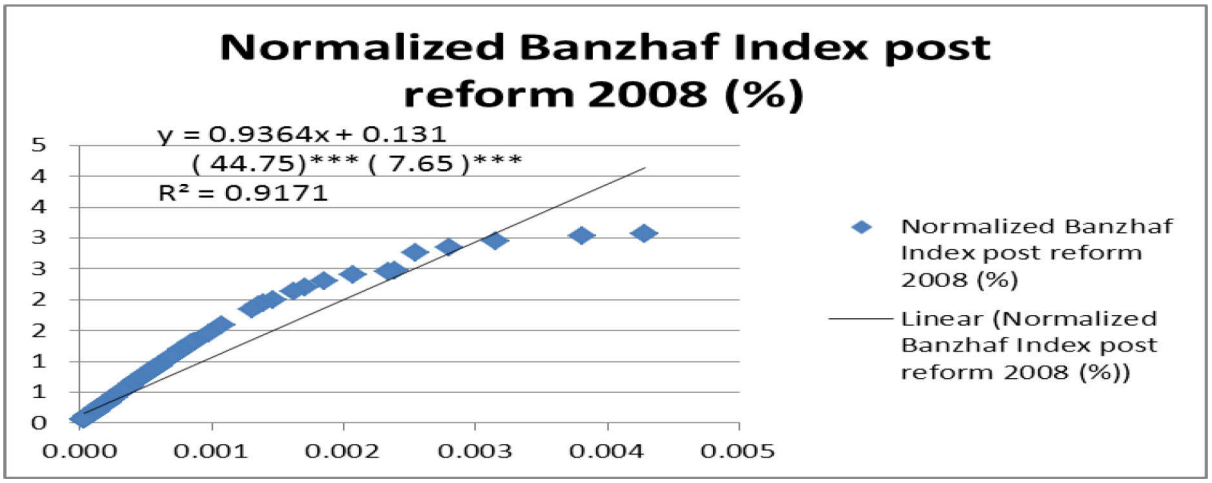
This graph represents the relationship between voting weights and voting power at the IMF for a majority requirement q of 75%. Voting weights are on horizontal axis (x) and voting power (normalized Banzhaf index) on vertical axis (y);

t-student are shown in parenthesis;

R^2 is the R-squared;

**** significant at 1% level;*

Figure 2.14- IMF 85%



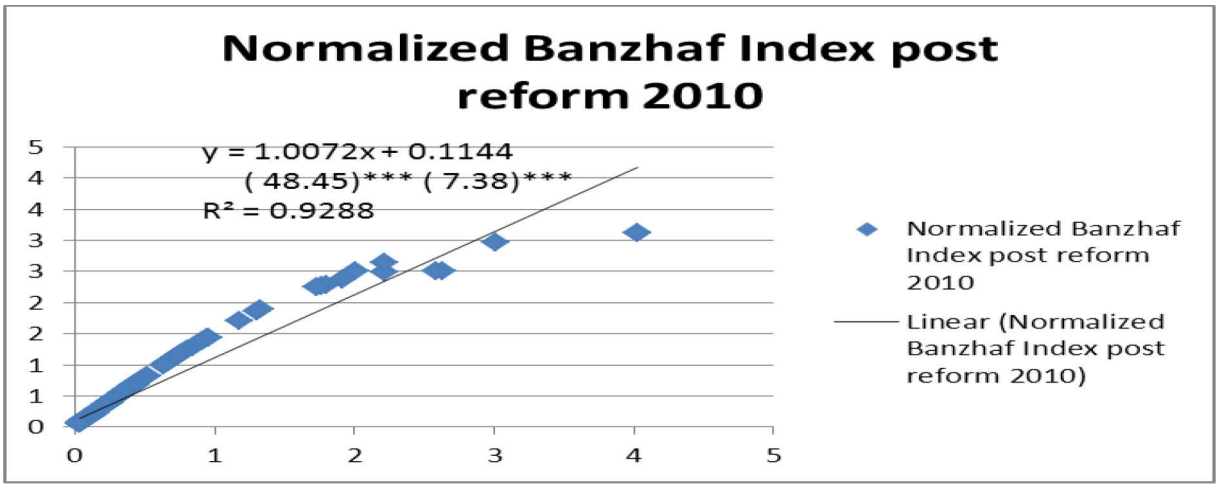
This graph represents the relationship between voting weights and voting power at the IMF for a majority requirement q of 85%. Voting weights are on horizontal axis (x) and voting power (normalized Banzhaf index) on vertical axis (y);

t-student are shown in parenthesis;

R^2 is the R-squared;

**** significant at 1% level;*

Figure 2.15- IMF 85%



This graph represents the relationship between voting weights and voting power at the IMF for a majority requirement q of 85%. Voting weights are on horizontal axis (x) and voting power (normalized Banzhaf index) on vertical axis (y);

t-student are shown in parenthesis;

R^2 is the R-squared;

**** significant at 1% level;*

We notice that for decisions involving a simple majority requirement, linear curves of 2008[206] post reform, for the Board of Governors[207], entered into force in March, 3, 2011 and of the post reform of 2010[208], for the Executive Board[209], not yet effective, show that voting weights are higher than voting powers for all member states. However, the 'outlier', the United States, has disproportionately more power than weights (under 2008 reform the United States has 16.72% of weights and 23.45% of power, and under 2010 reform it has 16.48% of weights versus 22.69% of power). The estimated voting power of the United States, if verifying the linear regression (y = 0.9135x + 0.0028) of the Board of Governors post 2008 reform, is 15.29%, and the estimated voting power of the United States in the Executive Board under the 2010 reform, is 15.18% computed through the linear regression

---

[206] **Reform post 2008**: "*Acknowledging the underlying shift taking place in the world economy, with emerging market economies playing an increasingly important role, the IMF reform process aims to better align quota and voting shares in the Fund with member countries' weight and role in the global economy. Equally importantly, the reform aims to enhance the participation and voice of low-income countries.*
The reform brings quota shares closer to members' evolving position in the world economy. As a result, 54 countries will get an increase in nominal quotas ranging from 12 to 106 percent, with some of the largest gains going to the dynamic emerging market economies. The combined increase in quota shares for these 54 countries is 4.9 percentage points.
In total, 135 countries will see an increase in voting share of 5.4 percentage points due to the combined effects of the increase in quotas and basic votes. Among countries that will see the biggest increase in voting share in the two rounds combined are China, Korea, India, Brazil and Mexico".
See in http://www.imf.org/external/np/sec/pr/2011/pr1164.htm

[207] *"The* **Board of Governors** *is the highest decision-making body of the IMF and consists of one governor appointed by each member country. The governor is usually the minister of finance or the governor of the central bank. Most powers of the IMF are vested in the Board of Governors. The Board of Governors has delegated to the Executive Board all except certain reserved powers. The Board of Governors normally meets once a year".* See in http://www.imf.org/external/np/sec/pr/2010/pr10418.htm

[208] **Post reform 2010**: "*As part of the far-reaching reforms, the Executive Board proposes completion of the 14th General Review of Quotas with a doubling of quotas to approximately SDR 476.8 billion (about US$755.7 billion at current exchange rates) and a major realignment of quota shares among members. It will result in a shift of more than 6 percent of quota shares to dynamic emerging market and developing countries and more than 6 percent from over-represented to under-represented countries, while protecting the quota shares and voting power of the poorest members. The Board also endorsed proposals that would lead to a more representative, all-elected Executive Board".*
See in http://www.imf.org/external/np/sec/pr/2010/pr10418.htm

[209] *"The* **Executive Board** *functions in continuous session and is responsible for conducting the business of the IMF. It is composed of 24 Directors, who are appointed (5) or elected by member countries or by groups of countries (19), and the Managing Director, who serves as its Chairman. The Board usually meets several times each week. It carries out its work largely on the basis of papers prepared by IMF management and staff".*
See in http://www.imf.org/external/np/sec/pr/2010/pr10418.htm

(y = 0.9211x + 0.0022). Therefore, the estimated voting power of the United States in the Board of Governors and the executive Board is less than its existing voting power in 2008.

We also observe that China, for instance, moves from the sixth place under 2008 reform (with 3.81% of voting weights and 3.50% of voting power) to the third place under the post reform of 2010 (with 6.07% of voting weights and 5.55% of voting power); India, moves from 13th place before 2008 reform (with 1.94% of voting weights and 1.80% of voting power) to 11th place under the post reform 2008 (with 2.34% of voting weights and 2.16% of voting power), to 8th place at the Executive Board under the 2010 post reform (with 2.63% of voting weights and 2.44% of voting power); and Brazil from 18th place before 2008 reform (with 1.42% of voting weights and 1.32% of voting power) to the 14th place under the post reform of 2008 of the Board of Governors (with 1.71% of voting weights and 1.58% of voting power) than to the 10th place under the post 2010 reform (with 2.22% of weights and 2.06% of voting power).

Under a qualified majority of 75%, the post reform 2008 indicates that member states (i.e.183 members) along the linear curve have more power than weights. On the other hand, the 'outliers', the United States, Japan and Germany, have less power than weights, that is respectively, 16.70% of voting weights versus 5.34% of voting power, 6.23% of voting weights versus 5.09% of voting power, and 5.80% of voting weights versus 4.99% of voting power. If we suppose now that the 'outliers' are along the linear curve verifying the linear regression (y = 1.1089x + 0.0307) the estimated voting power for the United States is 18.58%, for Japan 6.94% and for Germany 6.46%.

Under the same qualified majority, the 2010 post reform also shows that member states have more power than weights except for Germany, at the top of the linear curve, which has less power (4.82%) than weights (5.31%). The 'outliers', The United States, Japan and China have less power than weights, respectively, 16.48% of voting weights and 5.27% of voting power, 6.14% of voting weights and 5.03% of voting power, and 6.07% of voting weights and 5.02% of voting power. If the 'outliers' are along the linear curve, their estimated voting power are, for the United States, equal to 17.83%, for Japan, equal to 6.67% and for China 6.59%. We notice under both reforms that estimated voting powers are higher than the existing voting powers of the 'outliers'.

Under a qualified majority of 85%, the post reform of 2008 shows a more important decrease in voting power than under 75% of qualified majority for the first four major contributors (France, United Kingdom, China and Italy), at the top of the linear curve, while there is a more important increase in voting powers for the remaining members than under qualified majority of 75%. The 'outliers', the United States, Japan and Germany have less power (respectively, 16.48%, 6.14% and 6.07%) than weights (respectively, 16.73%, 6.23% and 5,80%). If the 'outliers' are along the linear curve, we replace voting weights, the independent variable, of every 'outlier' in the linear regression ($y = 0.9364x + 0.131$) and we compute the estimated voting power, the dependent variable. Thus, the estimated voting power of the United States is 15.80%, of Japan 5.96% and of Germany 5.56%.

The 2010 post reform for a qualified majority of 85% indicates a decrease of voting powers for the first five contributors (United States, Japan, China, Germany, France, United Kingdom, Italy, India and Russia) and an increase of voting powers for the remaining members, which is more important than under a qualified majority of 75%. The 'outliers' the United States, Japan, China and Germany have less power (respectively, 3.19%, 3.18%, 3.18% and 3.18%) than weights (respectively, 16.48%, 6.14%, 6.07% and 5.31%). If we suppose that 'outliers' verify the linear regression ($y = 1.0072x + 0.1144$), the estimated voting power, the dependent variable (y), is 16.64% for the United States, 6.30% for Japan, 6.23% for China and 5.46% for Germany.

We notice that estimated voting powers are higher than existing voting powers of the 'outliers' under 2010 post reform of the Executive Board and 85% of majority requirement while estimated voting powers are lower than existing voting powers of 'outliers' with 85% of supermajority and under 2008 post reform of the Board of Governors.

On the other hand, the "Paradox of Redistribution" is noticed for some member states under reforms. Actually, the "Paradox of Redistribution" means that the redistribution of voting weights may increase (respectively, decrease) some members' voting power, measured by the Banzhaf power index, while their voting weights are reduced (respectively, increased). This is the case of Japan which knows an increase of its voting weights (6.23% versus 6.17% before the reform) after the reform of 2008, whereas his voting power decreases under all majority requirements. Furthermore, the proposed reform of 2010 decreases Japan weights to 6.14% while its voting power under a simple majority

remains unchanged and its voting power under 85% majority increases. India loses power, after 2008 reform and with 85% of qualified majority, and after the increase of its voting weights from 6.17% to 6.23%. Germany, Italy, France and United Kingdom also, with 2010 reform and under 85% of majority requirement, have more power with post 2008 reform, while their voting weights decrease (see Appendix 4).

Table 2.2– Summary of 'outliers' points if along linear curves under different majority requirements at the IMF post reform 2008 for the Board of Governors

Weighted voting organizations	Majority requirem-ents (q)	Linear Regressions	Existing voting weights of 'outliers' post reform 2008	Existing voting power of 'outliers' post reform 2008	Estimated voting power of 'outliers' if along linear curves
IMF	50%	y = 0.9135x + 0.0028	USA: 16.73%	23.45%	15.29%
IMF	75%	y = 1.1089x + 0.0307	Germany : 5.80% Japan : 6.23% USA : 16.73%	Germany: 5% Japan : 5.09% USA : 5.34%	Germany : 6.46% Japan : 6.94% USA : 18.58%
IMF	85%	y = 0.9364x + 0.131	Germany : 5.80% Japan : 6.23% USA : 16.73%	Germany: 6.07% Japan : 6.14% USA : 16.48%	Germany : 5.56% Japan : 5.96% USA : 15.80%

Table 2.3 – Summary of 'outliers' points if along linear curves under different majority requirements at the IMF post reform 2010 for the Executive Board

Weighted voting organizations	Majority requirem-ents (q)	Linear Regressions	Existing voting weights of 'outliers' post reform 2010	Existing voting power of 'outliers' post reform 2010	Estimated voting power of 'outliers' if along linear curves
IMF	50%	y = 0.9211x + 0.0022	USA : 16.48%	22.69%	15.18%
IMF	75%	y = 1.0791x + 0.0424	China : 6.07% Japan : 6.14% USA: 16.48%	China: 5.02% Japan : 5.03% USA: 5.27%	China: 6.59 % Japan : 6.67% USA: 17.83%
IMF	85%	y = 1.0072x + 0.1144	Germany: 5.31% China : 6.07% Japan : 6.14% USA: 16.48%	Germany: 3.18% china: 3.18% Japan : 3.18% USA: 3.19%	Germany: 5.46% china: 6.23% Japan : 6.30% USA: 16.64%

To sum up, we observe under both reforms, that simple majority induces higher voting powers than weights for all member states and for highest contributors, especially the United States, whereas special majorities show less power than weights for largest contributors, especially the United States, and more power than weights for the remaining member states at the IMF.

Furthermore, as we have observed before the reform of 2008, that under the post 2008 reform and the proposed 2010 reform at the IMF, the simple majority requirement favors the United States by giving disproportionately more power than its financial contributions or its voting weights, although special majority induces a significant loss in power of the United States and appears to equalize voting powers between member states. Moreover, we detect with both reforms the "Paradox of Redistribution".

Finally, estimated voting powers, when voting powers of top contributors, the 'outliers', are computed proportionately to their voting weights, are less important than the existing voting power in 2008 and their voting weights under simple majority, whereas they are more important than existing voting powers and weights under qualified majority except in the case of 85% of supermajority under the 2008 post reform for the Board of Governors. Therefore, the computation of estimated voting powers proportionately to the 'outliers' voting weights appears to be an interesting tool in order to remedy to the disproportionately great power of the United States under a simple majority requirement and to the loss of power of largest contributors under qualified majority requirements. On the other hand, we observe that existing and estimated voting powers of largest contributors in the Board of Governors, where member states vote individually, are higher than proposed and estimated voting powers of top contributors in the Executive Board, where member states vote as groups. This is an intuitive result since we would expect that large members would be hurt by the formation of coalitions.

CONCLUSION

In the websites, documents and annual reports of international organizations, there is a common fallacy confounding the term voting weight with voting power. Our results confirm the previous studies on the question that voting weights of member states in weighted voting organizations do not reflect their effective voting power. For that reason, a distinction should be made between both terms.

Our data of 2008 applied on a sample of four weighted voting organizations (AfDB, IBRD, IFAD and IMF) show that, as majority requirements (q) increase, the power - measured by the normalized Banzhaf index - of greater contributors, particularly the United States, decrease. At the same time, supermajority of 85% decreases the gap of voting power between member states reducing thus inequalities. Therefore, supermajority perceived to protect the interests of largest contributors by giving them a veto power seems to limit their power to act and to be harmful to their sovereignty. Furthermore, under qualified majorities, estimated voting powers along linear curves, are higher than existing voting powers for 'outliers' in 2008. However, estimated voting powers are less than weights except for the IMF.

Simple majority requirement show clearly that top contributors are disproportionately privileged with more power than their financial contributions or weights whereas all other member states have slightly less power than weights. Accordingly, we can conclude that under simple majority requirement the distribution of power is more unequal than under qualified majority requirement. Furthermore, estimated voting powers along linear curves are lower than existing voting powers for 'outliers' in 2008. Therefore, the 'outliers' should have less powers if the latter were proportional to the voting rights.

On the other hand, both IMF reforms show that with a simple majority requirement member states' voting powers are higher than their voting weights especially for the United States. Under Special majority requirement, member states' voting powers are higher than their voting weights except for largest contributors, particularly the United States, which have less power than weights. Special majority appears to equalize voting powers among member states. In addition, under both reforms, we observe that for some developed and emergent countries cited above while their

voting weights decrease (increase) their voting power increase (decrease), this is termed the "Paradox of Redistribution".

Estimated voting powers of the 'outliers', under a simple majority requirement and IMF post 2008 reform and 2010 reform, are less than the existing voting power in 2008 and less than voting weights. Under qualified majority, estimated voting powers are higher than existing voting powers and weights except in 2008 post reform under a supermajority requirement of 85%.

Estimated voting powers of the 'outliers', as we have seen before, seem to be an interesting tool that permits to remedy to the disproportionately great power of the United States relatively to its voting weights under a simple majority requirement and to the loss of power of largest contributors under qualified majority requirements. Moreover, we notice that largest contributors at the IMF Board of Governors have higher existing and estimated powers than at the IMF Executive Board. This result can be explained by the fact that since members vote as groups in the Executive Board, as opposed to the Board of governors where they vote as individuals, largest contributors could be harmed by coalitions.

We conclude by this reflection of Dreyer and Schotter (1980, p.103): "*While it is true that equity or fairness cannot be reflected adequately by numbers, power indices still remain the best quantitative tool available in assessing the soundness of many political structures".*

Chapter 3 - International Burden-Sharing: One-nation, One-vote versus Weighted Voting Organizations

ABSTRACT

Which voting structure provides a better 'fairness' of burden-sharing (i.e. contributions) and a better redistribution system in international organizations? To shed light on this question we build an original data base. The data used consists of 12 international governmental organizations (IGOs) including 6 IGOs with one-nation, one-vote procedure and 6 IGOs with weighted voting procedure. We examine the median decisive voter in one-nation, one-vote and weighted voting organizations and which one of them provides a better redistribution system. We analyze the assessments of member states' contributions in order to verify the exploitation hypothesis and then try to evaluate through a regression model if burden-sharing is progressive, proportional or regressive and whether weighted voting or one-nation, one-vote organizations provide a better 'equity' of burden-sharing. Moreover, we study the impact of voting power on contributions deviations. We can conclude from our analysis first, that one-nation, one-vote organizations insure a more than proportional redistribution system. Second, the exploitation hypothesis of the collective-action is better identified in one-nation, one-vote organizations than in weighted voting organizations. Third, we also realize that one-nation, one-vote organizations provide a better 'equity' and 'fairness' of burden-sharing. Fourth, voting power has no impact on contributions deviations as a percentage of GNI per capita (under- and over- payments).

INTRODUCTION

Most theoretical and empirical studies on burden-sharing have mainly focused on NATO's defense burden comparing the United States with EU members (e.g. Oneal, 1990; Khanna and Sandler, 1996 and Hartely and Sandler, 1999). Further studies on NATO's burden-sharing also have dealt with UN peacekeeping (e.g. Khanna, Sandler and Shimizu, 1998; Shimizu and Sandler, 2002). At the same time the debate on burden-sharing in the UN agencies has been scarce (see Kravis and Davenport, 1963; Olson and Zechkauser, 1966; Diamond and Dodsworth, 1976; kwon, 1995 and Kwon, 1998) especially in multilateral aid agencies (see Addison, McGillivray and Odedokun, 2004). One recent literature has focused on security burden-sharing in the EU (see Dorusen, Kirchner and Sperling, 2009), while more recent literature on burden-sharing propositions and empirical studies has given more attention to environmental issues like the international burden-sharing scheme of climate change (e.g. Dellink, Elzen, Aiking, Bergsma, Berkhout, Dekker and Gupta, 2009)

The above studies evaluate disproportional burden-sharing (i.e. under-/over-contribution) of member states in international organizations. They use different empirical tests to demonstrate the disproportionate costs handled especially by larger and wealthier member states. However, there is some evidence of disproportional high burden share carried by smaller countries (Addison, McGillivray and Odedokun, 2004; Dorusen, Kirchner and Sperling, 2009). Moreover, there is a decline in the disproportional burden share of the United States after the cold war (Diamond and Dosdworth, 1972; Oneal, 1990; Kwon, 1995). Finally, the main indicator of member states' ability-to-pay remains the size of the economy (gross domestic product (GDP); gross national product (GNP) or gross national income (GNI)).

So far, none of the studies focuses on the voting structure of international organizations as a main criterion in evaluating burden-sharing relative to a country's ability to contribute or pay[210]. However, it was mentioned briefly in Hartley and Sandler (1999; p.677) that decision-making rules should be given more attention for

[210] The ability-to-pay principle considers that contributions vary on the basis of a member state's income or 'capacity to pay'. Thus, countries with higher incomes should support higher contributions. This principle is often used to justify progressive taxation which attempts to decrease the contributions of countries with lower ability-to-pay by moving the burden increasingly to countries with higher ability-to-pay.

an enlarged NATO: "a majority decision-making rule probably needs to replace the unanimity rule where decisive collective military action is required". Moreover, voting rules were mentioned in Kwon (1995; p. 85-86) who concluded that in order to increase the incentive for developed countries to contribute to the UN general assembly a structural change in the voting system is one example. One option consists of allocating voting weights to member states in proportion to their financial contribution to the UN. Weighted voting may increase the acceptability of the decision taken in a particular issue.

The main question is which voting structure provides a better 'fairness' of burden-sharing and a better redistribution system?

In order to address this question, we proceed as follows. Section 1 is an overview of the literature on burden-sharing and the median voter theorem. Section 2 reviews empirical studies on burden-sharing. Section 3 presents, first, our source of data, second, examines the median decisive voter in one-nation, one-vote and weighted voting organizations and which one of them provides a better redistribution system, third, analyzes the assessments of member states' contributions in order to verify the exploitation hypothesis. In section 4 we try to determine through a regression model whether burden-sharing is progressive, proportional or regressive and if weighted voting or one-nation, one-vote organizations offer a better 'equity' of burden-sharing. Moreover, we study the impact of voting power on contributions deviations (under- and over-'pay'). In the conclusion we summarize and evaluate our main results and findings.

1. BURDEN-SHARING AND THE MEDIAN VOTER THEOREM

In public choice literature on income redistribution, Roberts (1977) showed in an extension of the work of Hotelling (1929) and Downs (1957) that with universal suffrage and majority voting rule, the decisive voter is the median voter. Romer (1975) and Roberts (1977) also showed in their models that income redistribution rose when the distribution of market incomes is skewed towards high income earners; in other words when the median income is below the average income.

Meltzer and Richard (1981) explained that the rising size of government[211] depends on the relation of the average income voter to the income of the decisive median voter. It is evident that the demand of the median voter for redistribution increases with the distance between the average and the voter own market income[212]. Analyses of income distributions show that the distribution in real world-market is skewed to the right so that the median income lies below the average income. Any voting rule that concentrates votes below the mean gives incentives for redistribution of income financed by taxes on incomes that are relatively high, which increases the size of government[213]. Voters with incomes below the income of the median voter prefer higher taxes and more redistribution while voters with incomes above the median voter support lower taxes and less redistribution. The tax share is chosen by the median voter. When the mean income decreases relative to the income of the median voter, taxes decrease and vice versa (Meltzer and Richard, 1981, p.924).

Moreover, Borge and Rattso (2004) illustrated in the case of Norway that redistribution is greater when the mean income is above the median income. These results confirm the view that the median income taxpayer (supposed identical to the median voter) gains from taxing the rich (Feld and Schnellenbach, 2007, p.29).

As Feld and Schnellenbach (2007, p.8-9) surveyed, the Meltzer-Richard model considers redistribution either from the relatively rich to the relatively poor (including the middle class if it is sufficiently poor), or no redistribution at all if the income of the median voter is above the average. This result is consistent with Stigler's hypothesized fiscal exploitation of the rich by middle and poor classes. Though, it is not consistent with Director's law which considers that redistribution is made in considerable part from the poor and the rich to the benefit of the middle classes. Nevertheless, the Romer-Roberts models consider that redistribution goes from the poor to the median voter through a regressive tax system once the median voter is sufficiently productive.

---

[211] Meltzer and Richard (1981, p.915) used the share of income redistributed by government, in cash and in services, as their measure of the relative size of government.
[212] Feld, L.P. & Schnellenbach, J**.** (2007). Still a Director's Law? On the Political Economy of Income Redistribution. *Institut de Recherches Economiques et Fiscales*, p.5.
[213] Meltzer, A.H. & Richard, S.F. (1981). A Rational Theory of the Size of Government. *The Journal of Political Economy*, 89(5), p. 916.

Furthermore, the Romer-Roberts models predict that the direction of income redistribution vary relatively to the position of the median voter's income. In fact, the wealthier the middle classes which comprise the median voter, the higher will be the burden shouldered by the poor. The median voter, however, may not coincide with the median citizen. In fact, there is some empirical evidence showing a positive relationship between income and citizen probability to vote. In that case, the decisive voter will have a higher income than the median citizen (Feld and Schnellenbach, 2007, p.9).

In our study, we extend (in section 3) the theory of income redistribution from the national to the international level by examining the redistribution of voting weight (i.e. number of votes) and income per capita in one-nation, one-vote and weighted voting organizations.

2. EMPIRICAL STUDIES ON BURDEN-SHARING

We shall now review tests used in burden-sharing literature.

For instance, Olson and Zeckhauser (1966) applied the theory of collective action to North Atlantic Treaty Organization (NATO). They found that defense burdens were positively correlated with the economic size of the allies as measured by gross national product (GNP). The GNP constitutes a good measure of the benefits that a nation obtains from collective security and its ability-to-pay for it (Oneal, 1990, p.381).

Olson and Zeckhauser (1966) found evidence supporting the *exploitation hypothesis*[214] since large allies shouldered the burdens of the small allies. Moreover, a

[214] Olson and Zeckhauser (1966) studied burden sharing in an alliance, such as the North Atlantic Treaty Organization (NATO), and stressed the disproportionate share of defense burdens carried by the large, rich members for the small, poor members providing thus small allies with a relatively free ride. This proposition is well-known as the "exploitation hypothesis" (Sandler and Hartley, 2001, p.869). As Addison, McGillivray and Odedokun (2004, p.176 & 179) have shown, the exploitation hypothesis is supported when the relative share of contributions rises faster than the ability to pay, thus larger economies shoulder a disproportionate share relative to smaller economies. Though, a 'reverse exploitation'[214] is supported if burden sharing increases slower than the ability to contribute which means that the poor are exploited by the rich. Finally, the exploitation hypothesis is not supported if burden sharing is proportionate to relative ability to contribute and in that case neither small nor large economies are exploited. Therefore, the exploitation hypothesis is consistent with a progressive system of taxation, thus with the ability-to-pay principle, while the 'reverse exploitation'

free-rider problem arises since smaller countries rely on larger countries for defense protection.

Diamond and Dodsworth (1972), analyzed actual contributions of the Netherlands to international organizations in order to identify criteria on which such payment is based. They compared the under- and over-payment of the Netherlands with the European Economic Community (EEC). They calculated the percentage of over-payment based on GNP by taking the difference in the actual share in costs of the Netherlands and its share in the EEC countries' combined GNP, and then expressed this deviation as a percentage of GNP share. They noticed in general quite an over-payment amongst European countries except for Germany, whilst the United States under-payed in most international organizations included in the sample. Their study of the Netherlands' experience proposed that the conventional analogy with domestic taxation is ambiguous and argued for a closer look at the procedures by which burden-sharing schedules were determined. They tested therefore a simple bargaining model in an attempt to explain how cost-sharing varied with different types of organizations.

Oneal (1990) reviewed the Olson's theory applied to the NATO alliance, and then suggested an alternative explanation for the declining association between economic size (gross domestic product) and defense burden (the ratio of military expenditure to GDP) over the postwar period. In fact, he explained that the reduced explanatory power of the theory, especially the modest decline in the exploitation of the United States, is due to the pursuit of private goods by Greece, Turkey, Portugal and the increasing cooperation among the other European allies of NATO. He compared the ratio of military expenditures to GDP of each NATO ally with the alliance-wide average during the period 1950-1984. This is equivalent to dividing each country's share of total defense expenditure by its share of the NATO countries' combined GDPs. Then the burden of each ally relative to the NATO average each year was divided by the mean of the score for the United States and the score for all other countries combined, creating thus an index which allows comparisons through time.

---

is consistent with a regressive system of taxation. Finally, if there is no exploitation this would be consistent with a proportional tax system.

A result less than 1 meant that a member state was carrying a relatively low burden; the smaller the value, the greater was the member state's free-riding. A result higher than 1 indicated that a member state was being exploited (Oneal, 1990, p.387). The results prove that the theory of collective action offer important insights into the behavior of the NATO allies and, in particular, the essential role of the United States.

Kwon (1995, p.77) computed a 'proportional assessment' that represents what each nation would have to pay to meet UN expenditure levels if all countries were going to pay exactly the same share of gross national product (GNP). He then compared the proportional assessment with actual contributions of various UN subgroups for 1971-1987 periods. The results from descriptive statistics refute the predictions of the collective-action theory which considers that member states with large economies should contribute a higher percentage of their GNP to their international organizations. In fact, from 1973 on, the United States and Japan, the largest economies among UN members, paid less than their proportional share. However, not all OECD[215]'s members under - contributed; smaller members over paid during the 1980s. On the other hand, the Third World as a group fell below their proportional assessments but at the same time it was moving toward their proportional assessments. Moreover, Kwon applied panel regression equations for OECD member states' burden-sharing of the UN finances. He used a cross-sectional data for 1987 and also examined a dynamic model covering the decade 1977-1987 in order to determine a burden-sharing pattern and explain its changes. The UN burden share (i.e. contribution/GNP) is the dependent variable and is defined as the member's contribution divided by its gross national product (GNP) over the period considered. Kwon took into account independent variables as the domestic political setting (specifically, per capita income, import share to trade ratio and party ideology) and international setting (measures of Cold war intensity and 'third world influence') that help determine a member state's contribution to international organizations. In sum, Kwon argues against the collective-action theory which fails to predict a contribution pattern after the cold war.

Hartley and Sandler (1999) studied burden-sharing in the case of NATO enlargement. They showed that burden-sharing is affected by the indicator choice

[215] Organization for Economic Cooperation and Development.

since different indicators give different rankings and results. Member states have an incentive to privilege indicators which illustrate that they support an "unfairly" high burden of the collective defense effort, which is in their national interest. Hartley and Sandler (1999, p.673) indicated that governments will always recommend one best indicator "in which case, defense as a share of GDP is the best measure". "The criticisms and limitations of this measure also apply to many other indicators" (Hartley and Sandler, 1999, p.674). Questions on "fairness" remain controversial and for NATO they need an international collective agreement on whether member-states should contribute to the alliance on the basis of ability-to-pay or of the benefits received with payments on a proportional or progressive basis.

Shimizu and Sandler (2002) analyzed peacekeeping burden-sharing for the 1994-2000 period. In fact, they updated their earlier analyses of UN and NATO's peacekeeping burden-sharing for the 1976-1996 period (Khanna, Sandler and Shimizu, 1998). They applied, in both studies, the Kendall *tau* test to examine whether burdens are disproportionately shouldered by the large countries. The *tau* test points out the rank correlation between GDP and peacekeeping burdens. The findings indicate that large countries shoulder a disproportionate burden for the small countries in terms of the financing of peacekeeping and enforcement missions. This exploitation of the large by the small is more pronounced for NATO allies than for the two samples including the major contributors to UN. The recent study extends the rank correlation between GDP per capita and peacekeeping burdens to determine if the rich are carrying the burden of the poor. There is evidence that disproportionate burden-sharing is in terms of economic size than wealth. Therefore, "disproportionate burden-sharing in terms of GDP does not necessarily imply disproportionate burden-sharing in terms of GDP per capita" (Shimizu and Sandler, 2002, p. 665).

Addison, McGillivary and Odedokun (2004) analyzed the principal sources of funding of multilateral development aid agencies. Their empirical study is based on annual data over 1970-2000, pooled across the 22 OECD's Development Assistant Committee (DAC) donor countries. They gave each country's relative share of DAC members' combined Gross Domestic Product (GDP) as an indicator of the ability to pay or contribute to the multilateral aid agencies. Their results showed that donor ability-to-pay is a highly significant determinant of burden sharing. However, there

was some evidence of disproportional high burden share carried by smaller DAC contributors.

Dorusen, Kirchner and Sperling (2009) evaluated burden-sharing relative to a country's ability to contribute in the European Union (EU). They showed that larger EU members and wealthier EU members shoulder respectively disproportionate costs in the provision of prevention and in the provision of compellence. On the other hand, smaller EU members disproportionately bear the costs of assurance and protection. The principle that matters in and outside the EU common budget is a 'fair' contribution relative to GNI. Dorusen, Kirchner and Sperling used the Kendall *tau* test as an appropriate nonparametric statistical test in order to estimate burden-sharing relative to the ability-to-pay.

3. EMPIRICAL ANALYSIS

3.1. Data

The data used in this study is original and is built by the author. The data consists of 12 international governmental organizations (IGOs) including 6 IGOs with one-nation, one-vote procedure and 6 IGOs with weighted voting procedure. Our sample of one-nation, one-vote organizations comprises the International Civil Aviation Organization (ICAO), the United Nations Population Fund (UNFPA), the United Nations High Commissioner for Refugees (UNHCR), the United Nations Children's Fund (UNICEF), the United Nations Industrial Development Organization (UNIDO) and World Health Organization (WHO). Our sample of weighted voting organizations includes the African Development Bank (AfDB), the Asian Development Bank (ADB), the Inter-American Development Bank (IDB), the International Bank for Reconstruction and Development (IBRD), the International Fund for Agricultural Development (IFAD) and the International Monetary Fund (IMF)[216]. The database contains 1847 observations including deviations as a percentage of the GNI per capita

[216] UNFPA, UNHCR and UNICEF represent United Nations' funds. IBRD, ICAO, IFAD, IMF, UNIDO and WHO are specialized agencies of United Nations. ADB, AfDB, IDB and IBRD are multilateral development banks. IFAD is a multilateral financial institution. In sum, the IGOs with weighted voting procedure in our sample are international financial institutions.

share[217] of 175 member states (see Table 3.7 in Appendix 7). This analysis is a cross-sectional one since we compared multiple IGOs at a single point of time which is 2008.

We start with a large sample of IGOs collected from the *Europa Directory of International Organizations 2008*. The data on contributions of members is gathered from annual reports, independent external auditors' reports and financial statements of IGOs consulted in their website. A large number of IGOs was contacted and some of them like the World Bank helped us to find the information we need in their website. On the other hand, since data on contributions are more difficult to come by, for instance the Food and Agriculture Organization refuses to disclose them, the sample decreases to 12 organizations.

The choice of these organizations is based on the following criteria: first, these international organizations are characterized by different voting rules in order to compare the contributions assessment of one-nation, one-vote and weighted voting organizations. Second, International Nongovernmental Organizations (INGOs) and purely regional organizations are excluded from our study in order to have a homogenous sample.

The population and the Gross National Income per habitant (GNI/hab) in purchasing power parities are drawn from the World Bank's World Development indicators (WDI 2008). The data base is in US dollars computed with respect to each organization exchange rate method. For instance, UNIDO's data are computed in euros and converted in dollars by using the UN operational exchange rate.

[217] Calculated by the formula (Country's share in contributions/hab – Country's share in GNI/hab) *100 Country's share in GNI/hab
(We will discuss it in more detail below; see next section).

3.2. Assessment of member states' contributions

We choose from our sample of one-nation, one-vote organizations the World Health Organization (WHO) which has the largest membership of 195 countries and, from our sample of weighted voting organizations, we choose the International Monetary Fund (IMF) which comprises the largest membership of 186 countries. Since in one-nation, one-vote organization all members have one vote, the median income per capita represents the median decisive voter, whereas in weighted voting organization the median decisive voter corresponds to the member state that insures 51% of voting weights. In the case of the IMF, Canada is the pivotal voter with an income per capita equal to $36220.

Figure 3.1

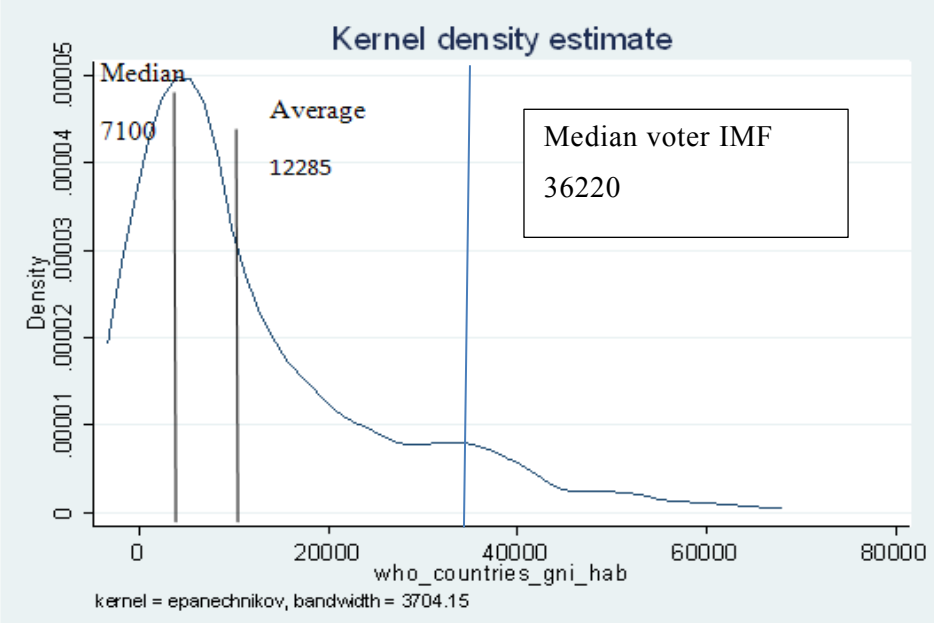
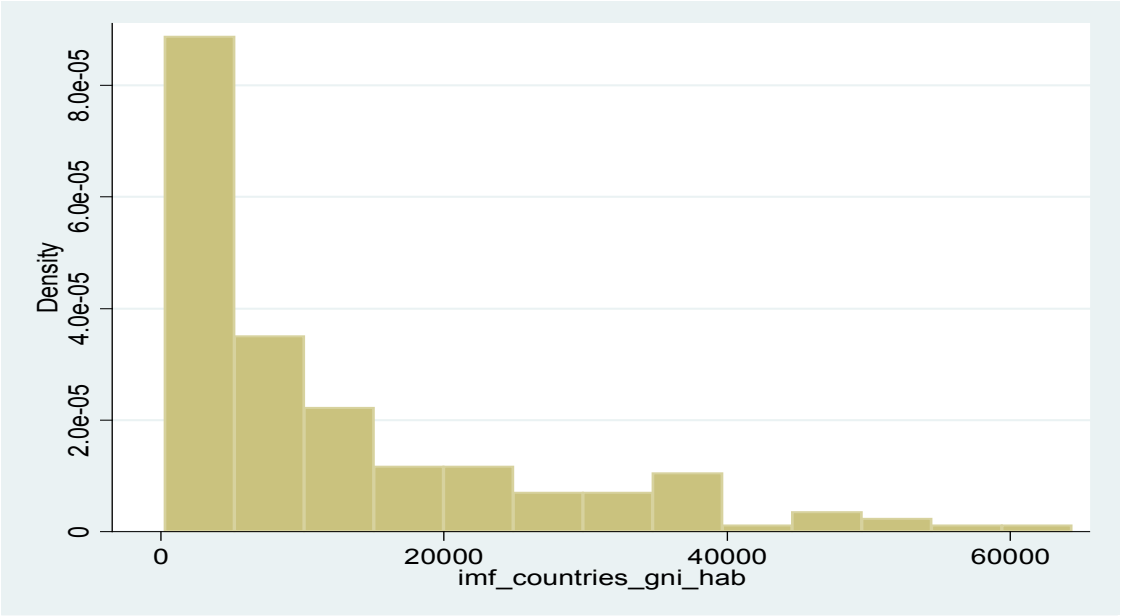


Figure 3.2



On the one hand, our results in Figure 3.1 and Figure 3.2, using the Kernel density which is a non-parametric way to estimate the density of a continuous random variable, show clearly that in one-nation, one-vote organization the average income per capita ($12270) lies above the median income per capita ($7100) of the decisive voter which means, as we have seen above, that redistribution is greater and skewed to the right.

On the other hand, in weighted voting organization, the average income per capita ($12270), which is the same at the IMF and WHO, lies below the median income per capita ($36220) corresponding to the decisive voter. Thus, redistribution is skewed to the left which implies that there is less redistribution.

Consequently, following Meltzer and Richard (1981) argument, one-nation, one-vote organization should be more redistributive in term of their output in favor of the median income countries than weighted voting organization (where the median income country in terms of rights to vote is among the wealthiest). Do not forget that IOs are dedicated to help poor countries either in cash or in kind through "public goods". That means wealthiest countries impose redistributive goals toward poor countries corresponding to the altruistic preferences of their decisive voter.

Following now the method used by Diamond and Dodsworth (1976) in examining the assessment of Netherlands contributions in a sample of 24 organizations[218] in order to judge if the Netherlands under- or over- pays, we apply a slightly modified formula of deviation to study assessment of member states' contributions in our sample of international organizations. Moreover, we compare our results on the one hand, in one-nation, one-vote organizations and on the other hand, in weighted voting organizations trying to distinguish which voting system provides better 'fairness' based on 'capacity to pay'. In their study of the Netherlands case, Diamond and Dodsworth (1976) calculated the percentage over-payment based on GNP by using the following formula:

$$\frac{\text{Netherlands' share in costs} - \text{Netherlands' share in GNP}}{\text{Netherlands' share in GNP}} * 100.$$

They assumed that a country's ability-to-pay depends on its national income and its average income per head which indicate respectively the economic size and the relative richness or poorness of the country. However, they chose the national income as the relevant criterion by which to judge under- and over- payment of Netherlands since contributions vary directly with national income, which is not the case with average income per head.

In our model, we use the second relevant criterion for capacity to pay which is the per capita income (GNI/hab). As we have seen above, Shimizu and Sandler (2002) studied the income per capita with peacekeeping burdens in order to identify if the rich shoulders the burden of the poor. Moreover, Dorusen, Kirchner and Sperling (2009), in their study on burden-sharing within the EU, found that it is appropriate to use wealth (income per capita) as a baseline.

Moreover, since we have used the income per head we applied in our formula the contribution per head in current US dollars. In fact, as Kravis and Davenport (1963, p.322-323) argued, individuals rather than nations should be the taxable units for financing international organizations. We should specify that we didn't use in our study actual contributions but assessed or total contributions (the sum of paid-in and

[218] This sample of 24 organizations is divided in two categories A and B, according to the goodness of fit of a multiple regression equation between contributions and the GNP and GNP per capita, in which contributions provide respectively a high and partial explanation of the ability-to-pay approach.

outstanding contributions) for 2008. In fact, since assessed contributions vary slightly every three years while actual contributions change sensibly every year, and since we are working on a single point of time, we will not have an efficient result using actual contributions. Furthermore, Khanna, Sandler and Shimizu (1998, p.187) argued that "the actual payments to peacekeeping do not form the most appropriate burden-sharing measure because these payments do not really capture the hardship experienced by contributors whose GDP or capacity to pay differs greatly".

The GNI per capita is expressed in purchasing power parities (current international dollars) which facilitate comparisons in a cross-sectional data. Moreover, Price (1967, p.508) showed that applying purchasing power weights to the capacity to pay encounters the only restraint of ability to earn foreign exchange. In order to evaluate the relative position of each member state in one-nation, one-vote and weighted voting organizations, we compare each member state's share in total income per head with its share of total contributions per capita in the membership of each organization. Thus, we apply the following formula:

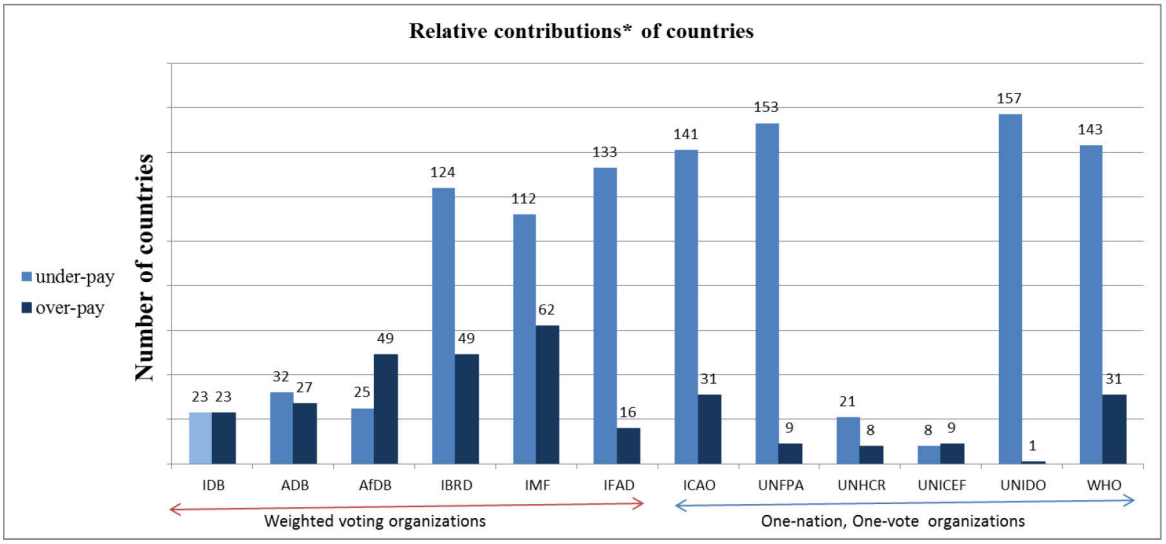
$$\frac{(\text{Country's share in contributions/hab} - \text{Country's share in GNI/hab})}{\text{Country's share in GNI/hab}} * 100$$

which calculates the difference of each member state's share in total contributions per head and its share in total income per head in each organization, and then expresses this deviation as a percentage of the GNI/hab share in the membership of each organization. This formula permits us to know whether a country over-pays (if the percentage is positive) or under-pays (if the percentage is negative) within its organization. We also apply this formula by comparing only higher income countries having a GNI per capita superior or equal to $13,000 which is the average income per head of all countries in our sample of international organizations and which corresponds to the World Bank classification of higher income per capita.

Figure 3.3 and Figure 3.4 show that under-payments are dominant among member states, which verify the exploitation hypothesis. The latter supposes that rich countries are exploited by the poor ones. Figure 3.3 illustrates however a better equilibrium between countries which over-pay and those which under-pay in weighted voting organizations (except for IFAD), while the gap is significantly

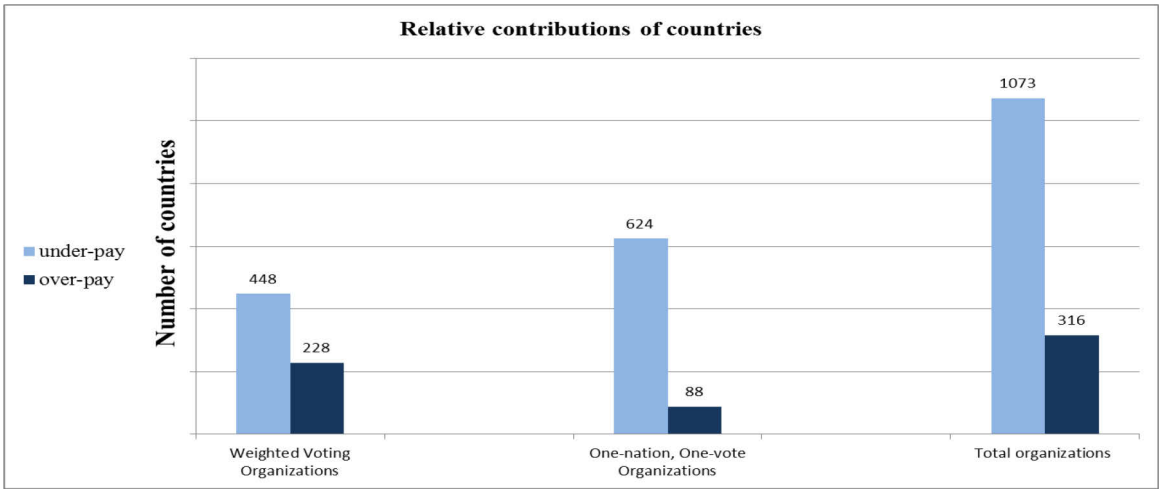
important in one-nation, one-vote organizations in which countries under-paying exceeds largely those over-paying (except for UNICEF and at a lesser extent for UNHCR). Figure 3.4 illustrates clearly this gap between weighted voting and one-nation, one-vote organizations. This result means that wealthiest member states shoulder a highly disproportionate share of burden for poor countries in one-nation, one-vote than in weighted voting organizations.

Figure 3.3



*Using as a basis the deviation (country's share of costs - country's share of GNI per capita within each organization) as a percentage of the GNI per capita share in the membership of each organization.

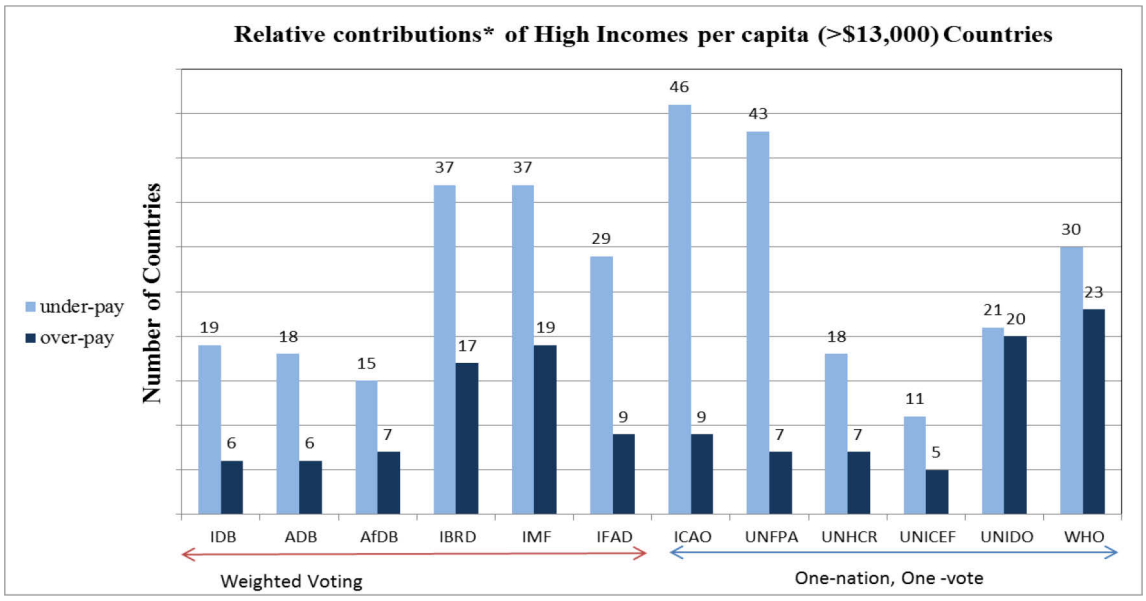
Figure 3.4



Furthermore, Figure 3.5 and Figure 3.6 indicate the percentage of over-payment based on GNI/hab for countries with high income (>=$13,000) only. Under-payment

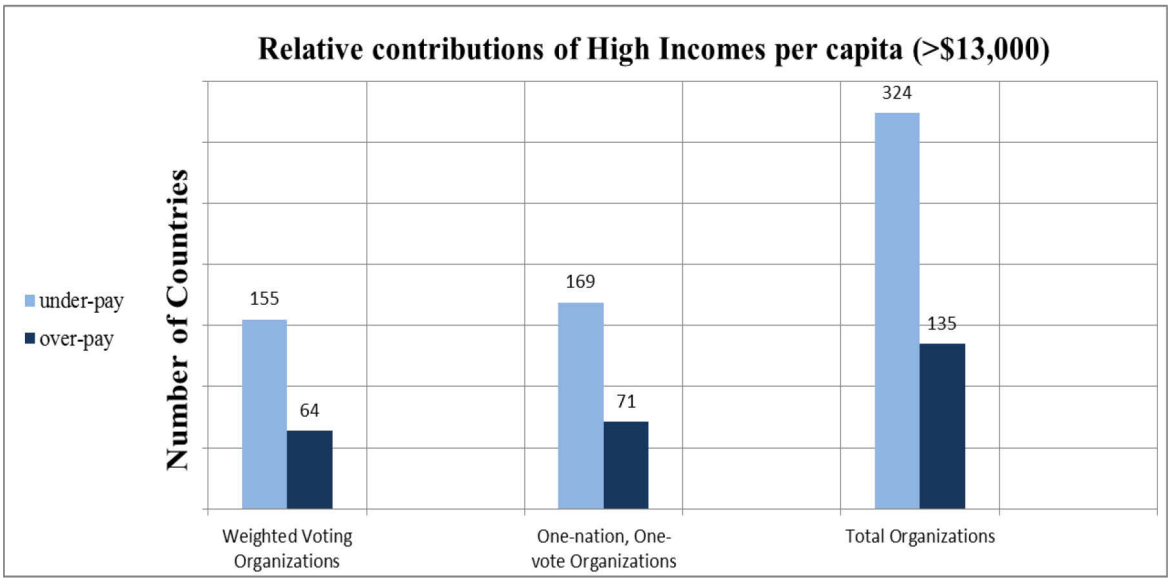
remains highly superior among member states than over-payment. However, the gap between under- and over- payments is now relatively the same between one-nation, one-vote and weighted voting organizations. This result means that even among high incomes countries; the wealthiest ones which constitute the top donors carry a disproportionate burden-share in one-nation, one-vote and in weighted voting organizations. We notice a clear improvement compared to Figure 3.5 and Figure 3.6 in over-payments in UNIDO and WHO while under-payments are higher in ADB, AfDB and IDB. When over-payment is higher than under-payment, this could be called 'reverse exploitation' (see Addison, McGillivary and Odedokun, 2004, p.176), which means that the poor are exploited by the rich, however this situation is not observed yet empirically.

Figure 3.5



* Using as a basis the deviation (country's share of costs - country's share of GNI per capita within each organization)as a percentage of the GNI per capita share in the membership of each organization.

Figure 3.6



In Table 3.6 in Appendix 6, the United States (US) under-pays in 10 out of 11 organizations with regard to its share in GNI per capita. This result is faithful to earlier and recent studies on burden-sharing which noticed an increasing decline in disproportionate share of the US since the post-Cold War era. Diamond and Dodsworth (1976) explained this decline by the fact that since the United States dominates bargaining process it dominates then cost-sharing arrangements. Regarding the Netherlands, it over-pays in 6 out of 11 organizations. Luxembourg (over-pays in 9 over 10) and Denmark (over-pays in 7 out of 11) over-pays in almost all the organizations of our sample. Norway over-pays in 7 out of 12 organizations. On the other hand, we observe that Ireland, France, Germany, Italy and UK under-pays in almost all the organizations in which they are member. Regarding Belgium it under-pays in 6 out of 11 organizations. Table 3.6 also shows that those wealthiest countries tend to over-pay more in one-nation, one-vote organizations than in weighted voting ones; hence once again we prove that exploitation hypothesis is clearly identified in one-nation, one-vote than in weighted voting organizations.

In order to identify which income class benefits the most from contributions respectively in weighted voting and one-nation, one-vote organizations, we studied in Table 3.1 and Figure 3.7 the relative contributions of countries by income class

(based on GNI per capita). We notice that the highest share of over-payments is supported by lower income[219] countries in weighted voting organizations which confirm Romer (1975) and Roberts (1977) models that the poor bear the burden of the middle classes including the median voter's income; this is a regressive tax system (see Feld and Schnellenbach, 2007, p.9).

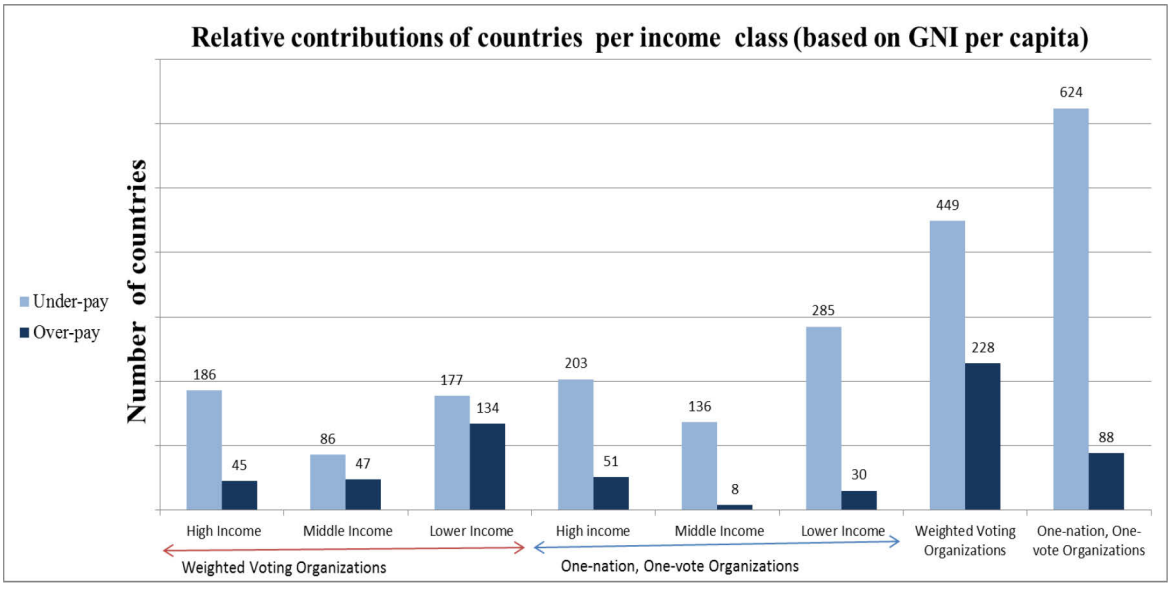
Though, in one-nation, one-vote organizations the rich bear the burden of the poor and the middle classes[220] which is consistent with Stigler's hypothesized fiscal exploitation, as we have seen above. This is a progressive tax system. Moreover, we notice that relatively the less exploited class in one-nation, one-vote organizations is the middle class, which is Director's Law, while in weighted voting organizations the less exploited class is the rich class.

[219] In our study, lower income countries are those with income less than $6,000 which represents the median income in our sample.
[220] In our study, middle income classes are those with income comprised between [$6,000 - $13,000[which represents incomes respectively between the median and the average income in our sample.

Table 3.1 - Values of under-and over-payments/contributions

		Weighted Voting Organizations (WVO)						One-nation,One-vote Organizations (ONOVO)					
		IDB	ADB	AfDB	IBRD	IMF	IFAD	ICAO	UNFPA	UNHCR	UNICEF	UNIDO	WHO
	Values of under-and over-payments	Total number of High, Middle and Lower incomes countries in WVO	High Income countries (based on GNI per capita; >=$13,000)	Middle Income countries (based on GNI per capita;]$13,000-$6,000])	Lower Income countries (based on GNI per capita;<=$6,000)			Total number of High, Middle and Lower incomes countries in ONOVO	High Income countries (based on GNI per capita; >=$13,000)		Middle Income countries (based on GNI per capita;]$13,000-$6,000])	Lower Income countries (based on GNI per capita;<=$6,000)	
Under-payments	<-100	0	0	0	0			0	0		0	0	
	[-100 ;-50[	330	131	63	136			556	151		128	277	
	[-50 ;0[	119	52	20	47			68	48		7	13	
Over-payments	[0 ;50[	68	16	20	32			23	15		1	7	
	[50 ;100[	38	11	8	19			19	12		1	6	
	>=100	120	17	20	83			47	24		6	17	

Figure 3.7



4. IS BURDEN-SHARING PROGRESSIVE, PROPORTIONAL OR REGRESSIVE?

In order to test if contributions per capita (the burden) are proportional to member states' ability-to-pay (GNI per capita), we used in Table 3.2 and Table 3.3 below regressions with logarithmic values of each of the variables to evaluate the elasticity of the percentage variation in the contributions per capita to the percentage variation in the ability-to-pay (GNI per capita) for each member state in our sample of international organizations. Our regression model is represented by a log-linear (constant elasticity) form as follows:

$$\boldsymbol{log(C_{ij}/hab) = a + b\ log(Y_i/hab) + e_i;}$$

where the dependent variable log(Cij/hab) represents the logarithm of contributions per capita in 2008 of country i to organization j (Sources: website of each international organization visited in the fall of 2009); the independent variable $\log(Y_i/hab)$ represents the logarithm of the gross national income (GNI) per capita in 2008 of country i (Sources: The World Bank World Development Indicator (WDI), 2008); e_i = random term and t-student are shown in parenthesis.

We notice in Table 3.2 that except for IDB, our results are significant at 1% level for the remaining weighted voting organizations. The elasticity being less than unity in 4 out of 6 organizations means that contributions per capita increase slower than the ability-to-pay, thus the taxation system is regressive in our sample of weighted voting organizations which favors richer countries. In the case of IFAD, we noticed that elasticity is higher than unity which indicates that contributions per capita increase faster than the ability to contribute which favors poorer countries. In Table 3.3, we observe progressivity in 4 out of 6 one-nation, one-vote organizations with significant results at 1% level, while UNICEF is significantly moving toward proportionality.

Hence, weighted voting organizations privilege richer member states while one-nation, one-vote organizations privilege poorer countries in respect of 'equity' and 'fairness' principle among member states. And as we have seen before (in section 1), the ability-to-pay is respected with progressivity, thus one-nation, one-vote perform better according to the ability-to-pay principle.

Table 3.2 - Burden-sharing[221] in Weighted Voting Organizations

Weighted Voting Organizations	Constant	Income per capita (logGNI/hab)	Adjusted R-Squared (R^2)	Number of Observations
IDB	6.42 (2.02)*	-0.29 (-0.86)	-0.0057	46
ADB	-2.65 (-2.78)***	0.60 (5.82)***	0.3656	59
AfDB	0.16 (0.18)	0.28 (2.66)***	0.0787	72
IBRD	-2.10 (-3.25)***	0.66 (8.95)***	0.3268	164
IMF	-3.19 (-7.98)***	0.81 (17.89)***	0.6618	164
IFAD	-12.95 (-13.72)***	1.27 (11.77)***	0.5340	121

[221] Based on the regression line: $logC_{ij}/hab = a + b\ logY_i/hab + e_i$; where logCij/hab (the dependent variable) represents the logarithm of contributions per capita in 2008 of country i to organization j (Sources: website of each international organization visited in the fall of 2009); $logY_i/hab$ (the independent variable) represents the logarithm of the GNI per capita in 2008 of country i (Sources: The World Bank World Development Indicator (WDI)); e_i = random term and t-student are shown in parenthesis.
*significant at 10% level; *** significant at 1% level.

Table 3.3- Burden-sharing[222] in One-Nation, One-Vote Organizations

One-nation, One-vote Organizations	Constant	Income per capita (logGNI/hab)	Adjusted R-Squared (R^2)	Number of Observa-tions
ICAO	-10.40 (-11.75)***	0.70 (0.90)	0.2271	162
UNFPA	-18.32 (-14.30)***	1.40 (9.58)***	0.3737	153
UNHCR	-32.73 (-7.73)***	3.83 (8.55)***	0.7639	27
UNICEF	-7.28 (-1.61)	0.80 (1.85)*	0.1312	17
UNIDO	-16.82 (-16.32)***	2.04 (17.48)***	0.7208	119
WHO	-17.64 (-27.28)***	1.51 (20.49)***	0.7236	161

5. IMPACT OF VOTING POWER ON CONTRIBUTIONS DEVIATIONS

Hereafter, we study the impact of voting power (the independent variable), under different majority requirement q, on contributions deviations as a percentage of GNI per capita (the dependent variable) in weighted voting organizations. We use a linear regression as follows:

$$\textit{Contributions deviations} = a + b\ \textit{voting power} + e_i$$

where voting power is computed through the normalized Banzhaf index, as we have seen in chapter 2, a, and b, are the parameters and e_i, are random terms.

All regressions in Table 3.4 below show, with some exceptions, that the relationship between contributions[223] deviations and voting power is either equal to zero, negative

[222] Based on the regression line: $\log C_{ij}/hab = a + b \log Y_i/hab + e_i$; where logCij/hab (the dependent variable) represents the logarithm of contributions per capita in 2008 of country i to organization j (Sources: website of each international organization visited in the fall of 2009); $\log Y_i/hab$ (the independent variable) represents the logarithm of the GNI per capita in 2008 of country i (Sources: The World Bank World Development Indicator (WDI)); e_i = random term and t-student are shown in parenthesis.
*significant at 10% level; ***significant at 1% level.

[223] We should note that contributions are highly correlated with voting weights since the latter are allocated regarding member states' financial contributions. Moreover, as we have seen in chapter 2, the relationship between voting weights and power is quite proportional once we discard 'outliers'. Therefore, voting power and contributions are highly correlated.

or not significant. Therefore, voting power has no impact on contributions deviations (under- and over- 'pay')

.

Table 3.4[224] – Impact of voting power (independent variable) on contributions' deviations[225] (dependent variable) under different majority requirements in weighted voting organizations

Weighted Voting Organizations	Constant	Voting power; Normalized Banzhaf Index (nbni)	Adjusted R-Squared (R^2)	Number of Observations
IDB (q=75%)	120.591 (2.27)**	-8.0888 (-0.67)	-0.0127	45
ADB (q=50%)	48.0905 (2.25)**	-9.1513 (-1.31)	0.0123	59
AfDB (q=50%)	218.3177 (4.52)***	-19.6249 (-0.88)	-0.0032	75
AfDB (q=70%)	224.6144 (4.33)***	-24.514 (-0.91)	-0.0023	75
IBRD (q=50%)	54.0978 (2.43)**	-15.9952 (-1.43)	0.0060	172
IBRD (q=75%)	74.4499 (3.08)***	-51.5783 (-2.50)**	0.0297	172
IMF (q=50%)	14.7931 (1.27)	-6.6185 (-1.17)	0.0022	173
IMF (q=75%)	20.7498 (1.67)*	-17.1666 (-1.73)*	0.0115	173
IMF (q=85%)	24.3785 (1.87)*	-23.6881 (-1.97)**	0.0164	173
IFAD (q=50%)	-74.2163 (-9.09)***	26.9196 (4.20)***	0.1121	133
IFAD (q=75%)	-98.7716 (-11.60)***	65.2297 (7.33)***	0.2857	133

[224] t-student are shown in parenthesis.
* significant at 10% level; ** significant at 5% level; *** significant at 1% level.
[225] $\frac{\text{(Country's share in contributions/hab – Country's share in GNI/hab)}}{\text{Country's share in GNI/hab}} * 100$
(This formula will permit us to know whether a country over-pays (if the percentage is positive) or under-pays (if the percentage is negative) within its organization).

CONCLUSION

Table 3.5- Burden-sharing and voting structure: Summary of our main findings

	Exploitation hypothesis	The median voter model	System of taxation
One-nation, One-vote organizations	**Verify the exploitation hypothesis**	**Median voter < Average voter** More redistribution: from the rich to the middle and poor classes.	**Progressive** system of taxation
Weighted voting organizations	**Verify a reverse exploitation**	**Median voter > Average voter** Less redistribution: from the poor to the relatively rich.	**Regressive** system of taxation

Our results illustrate that in one-nation, one-vote organization the median income per capita (it represents the median decisive voter) lies below the average income per capita and redistribution is skewed to the right while in weighted voting organization the median voting weight lies above the average voting weight and the redistribution is skewed to the left. We notice in our sample of international organizations that under-payment is the general tendency among member states even among the wealthiest ones in 2008. They tend to contribute less than their relative richness or economic power. We also observe that amongst all countries, under-payment is greater in one-nation, one-vote organizations than in weighted voting organizations while over-payment is lower in one-nation, one-vote organizations. The latter result is less observed between higher income countries only. Furthermore, we notice from our regression model that in general a regressive burden-sharing is observed in weighted voting organizations while progressivity in the taxation system is observed in one-nation, one-vote organizations. Finally, we notice that voting power, measured by the normalized Banzhaf index, has no impact on contributions deviations as a percentage of GNI per capita (under – and over- 'pay').

We can conclude from our analysis that first the exploitation hypothesis of the collective-action (Olson and Zeckhauser, 1966) is better identified in one-nation, one-vote organizations than in weighted voting organizations. Second, we realized that one-nation, one-vote organizations provide a better 'equity' and 'fairness' of burden-sharing. Third, one-nation, one-vote organizations insure a more than proportional redistribution system than in weighted voting organizations where it is less than proportional.

On the other hand, our main contribution in international burden-sharing is that and for the first time voting structure was given a crucial role in the explanation of burden-sharing and of the redistribution system. Moreover, studies which have taken into account the income per capita or wealth in their analysis of burden-sharing and have got significant results, are very scarce, while in our study income per capita succeed in explaining burden-sharing and it appears a very good indicator for ability-to-pay. Finally, by using the contribution per capita in our analysis we pay attention to the taxpayer or the citizen in each member state who carries the burden via proportional, regressive or progressive taxation.

Finally, even though in terms of 'equity' and redistribution weighted voting organizations do not achieve better results than one-nation, one-vote organizations, we cannot deny, as mentioned by Frey (1991, p.18) and by Kwon (1995, p.83), that weighted votes in proportion to financial contributions increase the incentives of wealthier countries (top contributors) to participate in the organization and to accept decisions taken which is not the case in one-nation, one-vote organizations.

Our future study will be concerned with the distribution of loans and expenditures among countries in weighted voting and one-nation, one-vote organizations.

Chapter 4 - Expenditures/Loans: One-nation, One-vote versus Weighted Voting Organizations

ABSTRACT

In our analysis and in order to better understand the impact of voting structure on the functioning and thus the performance of one-nation, one-vote and weighted voting organizations, we study respectively the distribution of expenditures and loans in favor of their member states using a positive analysis. For that aim, we build an original data for a sample of 11 international organizations including 6 weighted voting organizations and 5 one-nation, one-vote organizations. Then after illustrating and quantifying the inequality of loans/expenditures redistribution, we compare the latter results with the inequality of the distribution of contributions obtained in the previous chapter. Our main findings suggest that one-nation- one-vote organizations are more redistributive toward the poor and middle countries than weighted voting organizations. Moreover, the distribution of expenditures and the distribution of contributions are similarly unequal in one-nation, one-vote while the distribution of loans compared to the distribution of contributions are more unequal in weighted voting organizations. Finally, voting power has no impact on loans and on loans' deviations.

INTRODUCTION

The literature on lending and expenditures within international organizations is very scarce and generally limited to cases studies on the World Bank and the International Monetary Fund (IMF) and its conditionality (Vaubel, 1991; Bird, 1996; Erica, 2003; Dreher, 2004; Dreher and Jensen, 2007). Other studies have focused on the changes in lending behavior at the multilateral development banks through a quantitative analysis (Nielson and Tierney, 2003; Nielson and Tierney, 2006; Lyne, Nielson and Tierney, 2009). Earlier studies have tested the amount of lending within the World Bank and which member states benefit more from these loans (Frey and Schneider, 1986 and Frey, 1986).

In our analysis and in an attempt to better understand the impact of voting structure on the functioning and thus the performance of one-nation, one-vote and weighted voting organizations, we study respectively the distribution of expenditures and loans in favor of their member states using a positive analysis and then we evaluate these results with those of contributions distribution calculated in the previous chapter. Lafay and Lecaillon (1993, p.53) argued that an explicit positive theory is fundamental in order to understand how international organizations really function and react. Nielson and Tierney (2003, p.242) in their study of World Bank lending behavior noted that loans represent the primary means by which the Bank shapes economic, political and environmental outcomes in international relations.

Our study differs from the existing literature by first, analyzing a sample of 11 international organizations and being not limited to cases studies on loans. Second, we include, and for the first time in this kind of analyses, the voting structure and examine its impact on redistribution of loans in 6 weighted voting organizations and redistribution of expenditures in 5 one-nation, one-vote organizations. Third, we show which income classes benefit the most from redistribution of loans and expenditures within IOs by calculating the percentage of under- and over-receive based on GNI per capita. Fourth, we represent and quantify the inequality of loans/expenditures redistribution using respectively the Lorenz curve and the Gini index then we compare the results with the distribution of contributions.

The chapter proceeds as follows. We start by a brief review of the literature. Then we present our data, the approved loans/expenditures for member states, and the illustration and measure of distribution inequality. We summarize and evaluate our main findings in the conclusion.

1. REVIEW OF THE LITERATURE

As we have seen before, studies on lending within multilateral development banks or international financial institutions are very scarce and are limited in general to the International Monetary Fund (IMF) and the World Bank. Moreover, the literature on expenditures of international organizations in favor of their member states also is very limited. We will review briefly the existing literature on lending and expenditures of international organizations in favor of their member states.

Nielson and Tierney (2003) analyzed behavioral change in lending practices at the World Bank from 1980 to 2000. They have undertaken statistical analysis of Bank lending behavior and found that environmental lending has increased significantly since 1987 while traditional loans, like industry, energy, transportation, etc., have sharply declined.

Nielson and Tierney (2006) explained the divergence between lending behavior and member states environmental preferences[226] at the multilateral development banks (MDBs) by applying and extending agency theory. In fact, they considered that international organizations can be envisaged as agents like firms in economics and bureaucracies in domestic politics. They employed ordered logit regression on a dataset of more than 7,500 loans issued by the Asian Development Bank, the Inter-American Development Bank and the World Bank from 1980 to 1999 in order to examine the variation in the environmental impact of MDB loans following changes in the preferences of member governments (Nielson and Tierney, 2006, p.3). Their results illustrated that environmental loans varied positively and significantly with the environmental preferences of the winning coalition on the MDB board.

[226] Three databases were used to measure preferences: countries' revealed environmental policy preferences, environmental foreign aid, and voting shares in MDBs for the same period.

Lyne, Nielson and Tierney (2009) studied social lending (health, education and safety nets) within multilateral development banks[227] (MDBs). They noticed that even though the preferences of great powers remained unchanged regarding social loans, the latter increased after 1985. Thus, not only powerful states control international organizations as it is commonly known. For that reason, the authors included all member states in their coalitional model and multiple measures of states preferences. In fact, their model - in which more than 10,000 loans from 1980 and 2000 were studied - considered seriously formal decision rules of MDBs showing that even small states can coalesce with others and they will matter for MDB governance (Lyne et al., 2009, p.409). They demonstrated that principal preferences were significantly related to lending outcomes once all member states weighted by their voting shares were considered in the analysis.

Frey and Schneider (1986) and Frey (1986) tested the validity of the positive theory applied to explain the behavior of international organizations by using as an explanatory variable the amount of money lent by the World Bank to its member states. Their tests including 60 countries receiving loans from the World Bank for the period 1972-1981 confirmed the 'politico-economic' model, based on a positive theory of behaviors, with the domination of bureaucratic and political objectives. Obviously, the sign of economic variables revealed that the distribution of loans within the World Bank is in favor of countries with low per capita income, with high growth rate and low rate of inflation. Financial variables showed that heavily indebted countries with favorable balance of payments were more privileged to receive loans from the Bank. Finally, political variables pointed out a clear preference of the World Bank to provide loans for countries having a 'capitalist climate' and that were close allies with the Bank top contributors (see in Lafay and Lecaillon, 1993, p.62).

Lafay and Lecaillon (1993, p.53) studied how international financial organizations, essentially the International Monetary Fund and the World Bank, really function and react. They tried to understand through an explicit positive theory how adjustment plans are effectively negotiated and decided. They showed that the IMF and the

[227] World Bank [International Bank for Reconstruction and Development (IBRD), International Development Association(IDA)], the Inter-American Development Bank (IDB), the Asian Development Bank (ADB), and the African Development Bank (AfDB) and Fund (AfDF).

World Bank by supplying credit at rates below the market rate and granting loans to member states for which private banks have rationed credit, play an important role of redistribution between countries (Lafay and Lecaillon, 1993, p.57). Moreover, the positive theory shows that the amount lent by international financial organizations to the debtor countries is not limited to a purely technical decision based exclusively on searching for the economic optimum in the borrower country. In fact, the volume of loans and the conditionality accompanying them fluctuate with the negotiating powers of the different parties[228] which may vary with cases and circumstances (Lafay and Lecaillon, 1993, p.67).

Bird (1996, p.484) explained that two sets of circumstances should coexist in order to receive a loan from the IMF. First, the member state has to demand a financial support or loan. Second, the IMF has to be willing to provide it. He has shown that poorer developing countries with severe balance of payments deficits and lower creditworthiness have a more persistent demand for Fund credit than middle-income member states where the balance of payments (BOP) and creditworthiness fluctuate. Nevertheless, the amount of lending varies if the IMF reforms its facilities and modifies conditionality. On the other hand, developing countries receive more financial support from the IMF as their BOP deteriorates due to a declining terms of trade or excessive credit creation and rapid inflation while economic growth and development reduce the developing countries reliance on the Fund (Bird, 1996, p.485). Obviously, at an advanced stage of economic development, high-income countries do not depend on the Fund at all. In fact, developed countries provide most of the resources but they do not draw on the Fund (Bird, 1996, p.506). At an intermediate stage of economic development, the demand of middle-income countries for IMF loans fluctuates while at an early stage of economic development low-income countries are heavily dependent on the Fund (Bird, 1996, p.485).

Vaubel (1991) focused his analysis on IMF lending and IMF conditionality. He illustrated that the fluctuation in the amount lent and the strictness of the conditionality is the behavior known as ‘hurry-up lending’. It is connected with the regular revision of quotas by the governing board (Lafay and Lecaillon, 1993, p.65). The Fund tries to obtain quota increases by ‘hurry-up lending’ in the years preceding

[228] Technicians and experts, member countries, receiving countries, and the administration of the international organization.

the regular quota reviews. Thus, an increase in quotas causes more IMF lending and easier conditionality while an increase of demand for IMF loans leads only to a tightening of conditionality (Vaubel, 1991, P.235).

Dreher (2004) analyzed World Bank and IMF lending and conditionality focusing on variation in relative bargaining power of different stakeholders over time. He explained through public choice theory the interests of staff, borrowers, member states and private actors providing financial supports to international financial institutions' programs. He used a panel data for 43 countries between 1987-1999 revealing that the number of IMF conditions is influenced by contemporaneous World Bank activity and 'bad' policies.

Dreher and Jensen (2007) examined whether the number of conditions accompanying the IMF loans is driven by the United States, its major shareholder. Their empirical analysis of 38 countries during the period 1997-2003, has shown that the number of conditions imposed by the IMF depended on the voting pattern of a borrowing country in the United Nations General Assembly. Therefore, member states that are closer allies with the United States (and other Group of 7 (G7) countries) and that voted with the U.S. in the UN General Assembly receive IMF loans with looser conditions, especially prior to elections, whereas non-allied countries will receive stricter conditions on IMF loans.

Erica (2003) argued that IMF conditions are partly driven by private banks which supplement the IMF loans to borrowers. The data analysis suggests that private financial institutions influence the Fund conditionality and are necessary for the success of IMF programs.

2. EMPIRICAL ANALYSIS

In this section, we examine total expenditures and approved loans, in 2008, for member states respectively in one-nation, one-vote and weighted voting organizations and whether countries under- or over-'receive', then we analyze the equity of redistribution in one-nation, one-vote and weighted voting organizations by using the Lorenz curve and Gini index and we compare our results with those of assessed contributions in the previous chapter.

2.1. Data

The 2008 data on total loans (i.e. approved loans less cancellation) per country for weighted voting organizations and total expenditures per country for one-nation, one-vote organizations is collected by the author. Total loans of weighted voting organizations to their member states represent the amounts approved in 2008 which can differ from effective loans disbursed during the corresponding year. Total expenditures of one-nation, one-vote organizations represent the disbursed amounts in projects, programs and programs support in favor of their member states.

Database is gathered from annual reports and financial statements of each international organization in our sample. The latter contains 11 international governmental organizations (IGOs) comprising 6 IGOs with one-nation, one-vote procedure and 5 IGOs with weighted voting procedure. The sample includes, except the World Health Organization (WHO)[229], the same international organizations in our previous study on assessed contributions in order to facilitate comparisons. Thus, one-nation, one-vote organizations comprise the International Civil Aviation Organization (ICAO), the United Nations Population Fund (UNFPA), the United Nations High Commissioner for Refugees (UNHCR), the United Nations Children's Fund (UNICEF), the United Nations Industrial Development Organization (UNIDO. Our sample of weighted voting organizations contains the Inter-American Development Bank (IDB), the Asian Development Bank (ADB), the African Development Bank (AfDB), the International Bank for Reconstruction and

[229] Unfortunately, WHO did not provide us with expenditures' per country despite our many trials to enter in contact with them.

Development (IBRD), the International Monetary Fund (IMF) and the International Fund for Agricultural Development (IFAD)[230].

The database includes 1406 observations comprising loans/expenditures deviations as a percentage of the GNI per capita share[231] of 175 member states (See Table 4.6 in Appendix 9).

The choice of these organizations is mainly based on the available data on loans and expenditures per country in addition to the assessed contributions per country studied previously and which are crucial to the remaining analysis.

As we have seen before, the population and the Gross National Income per habitant (GNI/hab) in purchasing power parities are drawn from the World Bank's World Development indicators (WDI 2008). The data base is in US dollars calculated with respect to each organization exchange rate method. For instance, ICAO's data are computed in Canadian dollars and converted in US dollars by using the UN exchange of rate as at December 2008.

2.2. Approved loans/total expenditures for member states

To evaluate the under- and over-'receive'[232] of member states in loans and expenditures respectively in one-nation, one-vote and weighted voting organizations, we follow the method used in computing the under- and over-payments of member states in the previous chapter. Thus, we calculate the percentage over-'receive' based on GNI per capita by using the following formula:

$$\frac{(\text{Country's share in loans/exp. per capita} - \text{Country's share in GNI per capita})}{\text{Country's share in GNI per capita}} * 100$$

The GNI per capita is expressed in purchasing power parities (current international dollars) facilitating thus comparisons in a cross-sectional data. Loans and

[230] UNFPA, UNHCR and UNICEF represent United Nations' funds. IBRD, ICAO, IFAD, IMF, UNIDO and WHO are specialized agencies of United Nations. ADB, AfDB, IDB and IBRD are multilateral development banks. IFAD is a multilateral financial institution. In sum, the IGOs with weighted voting procedure in our sample are international financial institutions.

[231] Calculated by the formula

$$\frac{(\text{Country's share in loans/exp.per capita} - \text{Country's share in GNI per capita})}{\text{Country's share in GNI per capita}} * 100$$

(We will discuss it in more detail below).

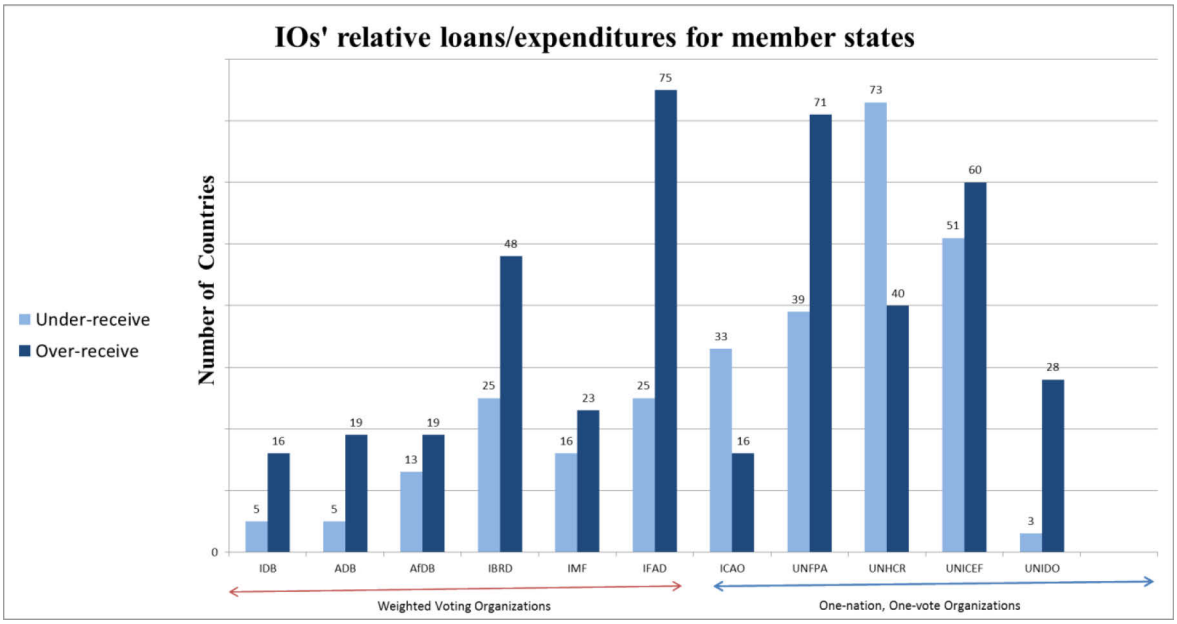
[232] A term not in the lexicon of existing studies on the subject.

expenditures per capita are in US dollars as we mentioned above. The formula computes the difference of each member state's share in loans/expenditures per capita and its share in total income per capita in each organization, and then expresses this deviation as a percentage of GNI per capita in the membership of each organization.

This formula help us to distinguish whether a country over-'receives' (if the percentage is positive; in other words, greater than zero) or under-'receives' (if the percentage is negative; in other words, less than zero) within its organization, and whether one-nation, one-vote or weighted voting organizations is more redistributive in the allocation respectively of expenditures and loans.

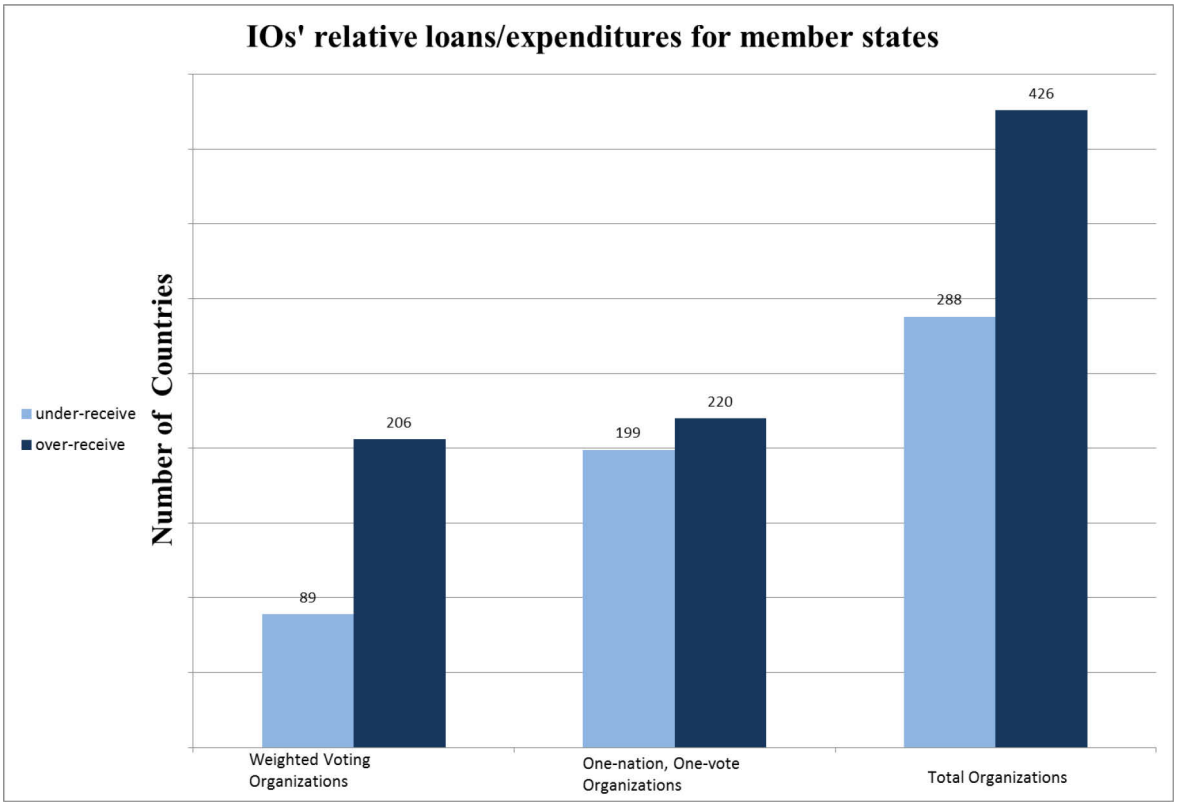
We notice in Figure 4.1 and Figure 4.2 below that over-'receive' is dominant among member states, which is the case of 9 out of 11 international organizations comprised in our sample. The lower the gap between over-'receive' and under-'receive' with over-'receive' superior to under-'receive', or the greater the gap between over-and under-'receive' with under-'receive' superior to over-'receive', the higher the amounts of loans and expenditures concentrated in favor of fewer member states. Figure 4.1 indicates a higher over-'receive' relatively to under-'receive' in all weighted voting organizations especially for IDB, ADB, IBRD and IMF and we observe a similar result in one-nation, one-vote organizations for UNFPA and UNIDO and to a lesser extent UNICEF. On the other hand, we notice a higher under-'receive' relatively to over-'receive' in ICAO and UNHCR. Figure 4.2 summarizes the results in Figure 4.1 and illustrates clearly a higher gap between under- and over-'receive' with 'over-receive' superior to under-'receive' in weighted voting than in one-nation, one-vote organizations. This result shows that higher amounts of expenditures are distributed in favor of 52.5% of member states in one-nation, one-vote organizations while higher amounts of loans are distributed in favor of 70% of member states in weighted voting organizations. Therefore, the concentration is higher in one-nation, nation-one vote than in weighted voting organizations.

Figure 4.1



* Using as a basis the deviation (country's share of loans/expenditures - country's share of GNI per capita within each organization) as a percentage of the GNI per capita share in the membership of each organization

Figure 4.2



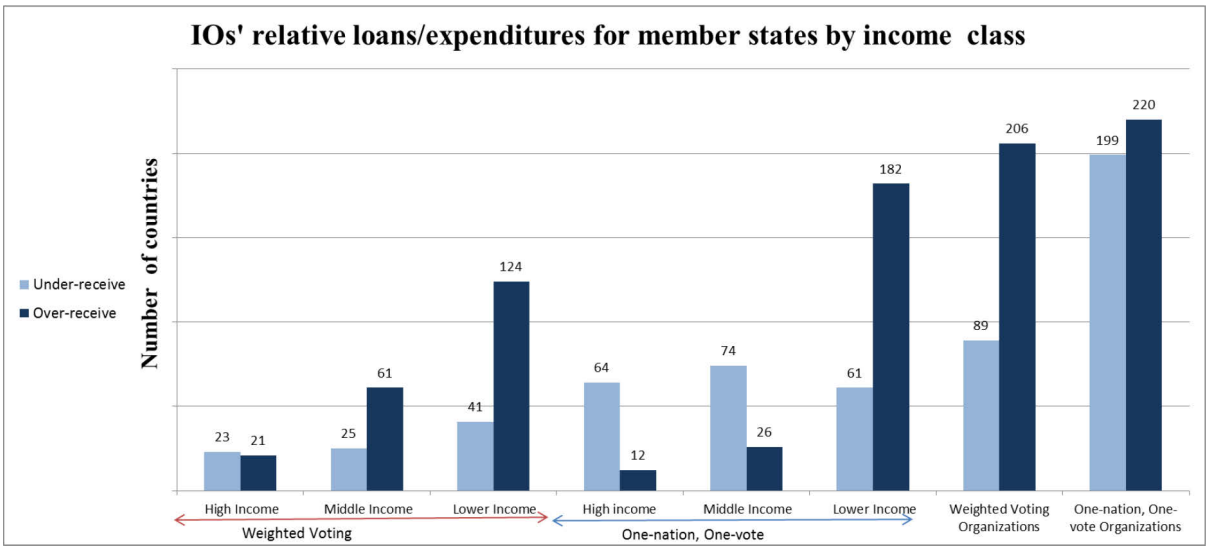
In order to figure out now which voting structure is more redistributive in term of loans and expenditures, we do an analysis by income class in weighted voting and

one-nation, one-vote organizations. Table 4.1 and Figure 4.3 represent the relative distribution of loans/expenditures by income class. We notice that lower income classes or poorest countries benefit the most in one-nation, one-vote organizations (59.4%) as well as in weighted voting organizations (57%); even though to a lesser extent in weighted voting organizations. Moreover, middle income countries and even high income countries also benefit from loans and expenditures. However, 71% among middle income countries receiving loans, over-'receive' in weighted voting organizations while in one-nation, one-vote there is a higher concentration of expenditures in favor of fewer middle income members which also is the case of high income countries in both weighted and one-nation, one-vote organizations but the concentration is significantly higher in the latter. Therefore, one-nation, one-vote organizations seem more redistributive than weighted voting organizations.

Table 4.1– Under – and over – receive of loans/expenditures

		Weighted Voting Organizations (WVO)				One-nation,One-vote Organizations (ONOVO)			
		IDB ADB AfDB IBRD IMF IFAD				ICAO UNFPA UNHCR UNICEF UNIDO WHO			
	Values of under-and over-receive of loans/expe-nditures	Total number of High, Middle and Lower incomes countries in WVO	High Income countries (based on GNI per capita; >=$13,000)	Middle Income countries (based on GNI per capita;]$13,000-$6,000])	Lower Income Countries (based on GNI per capita;<=$6,000)	Total number of High, Middle and Lower incomes countries in ONOVO	High Income Countries (based on GNI per capita; >=$13,000)	Middle Income Countries (based on GNI per capita;]$13,000-$6,000])	Lower Income Countries (based on GNI per capita;<=$6,000)
Under-receive	<-100	0	0	0	0	2	0	1	1
	[-100 ;-50[	59	16	16	27	154	55	56	43
	[-50 ;0[	30	5	9	16	43	4	16	23
Over-receive	[0 ;50[	27	3	8	16	19	1	8	10
	[50 ;100[	14	2	4	8	13	3	4	6
	>=100	159	14	49	96	183	7	14	162

Figure 4.3



In the next section, the Lorenz curve and Gini index will help us to verify our recent findings and to evaluate and measure the 'fairness' and 'equity' of loans/expenditures distribution and of contributions distribution also.

2.3. Illustration and measure of distribution inequality

We use the Lorenz curve in order to illustrate, on the one hand, the degree of inequality and concentration of loans/expenditures per capita and, on the other hand, to compare the result with the degree of inequality and concentration of contributions per capita and member states' wealth distribution in weighted voting and one-nation, one-vote organizations. Therefore, in Figure 4.4 and Figure 4.5 below the cumulative share (i.e. cumulative percentage) respectively of GNI per capita, loans/expenditures per capita and contributions per capita are measured on the vertical axis and the cumulative share (i.e. cumulative percentage) of countries is measured on the horizontal axis. Perfect equality is represented by the straight diagonal line (that is, 10% of countries have 10% of loans/expenditures per capita, 10% of contributions per capita and 10% of GNI per capita or wealth, in addition 20% of countries possess 20% of loans/expenditures per capita, 20% of contributions per capita and 20% of wealth, and so on).

The actual Lorenz curves for each variable on the vertical axis, in Figure 4.4 and Figure 4.5, lie below the diagonal and the difference between each Lorenz curve and the diagonal

indicates the extent of inequality. In fact, expenditures and loans curves respectively in one-nation, one-vote and weighted voting organizations lie so far beneath the diagonal line which means that the distribution is very unequal and that a limited number of member states, situated at the end of the curves, benefit from loans. Moreover, the distribution of expenditures per capita seems to be similar relatively to the distribution of contributions per capita in one-nation, one-vote organizations, while in weighted voting organizations the distribution of loans per capita is clearly more unequal than the distribution of contributions per head which is close to the distribution of wealth (you can see the Lorenz curve of each international organization in Appendix 8).

Figure 4.4

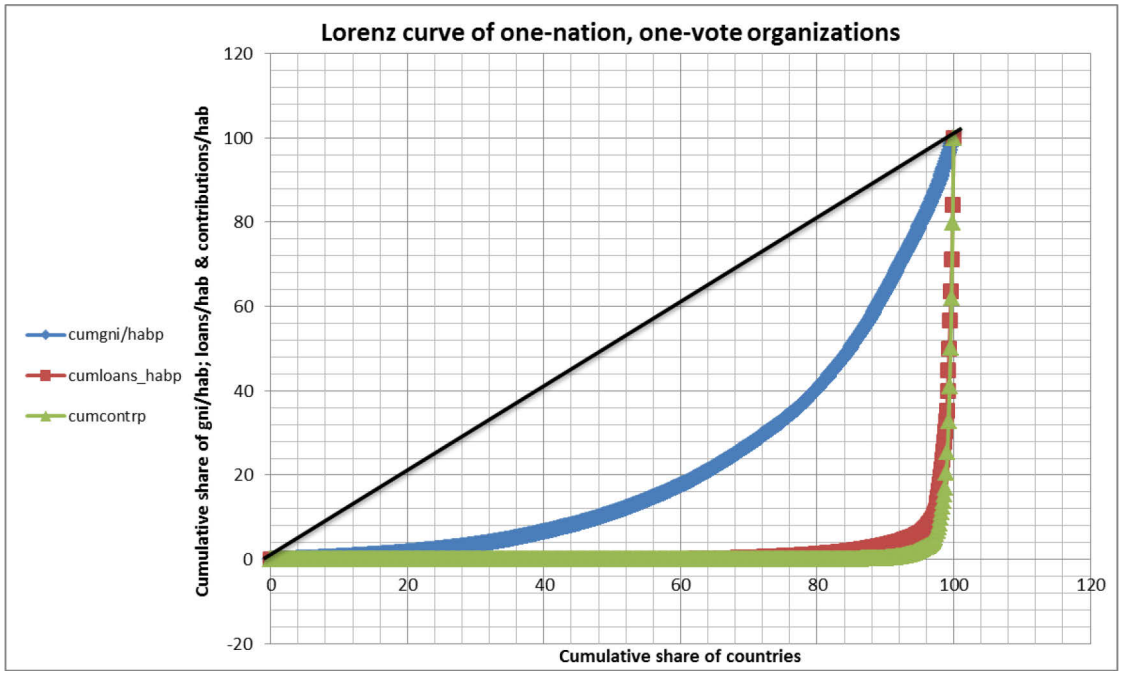
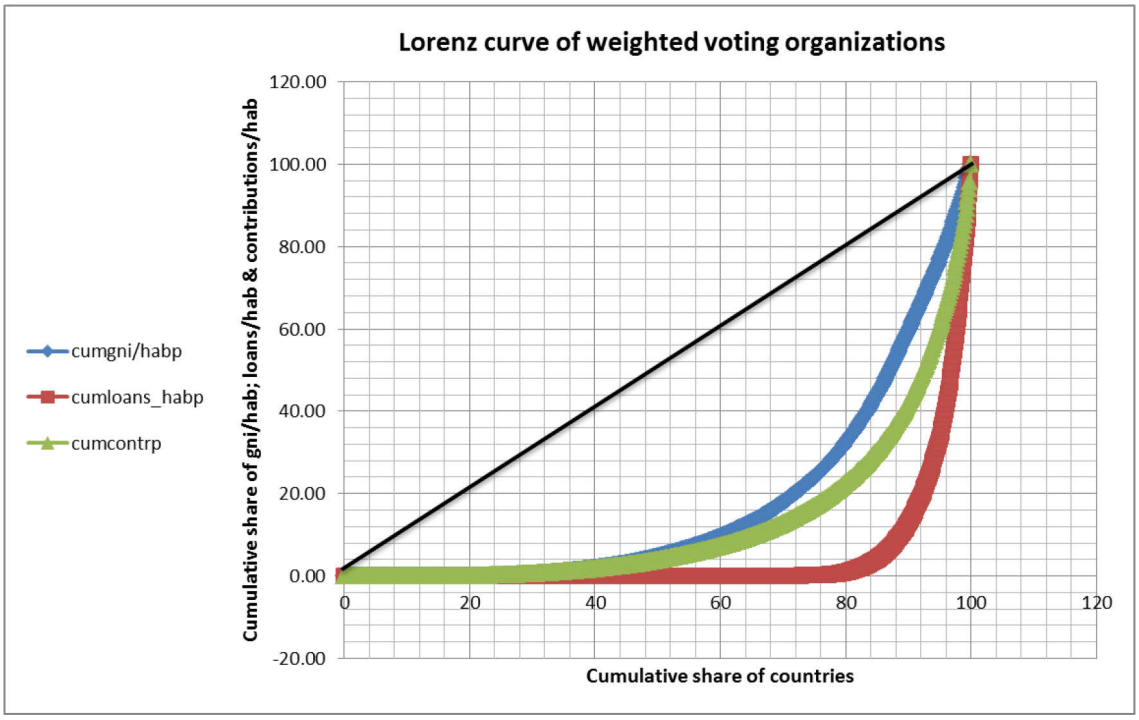


Figure 4.5



To compute the extent of inequality we use the Gini coefficient which is the common measure of distribution inequality. The Gini coefficient value ranges between 0 and 1. A value of 0 represents a perfect equality while higher values indicate more unequal distribution and a value of 1 represents a perfect inequality.

The Gini coefficient is usually calculated with the more practical Brown Formula shown below:

The previous formula has a simplified version represented as follows:

hypothesis' while weighted voting organizations confirm the 'reverse exploitation', and that the distribution in one-nation, one vote is more egalitarian than that of weighted voting organizations.

Table 4.2

Summary of Gini coefficient values		
Weighted voting organizations (WVO)	**Gini coefficient of contributions**	**Gini coefficient of loans**
IDB	0,56	0,78
ADB	0,66	0,81
AfDB	0,64	0,91
IBRD	0,68	0,83
IMF	0,62	0,98
IFAD	0,89	0,72
All WVO	**0,74**	**0,91**
One-nation, one-vote organizations (ONOVO)		
ICAO	0,84	0,97
UNFPA	0,95	0,74
UNHCR	0,94	0,84
UNICEF	0,65	0,66
UNIDO	0,91	0,93
WHO	0,77	
All ONOVO	**0,98**	**0,97**

2.4. Which countries benefit from loans or expenditures?

Table 4.3 below shows the number of member states receiving loans in weighted voting organizations and expenditures in one-nation, one-vote organizations by tranche of income class and Table 4.5 (in the Appendix 10) indicates member states receiving loans or expenditures in million dollars and in decreasing order with their corresponding income per capita (GNI/hab). As we have seen in section 2.1, the data of loans and expenditures is gathered by the author from each international organization (IO) annual report 2008 and values in Euros or Canadian Dollars were converted in US dollars following the appropriate method of conversion of each IO,

while GNI/hab is gathered from the World Bank's World Development Indicator (WDI) in 2008.

Table 4.3– Countries receiving loans/expenditures by tranche of income class

	Lower income countries (based on GNI per capita;<=$6,000)			Middle income countries (based on GNI per capita;]$6,000-$13,000])			High income countries (based on GNI per capita; >=$13,000)			
Weighted voting Organizations	First tranche	Second tranche	Third tranche	First tranche	Second tranche	Third tranche	First tranche	Second tranche	Third tranche	Fourth tranche
	[0-$2,000]	]$2,000-$4,000]	]$4,000-$6,000]	]$6,000-$8,000]	]$8,000-$10,500]	]$10,500-$13,000]	]$13,000-$14,500]	]$14,500-$17,000]	]$17,000-$19,500]	>$19,500
IDB	0	3	3	7	2	2	3	0	0	1 (Trinidad and Tobago)
ADB	5	9	6	2	1	0	1	0	0	1 (Korea)
AfDB	18	2	4	2	1	2	1	0	0	2 (Seychelles; Equatorial Guinea)
IBRD	5	7	8	16	9	10	7	3	5	4 (Slovak; Trinidad and Tobago; Slovenia ; Korea)
IMF	21	7	1	2	2	1	2	1	1	1 (Iceland)
IFAD	38	18	13	12	9	7	4	0	0	3 (Seychelles; Equatorial Guinea; Korea)

	Lower income countries (based on GNI per capita;<=$6,000)			Middle income countries (based on GNI per capita;]$6,000-$13,000])			High income countries (based on GNI per capita; >=$13,000)			
One-nation, One-vote organizations	First tranche	Second tranche	Third tranche	First tranche	Second tranche	Third tranche	First tranche	Second tranche	Third tranche	Fourth tranche
ICAO	8	7	8	5	2	5	2	2	1	7 (Seychelles; Equatorial Guinea; Oman; Trinidad and Tobago; Cyprus; Iceland; Greece)
UNFPA	39	17	15	14	6	11	6	0	1	4 (Seychelles; Equatorial Guinea; Oman; Korea)
UNHCR	30	13	9	10	7	10	7	2	3	25 (See table 4.5 in the Appendix)
UNICEF	40	18	15	15	6	10	8	1	0	2 (Equatorial Guinea; Korea)
UNIDO	25	5	3	0	0	0	0	0	0	0

We will summarize now the results of both tables. In Inter-American Development Bank (IDB), 21 out of 48 benefit from loans. The first five beneficiaries are respectively, Brazil, Argentina, Mexico, Colombia and Costa Rica. Brazil is a part of the second tranche of middle income class. Argentina and Mexico are part of the first tranche of high income class while Colombia and Costa Rica belong to the second tranche of middle income class. These five members benefit from 67.8% of the total amount of loans distributed in IDB. Most of the remaining beneficiaries belong to middle income class especially the first tranche. Trinidad and Tobago with $23950 of GNI/hab is amongst high income class receiving loans.

In Asian Development Bank (ADB), 28 out of 67 member states benefit from loans. The first five beneficiaries are Afghanistan, Nepal, Bangladesh, Cambodia and Papua New Guinea which belong to the first tranche of poor countries. These top beneficiaries receive 86.75% of total amounts of loans disbursed in ADB. Remaining member states receiving loans are mainly lower income countries more specifically the second tranche. Among higher income beneficiaries we find Malaysia $13740 and Korea $28120.

In African Development Bank (AfDB), 34 out of 77 countries receive loans. Main beneficiaries are Morocco (third tranche of middle income class), Tunisia (first tranche of middle income class), Egypt (third tranche of lower income countries), Democratic Republic of Congo (first tranche of poor class) and Gabon (third tranche of middle income class). The latter five members receive 80.13% of AfDB total amount of loans. Most of remaining beneficiaries belong to the first tranche of lower income countries.

In International Bank for Reconstruction and Development (IBRD), 76 out of 184 member states receive loans. The first five beneficiaries are China (first tranche of middle income class), Brazil (third tranche of middle income class), Turkey (first tranche of high income) India (second tranche of lower income countries) and Argentina (first tranche of high income class). These members receive 45.52% of IBRD total amount of loans. Remaining main beneficiaries in IBRD are middle income class particularly the first tranche.

At the International Monetary Fund (IMF), 39 out of 186 benefit from loans. The first five member states receiving loans are: Hungary, Ukraine, Turkey, Pakistan and Iceland. Hungary, Iceland and Turkey belong to high income countries while Pakistan belongs to the second tranche of low income countries and Ukraine to the first tranche of middle income class. The latter five members benefit from 86.42% of total loans distributed by the IMF. The remaining beneficiaries belong to low income countries especially the first tranche.

At the International Fund for Agricultural Development (IFAD), 104 out of 165 countries receive loans. The main 5 beneficiaries are India, China, Bangladesh, Pakistan and United Republic of Tanzania. Except China which belongs to the first tranche of middle income class, the remaining four top beneficiaries from loans are part of lower income class especially the first tranche (Bangladesh and Tanzania) and the second tranche (India and Pakistan). These members receive 25.3% of IFAD total amount of loans. Remaining countries receiving loans at IFAD are lower income class essentially the first tranche.

Regarding one-nation, one-vote organizations in our sample, 53 out of 190 countries benefit from International Civil Aviation Organization (ICAO) expenditures; the first five beneficiaries are Argentina (the first tranche of high income countries), Brazil (the second tranche of middle income countries), Guatemala (the third tranche of lower income countries), Panama (the third tranche of high income countries) and Peru (the second tranche of middle income countries). The latter members benefit from 72.4% of ICAO expenditures. The remaining beneficiaries belong mainly to lower income countries (equally between the first, second and third tranche). However, what is interesting to note is that 13 of high income countries and 12 of middle income countries benefit from ICAO loans. This is due to the public good provided ICAO which is promoting safety and orderly development of ICAO throughout the World. It sets standards and regulations necessary for aviation, safety, security, efficiency and regularity, as well as for environmental protection.

We notice at United Nations High Commissioner for Refugees (UNHCR) that 123 out of 131 members benefit from UNHCR aid. The first five beneficiaries from 36.30% of total expenditures are: Syrian Arab Republic (third tranche of low income

countries), Sudan, Chad, Kenya and the Democratic Republic of Congo, all of which belong to the first tranche of poor countries. The remaining beneficiaries are principally low income countries especially the first and second tranches of high income countries (37). This result also is due to the public good provided by UNHCR which safeguard the rights and well-being of refugees.

At United Nations Population Fund (UNFPA), 124 out of 185 benefit from aid. The first five beneficiaries from 19.14% of total UNFPA expenditures are: Sudan, Malawi, Mozambique, the Democratic Republic of Congo and Nigeria, all of which belong to the first tranche of lower income countries. Remaining beneficiaries belong especially to the first tranche of lower income countries.

At United Nations Children's Fund (UNICEF), 123 out of 141 countries benefit from UNICEF aid. At United Nations Industrial Development Organization (UNIDO) 33 out of 178 members benefit from UNIDO expenses. In both organizations most beneficiaries belong to lower income class especially the first tranche. The first five beneficiaries at UNICEF receiving 29.49% of total expenditures are: Nigeria, Democratic Republic of Congo, India, Ethiopia and Bangladesh, while the first five beneficiaries receiving 65.6% of total expenditures at UNIDO are Sudan, Mozambique, United Republic of Tanzania, Senegal and Rwanda all of which belong to the first tranche of lower income countries.

In sum, we notice that the distribution of loans is more dispersed among income classes' particularly lower income countries in weighted voting organizations. Actually, among beneficiaries receiving loans, 57% belong to poor countries especially the first tranche, 29.4% belong to middle income class particularly the first tranche and 13.6% are part of high income class especially the fourth tranche. This can be explained as we have seen in chapter 3 with Kernel density that the median voter in weighted voting organizations is situated in the fourth tranche of high income countries and can impose its altruistic preferences through the distribution of loans; for instance, loans given recently by the IMF to Greece in order to remedy to its debt crisis. Therefore, the distribution in weighted voting organizations is more spread among income classes to prevent some countries to become poor even though main beneficiaries remain poorest countries.

On the other hand, in one-nation, one-vote organizations main beneficiaries are lower income countries (59.4% of total beneficiaries) especially the first tranche and middle income countries (23.8% among beneficiaries) more particularly the first tranche. Regarding high income class, if we discard the UNHCR, the 'outlier' (with 25 beneficiaries belonging to the fourth tranche of income class), since refugees for whom aid are disbursed find mainly a refuge in high income countries), we notice that just 3% especially from the first tranche of high income countries benefit from aid. This result can be explained, as we have seen in chapter 3 with Kernel density, that the median voter in one-nation, one-vote is situated in the first tranche of middle income class which can explain the concentration of expenses toward lower income countries at first place, then toward middle class particularly the first tranche.

We should note that 4% of member states benefit from 60% of the total amount of loans disbursed in weighted voting organizations if we compute total amounts of loans received by top five beneficiaries in each weighted voting organization, while 3% of member states in one-nation, one-vote organizations benefit from 62.5% of expenses when we calculate total amount of aid received by top five beneficiaries in each one nation, one-vote organization.

Therefore, one-nation, one-vote organizations, which provide 'public goods', appear to be more redistributive than weighted voting organizations. This result confirms Meltzer and Richard (1981) argument, as we have seen in chapter 3.

2.5. Impact of voting power on loans and loans deviations

In order to analyze now the impact of voting power (the independent variable), under different majority requirement q, first, on loans (the dependent variable) and second, *on loans deviations as a percentage of GNI per capita* (*the dependent variable)* in weighted voting organizations, we use respectively, a linear regression as follows:

$$Loans = a + b\ voting\ power + e_i$$

$$Loans\ deviations = a' + b'\ voting\ power + e'_i$$

where voting power is computed through the normalized Banzhaf index, as we have seen in chapter 2, a, *a'* and b, *b'* are the parameters and e_i, e'_i, are random terms.

All regressions in Table 4.4 below show, with some exceptions, that the relationship between loans (respectively loans' deviations) and voting power is either equal to zero, negative or not significant. Therefore, voting power has no impact on loans neither on loans deviations as a percentage of GNI per capita (under- and over-'receive'). This can be explained by the altruistic and redistributive goals of countries with greater power toward countries with less or no power. Wealthiest countries seem not using their power to follow their own interests. This is in accordance with main international organizations aim supposed to help countries in difficulties through providing loans as in the case of weighted voting organizations.

Table 4.4[234] – Impact of voting power (independent variable) on loans (dependent variable) and *loans deviations (dependent variable)* under different majority requirements in weighted voting organizations

Weighted Voting Organizations	Constant	Voting power; Normalized Banzhaf Index (nbni)	Adjusted R-Squared (R^2)	Number of Observations
IDB (q=75%)	124.0622 (1.44)	51.4571 (2.54)**	0.1042	48
IDB (q=75%)	*386.8125 (4.06)****	*-41.4875 (-1.58)*	*0.0700*	*21*
ADB (q=50%)	863.1257 (2.17)**	-13.9499 (-0.10)	-0.0152	67
ADB (q=50%)	*1281.783 (4.17)****	*-159.011 (-1.14)*	*0.0129*	*24*
AfDB (q=50%)	178.6379 (2.55)**	-27.8228 (-0.85)	-0.0037	76
AfDB (q=50%)	*507.0294 (2.32)***	*-21.0404 (-0.23)*	*-0.0315*	*32*
AfDB (q=70%)	187.7101 (2.49)**	-34.9435 (-0.89)	-0.0028	76

[234] t-student are shown in parenthesis.
* significant at 10% level; ** significant at 5% level; *** significant at 1% level.

Weighted Voting Organizations	Constant	Voting power; Normalized Banzhaf Index (nbni)	Adjusted R-Squared (R^2)	Number of Observations
AfDB (q=70%)	*472.0824 (1.94)***	*3.1881 (0.03)*	*-0.0333*	*32*
IBRD (q=50%)	1913.482 (6.97)***	-479.8034 (-5.20)***	0.1294	176
IBRD (q=50%)	*249.098 (6.13)****	*-113.6311 (-1.85)**	*0.0328*	*73*
IBRD (q=75%)	780.291 (4.03)***	-64.01546 (-0.39)	-0.0047	184
IBRD (q=75%)	*251.088 (6.11)****	*-91.3709 (-1.87)**	*0.0337*	*73*
IMF (q=50%)	305.6691 (3.64)***	-77.6827 (-2.77)***	0.0367	176
IMF (q=50%)	*1324.809 (1.13)*	*-1257.912 (-0.18)*	*-0.0261*	*39*
IMF (q=75%)	0.0367 (2.32)**	-25.3103 (-0.55)	-0.0038	186
IMF (q=75%)	*1324.958 (1.13)*	*-939.799 (-0.18)*	*-0.0261*	*39*
IMF (q=85%)	131.2442 (2.25)**	-28.6302 (-0.51)	-0.0040	186
IMF (q=85%)	*1324.652 (1.13)*	*-755.2642 (-0.18)*	*-0.0262*	*39*
IFAD (q=50%)	133.0609 (12.39)***	-32.9243 (-8.54)***	0.3157	157
IFAD (q=50%)	*829.8012 (4.45)****	*-658.083 (-1.57)*	*0.0147*	*100*
IFAD (q=75%)	64.5448 (6.58)***	-10.2948 (-1.03)	0.0004	165
IFAD (q=75%)	*882.6194 (4.33)****	*-675.4569 (-1.68)**	*0.0182*	*100*

CONCLUSION

In sum, our results indicate first through the study of under- and over-'receive' that the concentration is higher in one-nation, one-vote than in weighted voting organizations; in other words, few member states benefit from the largest amount of aid disbursed. Second, the analysis of under- and over- 'receive' by income class

shows that one-nation, one-vote organizations seem to be more redistributive in the allocation of expenditures than weighted voting organizations in the allocation of loans. However, the distribution of loans by weighted voting organization appears to be more spread among income classes. This result can be explained by the fact that the contributor is able to control the redistribution in weighted voting organizations relatively to his voting weight which is not the case in one-nation, one-vote organizations**.**

Third, Lorenz curve and Gini index represent and measure inequality of loans/expenditures per capita and provide a useful comparison with wealth and contributions per capita redistribution. Once again, our previous results are confirmed since the Lorenz curve and Gini index show a great unequal distribution of loans and expenditures respectively in weighted voting and one-nation, one-vote organizations and that a few number of member states benefit from redistribution. Moreover, the Gini index shows that the distribution of loans (0.91) in weighted voting organizations is somewhat more egalitarian relatively to the distribution of expenditures (0.97) in one-nation, one-vote organizations. Finally, comparing the distribution of loans and expenditures with the distribution of contributions, we notice that it is similarly unequal in one-nation, one-vote while distribution of loans is clearly more unequal than the distribution of contributions in weighted voting organizations.

Fourth, the study of the number of member states receiving loans in weighted voting organizations and expenditures in one-nation, one-vote organizations by tranche of income class confirms previous results and proves in addition the relevance of the median decisive voter on the distribution of loans and expenditures toward specific tranche of income class.

Fifth, we show that there is no impact of voting power on loans and on under and over- 'receive', which can be explained by the altruistic preferences of the median decisive voter who is situated among largest countries in weighted voting organizations.

Our main contributions in this study is that we succeed in explaining through a positive analysis the functioning of international organizations (IOs) and hence

evaluate their performance by demonstrating that on the one hand, one-nation, one-vote is more redistributive from rich to poor and middle classes, and on the other hand, the distribution of loans in weighted voting organizations is more egalitarian among income class even though the lower income classes remain the main beneficiaries. We show that the voting structure has an impact on redistribution within international organizations whereas voting power has no impact on loans and on loans' deviations. In addition, we build our database and use an original way to represent and quantify the inequality of redistribution respectively via the Lorenz curve and the Gini index.

In all, we see that this study constitutes an early step relatively successful at advancing a promising analytic tool in international organizations studies.

Conclusion Générale

Pour conclure, nous récapitulerons et évaluerons les principaux résultats. Ensuite, nous déterminerons l'apport de cette thèse et sa limite. Et finalement, nous proposerons les grandes lignes pour des recherches futures.

Dans le premier chapitre, d'un côté, l'analyse théorique inspirée par le travail de Buchanan et Tullock montre que le choix d'un pays membre d'une large organisation internationale de règles de vote plus inclusives (exemple : majorité qualifiée et unanimité) signifiera qu'il accepte les coûts supplémentaires de la prise de décision en échange d'une protection supplémentaire contre les coûts externes qui lui sont imposés par d'autres membres. Toutefois, en choisissant des règles de vote moins inclusives (exemple : majorité simple) le pays membre accepte de négocier des coûts de sa protection contre les coûts externes en échange d'un coût réduit de la prise de décision. De l'autre, l'analyse comparative montre que la structure de vote dans la plupart des organisations de l'ONU est 'un pays – une voix' tandis que la structure de vote dans la plupart des organisations internationales majeures ne faisant pas partie des instances de l'ONU est le 'vote pondéré'. Nous observons que la structure de vote 'un pays – une voix' est souvent combinée avec une majorité simple plus qu'avec une majorité qualifiée alors que le 'vote pondéré' est souvent combiné avec des majorités qualifiées, même une supermajorité, qu'avec une majorité simple. L'adoption de la structure de vote 'un pays – une voix' dans les instances de l'ONU peut être expliquée par le souci de respect du principe de la souveraineté et d'égalité entre les pays lors de leur création. Toutefois, la reconnaissance de la différence de pouvoir en faveur des plus grands se manifeste soit par la combinaison de cette structure de vote avec une majorité qualifiée pour les décisions importantes, soit par l'attribution de sièges permanents ou d'un droit de veto aux pays les plus puissants comme au sein du Conseil de Sécurité de l'ONU. Quant à l'adoption du 'vote pondéré', dans la plupart des instances qui ne font pas partie de l'ONU, peut s'expliquer par la reconnaissance du pouvoir et des intérêts des principaux contributeurs. Même les pays en voie de

développement qui préconisent l'adoption de la structure de vote 'un pays – une voix' adopte la structure de 'vote pondéré' dans les organisations où ils détiennent la majorité comme c'est le cas de la Banque Africaine de Développement et de la Banque Interaméricaine de Développement.

Dans le second chapitre, nous avons montré, conformément aux études antérieures et à partir d'un échantillon de quatre organisations internationales à vote pondéré (la Banque Africaine de Développement, la Banque Internationale de Recherche et de Développement, le Fonds International de Développement Agricole et le Fonds Monétaire International) que les poids de vote (données 2008) ne reflètent pas les pouvoirs de vote effectifs des pays membres. De même, nous avons constaté qu'au fur et à mesure que la majorité requise (q) augmente, le pouvoir de vote, mesuré par l'indice de Banzhaf normalisé, des principaux contributeurs en particulier les Etats-Unis, baisse. Une supermajorité de 85% diminue ainsi les écarts de pouvoir de vote entre les Etats membres et donc réduit les inégalités entre eux. Par conséquent, une supermajorité conçue afin de protéger les intérêts des plus grands contributeurs en leur attribuant un droit de veto, semble limiter leur pouvoir et porter préjudice à leur souveraineté. En outre, les valeurs estimées des pouvoirs de vote des valeurs aberrantes - représentant les larges contributeurs comme les Etats-Unis - en supposant que ces dernières suivent dorénavant une évolution proportionnelle entre poids de vote et pouvoir de vote le long de la courbe linéaire à l'instar des autres pays membres, s'avèrent plus élevées que les valeurs de pouvoir de vote existantes en 2008. Toutefois, les valeurs estimées des pouvoirs de vote sont inférieures aux poids de vote des pays membres sauf pour le FMI. Concernant la majorité simple, elle assure aux principaux contributeurs des pouvoirs de vote disproportionnés par rapport à leurs poids de vote, surtout pour les Etats-Unis, alors que les autres pays membres ont moins de pouvoir de vote que de poids de vote. Par conséquent, la répartition des pouvoirs de vote entre les pays membres est plus inégalitaire sous une majorité simple. En outre, les valeurs estimées des pouvoirs de vote des valeurs aberrantes ; une fois ces dernières situées tout au long des courbes linéaires suivant ainsi une évolution proportionnelle entre poids et pouvoir de vote comme le reste des pays membres, sont plus faibles que leurs pouvoirs de vote existants en 2008. Les réformes du FMI post 2008 (entrée en vigueur) pour le Conseil des Gouverneurs et post 2010 (n'est pas encore entrée en vigueur) pour le Conseil Exécutif affichent les mêmes

résultats observés auparavant pour les pouvoirs et poids de votes sous les majorités simple et qualifiée, de même pour les valeurs estimées et existantes des pouvoirs de vote des valeurs aberrantes. Nous remarquons que les pouvoirs de vote existants et estimés des plus grands contributeurs au Conseil des Gouverneurs du FMI sont plus élevés que dans le Conseil Exécutif. Ce résultat peut être expliqué par le fait qu'étant donné les pays membres votent en tant que groupes au sein du Conseil Exécutif par opposition au Conseil des Gouverneurs où ils votent individuellement, les principaux contributeurs pourraient être lésés par la formation des coalitions. Finalement, le principal enseignement que l'on peut tirer de ce chapitre c'est que les pouvoirs de vote estimés des valeurs aberrantes permettent de remédier, d'une part, dans le cas d'une majorité simple, au pouvoir de vote disproportionné des Etats-Unis relativement à ses droits de vote, et d'autre part, dans le cas d'une majorité qualifiée, à la perte de pouvoir par rapport au poids de vote des plus grands contributeurs.

Dans le troisième chapitre, nous observons que dans l'organisation à structure de vote 'un pays – une voix' le pays membre médian ou décisif se situe en-dessous de la moyenne et la redistribution est décalée vers la droite tandis que dans l'organisation à 'vote pondéré' le pays médian est situé en-dessus de la moyenne et la redistribution est décalée vers la gauche. Par conséquent, suivant l'argument de Meltzer et Richard (1981), l'organisation avec une structure de vote 'un pays – une voix' assure une meilleure redistribution selon les préférences altruistes de son électeur médian que l'organisation à 'vote pondéré'. De même, nous remarquons en 2008 une tendance générale de 'sous paiement' parmi les Etats membres même parmi les plus riches. En fait, ce résultat signifie que les pays contribuent moins relativement à leurs richesses et leur 'capacité de payer'. Toutefois, cette tendance de 'sous paiement' est plus observée dans les organisations avec une structure de vote 'un pays – une voix' que dans les organisations à 'vote pondéré' tandis que le 'sur paiement' est moins observé dans les organisations avec une structure de vote 'un pays – une voix' qu'avec les organisations à 'vote pondéré'. Ainsi, les organisations avec 'un pays – une voix' vérifient l'hypothèse d'exploitation (Olson et Zeckhauser, 1966) qui stipule que ce sont les riches qui supportent la plus grande part des charges ou contributions pour les pays pauvres. L'étude de 'sous et sur paiement' par classe de revenu a montré que les pays riches supportent même la charge de la classe moyenne dans les organisations à structure de vote 'un pays - une voix' ce qui est cohérent avec

l'hypothèse de Stigler (1970) ; les riches sont exploités par les classes pauvres et moyennes. En outre, le test de proportionnalité du système de taxation entre les contributions par tête et la 'capacité de payer' (i.e. revenu par tête) des pays membres dans les organisations avec 'un pays – une voix' et les organisations à 'vote pondéré' ont montré que la redistribution est plus que proportionnelle dans les organisations avec une structure de vote 'un pays – une voix' et moins que proportionnelle dans les organisations à 'vote pondéré'. Ce résultat implique que le système de taxation est régressif dans les organisations à 'vote pondéré' privilégiant les riches au détriment des pauvres tandis qu'il est progressif dans les organisations avec une structure de vote 'un pays – une voix' privilégiant ainsi les pauvres ce qui est conforme avec le principe 'd'équité' fondé sur la 'capacité de payer' des Etats membres. En conséquence, les organisations avec une structure de vote 'un pays – une voix' assurent une meilleure redistribution et donc une meilleure performance que les organisations à 'vote pondéré' en termes de contributions. Toutefois, Frey (1991, p. 18) et Kwon (1995, p.83) ont montré que les votes pondérés en fonction des contributions financières incitent les pays les plus riches (les principaux contributeurs) à participer à l'organisation et à accepter les décisions prises ce qui n'est pas le cas des organisations avec 'un pays – une voix'. Finalement, nous avons montré que le pouvoir de vote n'a pas d'impact sur le pourcentage d'écart de contributions, en d'autres termes, il n'a pas d'impact sur les 'sous- et sur- paiements'.

Dans le quatrième chapitre, nous observons, premièrement, à travers les pays qui 'reçoivent moins' et ceux qui 'reçoivent plus' en termes de prêts et d'aide, que la concentration est plus élevée dans les organisations avec une structure de vote 'un pays – une voix' qu'avec les organisations à 'vote pondéré'. En d'autres termes, une forte concentration implique qu'un nombre limité de pays membres bénéficie de la plus grande part de dépenses ou de prêts versés par les organisations internationales. Deuxièmement, l'analyse des pays qui 'reçoivent moins' et ceux qui 'reçoivent plus' par classe de revenu et par tranche de classe cette fois-ci, a montré que les organisations avec une structure de vote 'un pays – une voix' assurent une plus forte redistribution dans l'allocation des dépenses, en faveur premièrement des classes pauvres (59.4% du nombre total de bénéficiaires) puis des classes moyennes (23.8% du nombre total de bénéficiaires) surtout la première tranche de classe, que les organisations à 'vote pondéré'. Toutefois, ces dernières répartissent les prêts parmi

toutes les classes de revenu même si à des niveaux différents. En fait, 57% du nombre total de bénéficiaires appartiennent à la classe pauvre surtout la première tranche, 29.4% appartiennent à la classe moyenne particulièrement la première tranche et 13.6% appartiennent principalement à la quatrième tranche de la classe riche. Ce résultat peut être expliqué par le fait que les contributeurs dans les organisations à 'vote pondéré' peuvent contrôler la redistribution relativement à leur poids de vote ce qui n'est pas le cas des organisations avec une structure de vote 'un pays – une voix'. De même, l'électeur médian dans les organisations à 'vote pondéré' est situé parmi les pays les plus riches alors que celui des organisations avec une structure de vote 'un pays – une voix' est situé dans la première tranche de la classe moyenne, ce qui explique la redistribution dans les deux types d'organisations puisque selon Meltzer et Richard (1981), la redistribution se fait en fonction des préférences altruistes de l'électeur médian. En outre, le fait que les plus riches peuvent également bénéficier des prêts dans les organisations à 'vote pondéré' peut être interprété par l'intention de ces organisations d'éviter la faillite ou l'appauvrissement de ces pays riches, comme c'est le cas de la Grèce actuellement, indépendamment de l'efficacité de ces prêts accordés ; ce qui ne rentre pas dans le cadre de cette étude. Troisièmement, la courbe de Lorenz et l'indice de Gini ont respectivement illustré et quantifié l'inégalité des prêts et dépenses par tête en fournissant un élément de comparaison avec les inégalités de redistribution des contributions par tête étudiées dans le chapitre 3. Les résultats sous-jacents confirment nos résultats précédents en montrant une inégalité proche de 1 de la distribution des prêts et dépenses respectivement dans les organisations à 'vote pondéré' et les organisations avec une structure de vote 'un pays – une voix'. Toutefois, l'indice de Gini a montré une distribution des prêts (0.91) dans les organisations à 'vote pondéré' plus égalitaire relativement à la distribution des dépenses (0.97) dans les organisations avec une structure de vote 'un pays – une voix'. Ce résultat confirme encore une fois notre observation précédente. En effet, la distribution des prêts est plus répartie parmi les classes de revenu et donc les différents pays membres que la distribution des dépenses. Quatrièmement, notre comparaison de la distribution des prêts et dépenses avec la distribution des contributions indique que les dépenses et les contributions par tête sont similairement inégalitaires dans les organisations avec une structure de vote 'un pays – une voix' tandis que la distribution des prêts par tête sont plus inégalitaires que la distribution des contributions dans les organisations à 'vote pondéré'. Enfin, nous avons démontré

par l'intermédiaire d'une régression linéaire que le pouvoir de vote n'a pas d'impact sur les prêts ni sur le fait de 'recevoir plus' ou de 'recevoir moins', ce qui peut être expliqué par les préférences altruistes de l'électeur médian situé parmi les pays les plus riches, comme nous avons vu précédemment.

Après cette récapitulation et évaluation des résultats de la thèse, nous nous efforcerons de déterminer l'apport, ou plutôt, les apports de ce travail de recherche.

Premièrement, la base de données assez conséquente et originale a été construite par l'auteur.

Deuxièmement, nous ne sommes pas limités à une étude de cas comme dans les études traitant ce genre de sujets, mais nous avons élargi le champ de l'analyse en prenant un échantillon de plusieurs organisations inter-gouvernementales, ce qui nous a permis de faire des comparaisons et d'affiner nos résultats.

Troisièmement, nous avons montré que les pays les plus riches dans les organisations à 'vote pondéré' et qui constituent souvent les points aberrants ont plus de pouvoirs que de poids de vote sous la majorité simple et beaucoup moins de pouvoir que de poids de vote sous la majorité qualifiée alors que s'ils suivaient une évolution du pouvoir de vote proportionnellement au poids de vote, comme les autres pays membres, ils auraient moins de pouvoir que de poids de vote sous la majorité simple et plus de pouvoir que de poids de vote sous la majorité qualifiée et ainsi l'objectif de la majorité qualifiée de protéger les intérêts des plus puissants serait respecté. Par conséquent, une évolution proportionnelle des pouvoirs de vote avec les poids de vote des pays les plus riches (les points aberrants) pourrait constituer un remède aux effets contradictoires des majorités requises sur le pouvoir de vote des plus riches.

Quatrièmement, nous avons réussi à démontrer, à travers une analyse positive et une étude empirique très développée, que les organisations inter-gouvernementales avec une structure de vote 'un pays – une voix' assurent une redistribution, en termes de contributions et d'aide, des riches vers les pauvres et la classe moyenne, tandis que la redistribution en termes de contributions est moindre dans les organisations inter-gouvernementales à 'vote pondéré'. Toutefois, la redistribution des prêts s'avère plus dispersée parmi les classes de revenu. En fait, toutes les classes en bénéficient

même si à des niveaux différents, mais en attribuant à un pays riche un prêt c'est primordialement dans l'intention d'éviter sa faillite ou son appauvrissement suite à son endettement. Ainsi, d'une part, les organisations avec une structure de vote 'un pays – une voix' sont plus performantes que les organisations à 'vote pondéré' en termes de contributions et conformément au principe 'd'équité' fondée sur la 'capacité de payer' des pays membres. D'autre part, en termes de prêts et d'aide, les organisations avec une structure de vote 'un pays – une voix' et à 'vote pondéré' sont aussi performantes les unes que les autres par rapport à la nature de leur structure de vote et de leurs activités ou missions.

Cinquièmement, nous avons montré que l'électeur médian influence la répartition des contributions, des prêts et des dépenses.

Sixièmement, cette thèse a réussi à démontrer que la structure de vote, qui a souvent été négligée dans les études de ce genre, impacte le fonctionnement et les performances des organisations internationales.

Néanmoins, la structure de vote qui constitue l'élément fondamental dans l'interprétation de nos résultats peut paraître comme une limite dans la mesure où d'autres facteurs propres à chaque pays membre que ce soit politiques (exemple : régime politique, stabilité politique, situation géopolitique, etc…) ou économiques (exemple : endettement, inflation, chômage) ne sont pas pris en compte et qui pourraient également avoir un impact sur le fonctionnement des organisations internationales.

Finalement, l'analyse positive à travers laquelle nous avons fondé notre étude constitue une première étape et un outil analytique vers une étude normative future plus approfondie fournissant des solutions et des enseignements vers une meilleure allocation des contributions, des aides, des prêts, et des pouvoirs de vote, tout en tenant compte des règles de vote régissant les organisations internationales, pour un meilleur fonctionnement et donc de meilleures performances au sein des organisations inter-gouvernementales.

Pour conclure, cette thèse a mis la lumière sur une piste non exploitée auparavant et qui est la structure de vote s'avérant un début prometteur pour des recherches futures plus développées.

References

Addison, T., McGillivray, M. & Odedokun, M. (2004). Donor Funding of Multilateral Aid Agencies: Determining Factors and Revealed Burden Sharing. *The World Economy*, 27(2): 173-191.

Allan, C.M. (1971). *The Theory of Taxation*. Penguin, London.

Asian Development Bank. (2009). *Asian Development Bank Sustainability Report 2009*, http://www.adb.org/documents/books/sustainability-report/2009/SR2009.pdf

Banzhaf, J.F. (1965)**.** Weighted Voting Doesn't Work: A Mathematical Analysis. *Rutgers Law Review*, 19, 317–343.

Barua, R., Chakravarty, S.R. & Roy, S. (2006)**.** On the Coleman Indices of Voting Power. *European Journal of Operational Research,* 171 (1), 273-289.

Becker, G. (1976). *The Economic Approach to Human Behavior*, The University of Chicago Press, Chicago and London

Bilal, S. & Hosli, M. O. (1999)**.** Connected Coalition Formation and Voting Power in the Council of the European Union: An Endogenous Policy Approach. EIPA Working paper No. 99/5. In http://eipa-nl.com/public/public_publications/default_working.pdf

Bird, G. (1996). The International Monetary Fund and Developing Countries: A Review of the Evidence and Policy Options. *International Organization,* 50 (3), 477-511.

Boockmann, B. (2006)**.** Participation and voting in committees: Evidence from the ILO. *Public Choice*, 126, 405-427.

Borge, L.E. & Rattso, J. (2004). Income Distribution and Tax Structure: Empirical Test of the Meltzer-Richard Hypothesis. *European Economic Review,* 48, 805-826.

Brams, S.J. & Affuso P.J. (1985a)**.** New Paradoxes of Voting Power on the EC Council of Ministers. *Electoral Studies,* 4, 135-139.

Brams, S.J. & Affuso, P.J. (1985b)**.** Addendum to: New Paradoxes of Voting Power on the EC Council of Ministers. *Electoral Studies,* 4, 290.

Brams, S.J. & Affuso.P.J. (1976)**.** Power and Size: a New Paradox. *Theory and Decision,* 7, 29-56.

Brennan, G. & Buchanan, J. M. (1986). *The Reason of Rules. Constitutional Political Economy.* Cambridge University Press, Cambridge.

Buchanan, J. M. (1977). Why does Government Grow?. In Thomas E. Borcherding (Eds.), *Budgets and Bureaucrats: The Sources of Government Growth* (pp.3-18). Durham: Duke University Press.

Buchanan, J. M. & Tullock, G. (1962). *The Calculus of Consent. Logical Foundations of Constitutional Democracy.* Ann Arbor: University of Michigan Press.

Cobanoglu, R. (1949). *L'Evolution récente de la notion de souveraineté et les procédures de vote dans les organisations internationales* (pp.188). Thèse de droit, Paris.

Coleman, J.S. (1971). Control of Collectivities and the Power of a Collectivity to Act. In B. Lieberman (ed), *Social Choice*. New York: Gordon and Breach, pp. 269–300; reprinted in J.S. Coleman (1986) *Individual Interests and Collective Action.* Cambridge: Cambridge University Press, pp. 192–225

Cottier, T. (2009). A Two-Tier Approach to WTO Decision Making. NCCR Trade Working Paper, 1-20.

Da Empoli, D. (2000). Public-Choice Analysis of a New International Organization: The International Sea-Bed Authority. *Constitutional Political Economy*, 11 (1), 59-67(9).

Dellink, R., Elzen, M.D., Aiking, H., Bergsma, E., Berkhout, F., Dekker, T. & Gupta, J. (2009). Sharing the Burden of Financing Adaptation to Climate Change. *Elsevier,* 19, 411-421.

Diamond, J. & Dodsworth, J.R. (1976). Normative and Positive Theories of International Cost Sharing: The Case of the Netherlands. *De Economist,* 124(4), 403-421.

Dillon, P., IIgen, T. L. & Willett, T. D. (1991). Approaches to the Study of International Organizations: Major Paradigms in Economics and Political Science. In R. Vaubel and T. D. Willett (Eds.), *The Political Economy of International Organizations: A Public Choice Approach* (pp.79-99). Boulder, CO: Westview Press.

Downs, A. (1957). *An Economic Theory of Democracy*, New York Harper.

Dreher, A. (2004). A Public Choice Perspective of IMF and World Bank Lending and Conditionality. *Public Choice,* 119 (3), 445-464.

Dreher, A., & Jensen, N.M. (2007). Independent Actor or Agent? An Empirical Analysis of the Impact of U.S. Interests on International Monetary Fund Conditions. *Journal of Law and Economics,* 50, 105-124.

Dreher, A. & Jensen, N.M. (2005). Independent Actor or Agent? An Empirical Analysis of the Impact of US interests on IMF Conditions. Working papers 05-118, KOF Swiss Economic Institute, ETH Zurich.

Dreyer, J. S. & Schotter, A. (1980). Power Relationships in the International Monetary Fund: The Consequences of Quota Changes. *The Review of Economics and Statistics*, 62 (1), 97-106.

***Europa Directory of International Organizations*.** (2008). Europa Yearbook.

Eckert, R. D. (1991). U.S. Policy and the Law of the Sea Conference, 1969-1982: A Case Study of Multilateral Negotiations. In R. Vaubel and T. D. Willett (Eds.), *The Political Economy of International Organizations: A Public Choice Approach* (pp.181-203). Boulder, CO: Westview Press.

Feld, L.P. & Schnellenbach, J. (2007). Still a Director's Law? On the Political Economy of Income Redistribution. *Institut de Recherches Economiques et Fiscales,* 1-56.

Felsenthal, D.S. & Machover, M. (2004). A priori voting power: what is it all about? [online]. London: LSE Research Online. Available at: http://eprints.lse.ac.uk/archive/00000423

Felsenthal, D. S. and Machover, M. (1998). *The Measurement of Voting Power: Theory and Practice, Problems and Paradoxes*. Edward Elgar.

Fischer, D. and Schotter, A. (1978). The Inevitability of the "Paradox of Redistribution" in the Allocation of Voting Weights. *Public Choice,* 33 (2), 49-67.

Fratianni, M. & Pattison, J. C. (1991). International Institutions and the Market for Information. In R. Vaubel and T. D. Willett (Eds.), *The Political Economy of International Organizations: A Public Choice Approach* (pp.100-122). Boulder, CO: Westview Press.

Frey, B.S. (1997). The public choice of international organizations. In D. C. Mueller (Eds.), *Perspectives on Public Choice: a Handbook.* Cambridge University Press.

Frey, B.S. (1986). The Function of Governments and Intergovernmental Organizations in the International Resource Transfer: The Case of the World Bank. In B. Balassa and H. Giersch (Eds.), *Economic Incentives* (pp.454-470). Basingstoke: Macmillan.

Frey, B.S. (1984). The Public Choice View of International Political Economy, *International Organization,* 38(1), 199-223. Reprinted in R. Vaubel and T.D. Willett (Eds.), *The Political Economy of International Organizations: A Public Choice Approach* (pp.7-26). Boulder, CO: Westview Press, 1991.

Frey, B.S. (1984). Why Is International Cooperation So Difficult? In *International Political Economics,* by Bruno S. Frey. London, Basil Blackwell.

Frey, B.S. (1978). *Modern Political Economy*, London: Martin Robertson.

Frey, B.S. & Gygi, B. (1991). International Organizations from the Constitutional Point of View. In R. Vaubel and T. D. Willett (Eds.), *The Political Economy of International Organizations: A Public Choice Approach* (pp.58-78). Boulder, CO: Westview Press.

Frey, B.S. and Schneider, F. (1986). Competing Models of International Lending Activity. *Journal of Development Economics,* 20, 225-245.

Friedman, M. (1953). The Methodology of Positive Economics. *Essays in Positive Economics*, Chicago, The University of Chicago Press.

Gonzalez, R.A. & Mehay, S.L. (1991). Burden Sharing in the NATO Alliance: An Empirical Test of Alternative Views. *Public Choice,* 68(1), 107-116.

Gould, E. R. (2003). Money Talks: Supplementary Financiers and International Monetary Fund Conditionality. *International Organization,* 57 (3), 551-586.

Grofman, B. (2004). Reflections on Public Choice. *Public Choice,* 118, 31-51.

Gutner, T. & Thompson, A. (2010). The Politics of IO performance: A Framework. *The Review of International Organizations,* 5, 227-248.

Hartley, K. & Sandler, T. (1999). NATO Burden-Sharing: Past and Future. *Journal of Peace Research,* 36(6), 665-680.

Heisenberg, D. (2005). The institution of 'consensus' in the European Union: Formal versus informal decision-making in the Council. *European Journal of Political Research,* 44 (1), 65-90.

Holcombe, R. G. & Sobel, R. S. (1996). The stability of international coalitions in United Nations voting from 1946 to 1973. *Public Choice*, 86, 17-34.

Hosli, M. and Machover, M. (2004). The Nice Treaty and Voting Rules in the Council: A Reply to Moberg (2002). *Journal of Common Market Studies,* 42(3), 497-521.

Inter-American Development Bank. (2008). *Annual Report,* http://idbdocs.iadb.org/wsdocs/getdocument.aspx?docnum=1924316

International Bank for Reconstruction and Development. *(2008). Financial Statements and Internal Control Reports.*

International Bank for Reconstruction and Development. (2011). *International Bank for Reconstruction and Development Subscriptions and Voting Power of Member Countries.* Corporate Secretariat.

International Center for Settlement of Investment Disputes. (2006). *ICSID Convention, Regulations and Rules*. In http://icsid.worldbank.org/ICSID/StaticFiles/basicdoc/CRR_English-final.pdf

International Civil Aviation Organization. (2006). *Contributions by Contracting States and Methods of Assessment: The Principle in the Determination of scales of Assessment (Weighted Ability-to-Pay Scale).* Council, 179TH session, Subject No.18.4, [C-WP/12815], see in http://www.icao.int/Hyperdocs/display.cfm?V=2&name=C-WP%2F12815&Lang=E

International Monetary Fund. (2009). *IMF Governance – Summary of Issues and Reform Options*. Prepared by the Strategy, Policy, and Review Department and the Legal Department of the IMF.

International Monetary Fund. (2011). *IMF Members' Quotas and Voting Power, and IMF Board of Governors,* 'http://www.imf.org/external/np/sec/memdir/members.aspx

Jenks, W. C. (1965). Unanimity, the Veto, Weighted Voting, Special and Simple Majorities and Consensus as Modes of Decision in International Organizations. In *Cambridge Essays in International Law: Essays in Honour of Lord McNair* (pp.48-63). London/New York.

Khanna, J. & Sandler, T. (1996). NATO Burden Sharing: 1960-1992. *Defence Peace Economics,* 7(2), 115-133.

Khanna, J., Sandler, T. & Shimizu, H. (1998). Sharing the Financial Burden for UN and NATO Peacekeeping, 1976-1996. *The Journal of Conflict Resolution,* 42(2), 176-195.

Kindleberger, C.P. (1986). International Public Goods without International Government. *The American Economic Review*, 76 (1), 1-13.

Koo, W. J. (1947). *Voting Procedures in International Political Organizations*. New York: Columbia University Press.

Kravis, I.B. & Davenport, M.W.S. (1963). The Political Arithmetic of International Burden-Sharing. *Journal of Political Economy,* 71, 309-330.

Kwon, G.H. (1998). Retests on the Theory of Collective Action: The Olson and Zeckhauser Model and its Elaboration. *Economics and Politics,* 10(1), 37-62.

Kwon, G.H. (1995). The Declining Role of Western Powers in International Organizations: Exploring a New Model of U.N. Burden Sharing. *Journal of Public Policy,* 15(1), 65-88.

Lafay, J.D., & Lecaillon, J. (1993). *The Political Dimension of Economic Adjustment.* Paris: OECD.

Leech, D. & Leech, R. (2006). Voting Power and Voting Blocs. *Public Choice,* 127(3-4), 285-303.

Leech, D. (2003). Computing Power Indices for Large Voting Games. *Management Science*, 49(6), 831-838.

Leech, D. (2002a). Computation of Power Indices. Warwick Economic Research Papers No. 644.

Leech, D. (2002b). An Empirical Comparison of the Performance of Classical Power Indices. *Political Studies*, 50, 1–22.

Leech, D. (2002c). Voting Power in the Governance of the International Monetary Fund. *Annals of Operations Research*, 109, 373-395.

Leech, D. (2002d). Designing the Voting System for the Council of the European Union. *Public Choice*, 113, 437–464.

Lipson, C. (1981). The International Organization of Third World Debt. *International Organization,* 35(4), 603-631.

Lyne, M.M., Nielson, D.L., & Tierney, M.J. (2009). Controlling coalitions: Social lending at the multilateral development banks. *The Review of International Organizations,* 4(4), 407- 433.

McIntyre, E. (1954). Weighted Voting in International Organizations. *International Organization,* 8 (4), 484-497.

Meltzer, A.H. & Richard, S.F. (1981). A Rational Theory of the Size of Government. *The Journal of Political Economy*, 89(5), 914-927.

Messner, M. & Polborn, M. k. (2004). Voting on Majority Rules. *The Review of Economic Studies,*71 (1), 115-132.

Mueller, D. C. (1997). *Perspectives on Public Choice: a Handbook.* Cambridge University Press.

Murdoch, J.C., Sandler, T. & Hansen, L. (1991). An Econometric Technique for Comparing Median Voter and Oligarchy Choice Models of Collective Action: The case of the Nato Alliance. *The Review of Economics and Statistics,* 73(4), 624-631.

Musgrave, R.A. (1959). *The Theory of Public Finance.* New York.

Nielson, D.L., & Tierney, M.J. (2006). Principals and Interests: Common Agency and Multilateral Development Bank Lending. Unpublished Working Paper.

Nielson, D.L., & Tierney, M.J. (2003). Delegation to International Organizations: Agency Theory and World Bank Environmental Reform. *International Organizations*, 57, 241-276.

Olson, M. (1965). *The Logic of Collective Action: Public Goods and the Theory of Groups.* Harvard University Press.

Olson, M. & Zeckhauser, R. (1966). An Economic Theory of Alliances. *The Review of Economics and Statistics,* 48(3), 266-279.

Oneal, J.R. (1990). The Theory of Collective Action and Burden Sharing in NATO. *International Organization,* 44(3), 379-402.

Oneal, J.R. (1990). Testing the Theory of Collective Action: NATO Defense Burdens, 1950-1984. *The Journal of Conflict Resolution,* 34(3), 426-448.

Owen, G. (1995). *Game Theory*. (3rd Edition). Academic Press.

Owen, G. (1975a), Multilinear Extensions and the Banzhaf Value. *Naval Research Logistics Quarterly*, 22, 741-50.

Owen, G. (1975b). Evaluation of a Presidential Election Game. *American Political Science Review*, 69, 947-53.

Owen, G. (1972). Multilinear Extensions of Games. *Management Science*, 18, 5, Part 2, 64-79.

Penrose, L.S. (1952). *On the Objective Study of Crowd Behaviour.* London: H. K. Lewis & Co.

Penrose, L.S. (1946). The Elementary Statistics of Majority Voting. *Journal of the Royal Statistical Society*, 109, 53–57.

Peltzman, S. (1976). Toward a More General Theory of Regulation. *Journal of Law and Economics,* 19, 211-240.

Rae, D. W. (1969). Decision Rules and Individual Values in Constitutional Choice. *American Political Science Review,* 63, 40-56.

Roberts, K.W.S. (1977). Voting Over Income Tax Schedules. *Journal of Public Economics,* 8, 329-340.

Robbins, L. (1932). *Essai sur la nature et la signification de la science économique,* Paris Médicis.

Romer, T. (1975). Individual Welfare, Majority Voting and the Properties of a Linear Income tax. *Journal of Public Economics,* 4, 163-185.

Rosen, H.S. (2005). *Public Finance.* Seventh edition, Mc Graw Hill.

Samuelson, P. (1954). The pure theory of public expenditure. *The Review of Economics and Statistics*. 36; ou La théorie pure des dépenses publiques et de la fiscalité. *Economie Publique CNRS*, colloque Biarritz 2-9 Septembre 1966.

Sandler, T. & Hartley, K. (2001). Economics of Alliances: The lessons for Collective Action. *Journal of Economic Literature,* 39, 869-896.

Sandler, T. & Murdoch, J.C. (1990). Nash-Cournot or Lindahl Behavior?: An Empirical Test for the Nato Allies. *The Quaterly Journal of Economics,* 105(4), 875-894.

Sandler, T. & Tschirhart, J.T. (1980). The Economic Theory of Clubs: An Evaluative Survey. *Journal of Economic Literature,* 18(4), 1481-1521.

Shimizu, H. & Sandler, T. (2002). Peacekeeping and Burden-Sharing, 1994-2000. *Journal of Peace Research,* 39(6), 651-668.

Shapley, L.S. & Shubik, M. (1954). A Method for Evaluating the Distribution of Power in a Committee System. *American Political Science Review,* 48, 787-792.

Slomczynski, W. and Życzkowski, K. (2007). Distribution of power and voting procedures in the European Union. International Workshop, Natolin European Centre, Warsaw, URL: http://homepages.warwick.ac.uk/~ecaae/index.html

Smith, R. T. (1991). A Public Choice Perspective of the International Energy Program. In R. Vaubel and T. D. Willett (Eds.), *The Political Economy of International Organizations: A Public Choice Approach* (pp.142-180). Boulder, CO: Westview Press.

Smith, R. T. (1991). Canons of Public Choice Analysis of International Agreements. In R. Vaubel and T. D. Willett (Eds.), *The Political Economy of International Organizations: A Public Choice Approach* (pp.46-57). Boulder, CO: Westview Press.

Snidal, D. (1991). Relative Gains and the Pattern of International Cooperation. *The American Political Science Review,* 85(3), 701-726.

Steinberg, R. H. (2002). In the Shadow of Law and Power? Consensus-Based Bargaining and Outcomes in the GATT/WTO. *International Organization,* 56 (2), 339-374.

Stigler, G.J. (1972). Economic Competition and Political Competition. *Public Choice*, 13, 91-106.

Stigler, G.J. (1970). Director's Law of Public Income Redistribution. *Journal of Law and Economics,* 13(1), 1-10.

Strand, J.R. (2003). Measuring voting power in an international institution: the United States and the inter-American development bank. *Economics of Governance,* 4, 19-36.

Stutzer, A. & Frey, B. S. (2005). Making International Organizations more Democratic. IEW Working Paper No. 217. *Review of Law and Economics*, 1 (3), 305-330.

Taagepera, R. & Hosli, M. O. (2006). National Representation in International Organizations: The Seat Allocation Model Implicit in the European Union Council and Parliament. *Political Studies,* 54, 370-398.

Thompson, F. (1987). Lumpy Goods and Cheap Riders: An Application of the Theory of Public Goods to International Alliances. *Journal of Public Policy,* 7(4), 431-449.

United Nations General Assembly. (November 6, 2000). Resolution 55/5.

United Nations General Assembly. (October 10, 2006). *Capacity to Pay Principle, Ceiling on Contributions among Issues Raised.* Sixty-first General Assembly, [GA/AB/3754], see in http://www.un.org/News/Press/docs/2006/gaab3754.doc.htm.

United Nations General Assembly. (October 4, 2010). *Budget Committee Takes up Agenda Item on Scale of Assessments.* Sixty fifth General Assembly, [GA/AB/3956], see in http://www.un.org/News/Press/docs/2010/gaab3956.doc.htm.

United Nations Office on Drugs and Crime. (2007). Rules of Procedure for the Conference of the States Parties to the United Nations Convention against Corruption. United Nations, New York, in http://www.unodc.org/pdf/crime/convention_corruption/cosp/07-80230_Ebooke.pdf

Vaubel, R. (1996). Bureaucracy at the IMF and the World Bank: A Comparison of the Evidence. *World Economy*. 19, 195-210

Vaubel, R. (1991). The Political Economy of the International Monetary Fund. In R.Vaubel and T. D. Willett (Eds.), *The Political Economy of International Organizations: A Public Choice Approach* (pp.204-244). Boulder, CO: Westview Press.

Vaubel, R. (1986). A Public Choice View of International Organization. *Public Choice,* 51, 39-57. Reprinted in R Vaubel and T. D. Willett (Eds.), *The Political Economy of International Organizations: A Public Choice Approach* (pp. 27-45). Boulder, CO: Westview Press, 1991.

Vaubel, R. (1986). A Public Choice Approach to International Organization. *Public Choice,* 51(1), 39-57.

Vaubel, R. & Willett, T. D., (Eds.). (1991). *The Political Economy of International Organizations: A Public Choice Approach.* Boulder, CO: Westview Press.

Verschraegen, B. & Rheinstein, M. (2004). *International Encyclopedia of Comparative Law,* part 5, pp.91.

White, N.D. (2005). *The Law of International Organizations.* Second edition, Manchester University Press.

Willett, T. D. (1988). National Macroeconomic Policy Preferences and International Coordination Issues. *Journal of Public Policy*, 8 (3), 235-263.

Willett, T. D. (1983). Functioning of the Current International Financial System. In *International Money and Credit.* Edited by George von Furstenberg. Washington, D.C., International Monetary Fund.

Wolfrum, R. (1997). The Protection of Regional or other Interests as Structural Element of the Decision-Making Process of International Organizations. In *Max Planck Yearbook of United Nations Law*, 1, 259-282.

Woods, N. (1998). Governance in International Organizations: The case for reform in the Bretton Woods institutions. *International Financial and Monetary Issues* (UNDP, 1998), 1-43.

Woods, N., & Lombardi, D. (2006). Uneven Patterns of Governance: How Developing Countries Are Represented in the IMF. *Review of International Political Economy*, 13(3), 480-515.

World Bank. (2008). *World Development indicators.* Washington, DC: World Bank.

World Bank Development Committee Meeting. (2008). *Enhancing Voice and Participation of Developing and Transition Countries in the World Bank Group: Options for Reform*, report prepared by the staff of the World Bank, 1-28.

World Trade Organization. (2008). *Members' Contributions to the WTO budget and the budget of the Appellate Body for 2008,* see in http://www.wto.org/english/thewto_e/secre_e/contrib08_e.htm.

Zamora, S. (1980). Voting in International Economic Organizations. *American Journal of International Law*, .74, 566-608.

http://www.adb.org/documents/reports/charter/charter.pdf
http://www.adb.org/Gov/Rules_Procedure_Brd_Gov.pdf

http://avalon.law.yale.edu/20th_century/decad053.asp

http://www.afdb.org/fileadmin/uploads/afdb/Documents/Legal-Documents/30718627-EN-AGREEMENT-ESTABLISHING-THE-AFRICAN-DEVELOPMENT-BANK-6TH-EDITION.PDF

http://www.afdb.org/fileadmin/uploads/afdb/Documents/Boards-Documents/2009-vp-eng-June.pdf

http://www.afdb.org/fileadmin/uploads/afdb/Documents/Legal-Documents/30718627-EN-AGREEMENT-ESTABLISHING-THE-AFRICAN-DEVELOPMENT-BANK-6TH-EDITION.PDF

http://apps.who.int/gb/bd/PDF/bd46/e-bd46_p6.pdf

http://apps.who.int/gb/bd/PDF/bd46/e-bd46_p7.pdf

http://www.bis.org/about/statutes-en.pdf

www.columbia.edu/itc/sipa/math/calc_econ_interp_u.html

http://www.economicexpert.com/a/World:Trade:Organization.htm

http://encarta.msn.com/encyclopedia_761590313/international_organization.html

http://encarta.msn.com/encyclopedia_761590313/international_organization.html

http://en.wikipedia.org/wiki/Abstention

http://en.wikipedia.org/wiki/Organization_for_Economic_Co-operation_and_Development

http://en.wikipedia.org/wiki/United_Nations_Security_Council_veto_power

http://en.wikipedia.org/wiki/United_Nations_Security_Council

http://en.wikipedia.org/wiki/Supermajority

http://en.wikipedia.org/wiki/United_Nations_Trusteeship_Council

http://en.wikipedia.org/wiki/UNESCO

http://en.wikipedia.org/wiki/Universal_Postal_Union

http://en.wikipedia.org/wiki/Veto

http://en.wikipedia.org/wiki/World_Health_Organization

http://www.fco.gov.uk/resources/en/pdf/3706546/3892733/4190568/4379193/Com2

http://www.fao.org/DOCREP/003/W0036E/w0036e0c.htm#TopOfPage

http://www.g20.org/pub_communiques.aspx

http://idbdocs.iadb.org/wsdocs/getdocument.aspx?docnum=2050216

http://www.iadb.org/FIN/PDFs/Capital%20Stock%20and%20Voting%20Power.pdfand

http://www.iadb.org/leg/Documents/Pdf/Convenio-Eng.Pdf

http://www.iadb.org/FIN/PDFs/Capital%20Stock%20and%20Voting%20Power.pdfand

http://www.iaea.org/About/index.html

http://www.iaea.org/About/Policy/GC/gcrules.html

http://www.iaea.org/About/Policy/Board/bgrules1.html

http://www.icao.int/icaonet/dcs/7600/7600_3ed.pdf

http://www.ico.org/governance.asp

http://icsid.worldbank.org/ICSID/StaticFiles/basicdoc/partA-chap01.htm#s02

http://idbdocs.iadb.org/wsdocs/getdocument.aspx?docnum=1924316

www.ifad.org

http://www.ilo.org/global/What_we_do/Officialmeetings/ilc/Rulesfortheconference/lang--en/index.htm#

http://www.ilo.org

http://ilo-mirror.library.cornell.edu/public/english/iloconst.htm
http://www.ilo.org/global/About_the_ILO

http://www.imf.org/external/about/overview.htm

http://www.imf.org/external/np/exr/facts/quotas.htm

http://www.imf.org/external/np/exr/facts/sdr.htm

http://www.imf.org/external/np/sec/memdir/members.htm

http://www.imf.org/external/np/sec/memdir/members.aspx

http://www.imf.org/external/np/sec/pr/2010/pr10418.htm

http://www.imf.org/external/np/sec/pr/2011/pr1164.htm

http://www.imo.org

http://www.imo.org/blast/blastDataHelper.asp?data_id=22582&filename=A724(17).pdf

http://www.iom.int/jahia/webdav/site/myjahiasite/shared/shared/mainsite/about_iom/iom_constitution_eng_booklet.pdf

http://www.isa.org.jm/files/documents/EN/Regs/ROP_Assembly.pdf

http://www.isa.org.jm/files/documents/EN/Regs/ROP_Council.pdf

http://www.isa.org.jm/en/about

http://www.itu.int/net/about/index.aspx

http://www.itu.int/net/about/history.aspx

http://www.miga.org/guarantees/index_sv.cfm

http://www.natolin.org.pl/pdf/konferencje/natolin_X2007/Slomczynski_Zyczkowski_Jagiellonian_.pdf

http://www.opec.org/aboutus/history/history.htm

http://www.opec.org/library/Opec%20Statute/pdf/OS.pdf

http://www.ofid.org/publications/PDF/AE-engl_Fund.pdf

http://siteresources.worldbank.org/BODINT/Resources/278027-1215524804501/IBRDCountryVotingTable.pdf

http://www.state.gov/p/io/rls/rpt/30742.htm

http://www.unctad.org/Templates/Page.asp?intItemID=1530&lang=1

http://www.undp.org/execbrd/pdf/9719131e.pdf

http://www.unep.org/Documents.Multilingual/Default.asp?Documentid=77&Articleid=1149&L=En

http://unesdoc.unesco.org/images/0015/001568/156826e.pdf

http://www.unicef.org/about/execboard/files/Rules_of_Procedure-English.pdf

http://www.unido.org/fileadmin/media/documents/pdf/About_UNIDO/IDBrules.pdf

http://www.un-ngls.org/orf/documents/publications.en/ngls.handbook/2intro.htm

http://www.un.org/ecosoc/about/pdf/rules.pdf

www.un.org/ecosoc/about/

http://www.un.org/ga/about/background.shtml

http://www.un.org/ga/ropga_plenary.shtml

http://www.un.org/sc/members.asp

http://untreaty.un.org/unts/144078_158780/4/2/12119.pdf

http://untreaty.un.org/cod/repertory/art89/english/rep_orig_vol4-art89_e.pdf

http://www.unwto.org/aboutwto/statutes/en/pdf/statutes.pdf

http://www.upu.int/dmab/en/dmab_rules_of_procedure_en.pdf

http://www.upu.int/document/2009/an/cep_c_4_gn-1/src/d007_ad00_an01_p00_r00.pdf

http://www.upu.int/acts/en/constitution-vienna_1964_en.pdf

http://www.wipo.int/treaties/en/convention/trtdocs_wo029.html#P245_29461

http://www.wmo.ch/pages//meetings/documents/Cg-XV_Procedures_E.pdf

http://web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/0,,contentMDK:20040614~menuPK:41699~pagePK:43912~piPK:44037~theSitePK:29708,00.html

http://web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/0,,contentMDK:20049604~pagePK:43912~menuPK:58863~piPK:36602,00.html#I2

http://www.wto.org/english/thewto_e/whatis_e/whatis_e.htm

http://www.wto.org/english/thewto_e/whatis_e/tif_e/org1_e.htm

Appendix Table

Appendix 1. : Page 42

Table 1.2

	World Bank Group (Before reform)				IMF	
Members	**IBRD**	**IFC**	**IDA**	**MIGA**	**before Reform**	**After Reform**
	WEO[235] classification					**WEO classification**
DTCs[236]	**42.6%**	**33.3%**	**41.1%**	**50%**		**39.4% 42.1%**
Developed Countries	**57.4%**	**66.7%**	**58.9%**	**50%**		**60.6% 57.9%**
	WDI[237] classification					
DTCs	**40%**	**31.8%**				
Developed Countries	**60%**	**68.2%**				

Source: ***Development Committee*** (Joint Ministerial Committee of the Board of Governors of the Bank and the Fund on the Transfer of Real Resources to Developing Countries), ***October 12, 2008.***

[235] World Economic Outlook.
[236] Developing Countries and Countries with Economies in Transition.
[237] World Development Indicator.

Appendix 2. : Page 20

Table 1.3

Sample of International Organizations	Mem-ber-ship in 2008	Unani-mity	Veto	One-nation, One-vote	Weighted Voting	Simple Majority	Special Majority (= 2/3)	Special Majority (> 2/3)
United Nations								
United Nations Security Council (UNSC)	15		1	1			1	
United Nations General Assembly (UNGA)	193			1		1	1	
United Nations Economic and Social Council (ECOSOC)	54			1		1		
United Nations Trusteeship Council	5			1		1		
Other United Nations Bodies								
UN Office on Drugs and Crime (UNODC)[238]	53			1		1	1	
UN Children's Fund (UNICEF)[239]	141			1		1		
UN Human Settlements Programme - UN Habitat[240]	58			1		1		
UN Conference on Trade and Development (UNCTAD)	194			1		1	1	
UN Population Fund (UNFPA)[241]	185			1		1		

[238] UNODC founded in 1997 "to strengthen the UN's integrated approach to issues relating to drug control, crime prevention and international terrorism". See *Europa Directory of International Organizations.* (2008). Europa Yearbook, p.103.
[239] UNICEF was founded in 1946 by the UN General Assembly to respond to the need of children everywhere in the world, particularly those in developing countries. See *Europa Directory of International Organizations.* (2008). Europa Yearbook, p.109.
[240] UNHSP – UN – Habitat founded in 1978 promotes the development and management of human settlements and seeks durable urban development activities in the UN system. See *Europa Directory of International Organizations.* (2008). Europa Yearbook, p.107.
[241] UNFPA established in 1967 is a subsidiary of the UNGA since 1979. Its major task consists in promoting health and "gender equality as essential elements of long-term sustainable development". See *Europa Directory of International Organizations*. (2008). Europa Yearbook, p.174.

Sample of International Organizations	Mem-ber-ship in 2008	Unani-mity	Veto	One-nation, One-vote	Weighted Voting	Simple Majority	Special Majority (= 2/3)	Special Majority (> 2/3)
UN Development Programme (UNDP)[242]	36 (Exec-utive Boar)			1		1		
UN Environment Programme (UNEP)[243]	57			1		1	1	
Specialized Agencies within the UN System								
Food and Agriculture Organization of the United Nations (FAO)	191			1		1	1	
International Atomic Energy Agency (IAEA)	143			1		1	1	
International Bank for Reconstruction and Development (IBRD)	184		1		1	1		1
International Center for the Settlement of Investment Disputes (ICSID)	157			1		1	1	
International Finance Corporation (IFC)	182		1		1	1	1	1
International Development Association (IDA)	171		1		1	1	1	
Multilateral Investment Guarantee Agency (MIGA)	175				1	1	1	1
International Civil Aviation Organization (ICAO)	190			1		1	1	
International Fund for Agriculture Development (IFAD)	165		1		1	1	1	1

[242] UNDP was set up in 1965 by the UN General Assembly. Its major task is helping countries to eradicate poverty and achieving a sustainable level of human development. "UNDP is the focus of UN efforts to achieve the Millennium Development Goals". See *Europa Directory of International Organizations*, p.122.

[243] UNEP was established in 1972 by the UN General Assembly. Its central mission is encouraging international co-operation in matters relating to the human environment. See *Europa Directory of International Organizations.* (2008). Europa Yearbook, p.127.

Sample of International Organizations	Mem-ber-ship in 2008	Unani-mity	Veto	One-nation, One-vote	Weighted Voting	Simple Majority	Special Majority (= 2/3)	Special Majority (> 2/3)
International Labour Organization (ILO)	183			1		1	1	
International Maritime Organization (IMO)	170			1		1	1	
International Monetary Fund (IMF)	186		1		1	1		1
International Telecommunication Union (ITU)	193			1		1		
United Nations Educational, Scientific and Cultural Organization (UNESCO)	195			1		1	1	
United Nations Industrial Development Organization (UNIDO)[244]	174			1		1	1	
Universal Postal Union (UPU)	192			1		1	1	
United Nations High Commissioner for Refugees (UNHCR)[245]	131			1		1	1	
World Health Organization (WHO)	195			1		1	1	
World Intellectual Property Organization (WIPO)[246]	185			1		1	1	1

[244] UNIDO founded in 1967, its major aim is promoting durable industrial development in developing nations and economies in transition. See *Europa Directory of International Organizations.* (2008). Europa Yearbook, p.232.

[245] UNHCR founded in 1951, seeks international protection for refugees and sustainable solution to their problems. See *Europa Directory of International Organizations.* (2008). Europa Yearbook, p.132.

[246] WIPO set up in 1967, seeks to protect the rights of creators and owners of intellectual property throughout the world. See *Europa Directory of International Organizations.* (2008). Europa Yearbook, pp.244-245.
In WIPO General Assembly and in the Coordination Committee, a quorum of one-half of the states shall be required while a quorum of one-third of the member states shall be required in the Conference. The General Assembly shall take its decisions by a two-thirds majority of the votes cast; the approval of measures concerning the administration of International agreements shall be made by three-fourths (75%) majority of the votes cast; and the approval of an agreement with the United

Sample of International Organizations	Mem-ber-ship in 2008	Unani-mity	Veto	One-nation, One-vote	Weighted Voting	Simple Majority	Special Majority (= 2/3)	Special Majority (> 2/3)
World Meteorological Organization (WMO)	189			1		1	1	
World Tourism Organization (UNWTO)[247]	155			1		1	1	
Major Non-UN Organizations								
African Development Bank (AfDB)	77				1		1	1
Asian Development Bank (ADB)	67				1	1		
Bank for International Settlements (BIS)[248]	58					1	1	
International Coffee Organization	39		1		1	1	1	
International Sugar Organization	86		1		1	1	1	
International Cocoa Organization	44		1		1	1	1	
International Grains Agreement	53		1		1	1	1	
International Natural Rubber Agreement	19		1		1	1	1	
Inter-American Development Bank (IDB)	48		1		1			1

Nations shall require a nine-tenths (90%) majority of the votes cast (Article 6, § 3). The Conference shall make its decisions by a two-thirds majority of the votes cast (Article 7, § 3). Finally, the Coordination Committee shall take its decision by a simple majority (Article 8, § 6). See http://www.wipo.int/treaties/en/convention/trtdocs_wo029.html#P245_29461

[247] UNWTO established in 1975, promotes and develop durable tourism in order to support particularly the socio-economic growth of developing countries. See *Europa Directory of International Organizations*. (2008). Europa Yearbook, p.263.

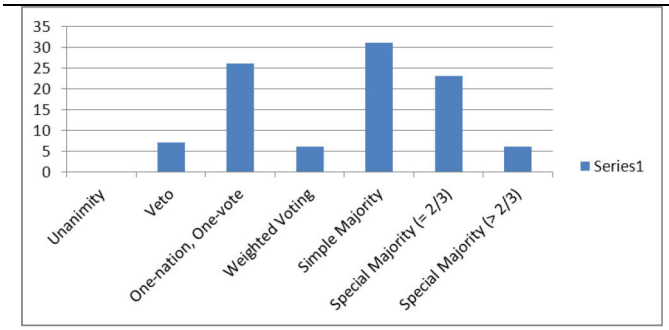
[248] BIS established in 1930 encourages cooperation among national central banks and ensures additional facilities for international financial operations. See *Europa Directory of International Organizations*. (2008). Europa Yearbook, p.314.

Sample of International Organizations	Mem-ber-ship in 2008	Unani-mity	Veto	One-nation, One-vote	Weighted Voting	Simple Majority	Special Majority (= 2/3)	Special Majority (> 2/3)
International Organization for Migration (IOM)[249]	146			1		1	1	
International Seabed Authority (ISA)	162			1		1	1	
Organization of Petroleum Exporting Countries (OPEC)	12			1		1	1	1
OPEC Fund for International Development	12				1			1
Organization for Economic Development and Cooperation (OECD)	34	1		1				
World Trade Organization (WTO)	153			1			1	1
TOTAL		1	12	31	15	42	33	11

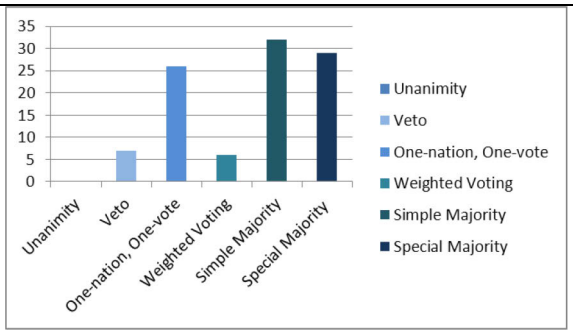
[249] IOM established in 1951, is a humanitarian organization providing assistance and protection to migrants, refugees, displaced persons and other individuals in need of international migration services. See *Europa Directory of International Organizations.* (2008). Europa Yearbook, p.493.

Appendix 3. : Page 59

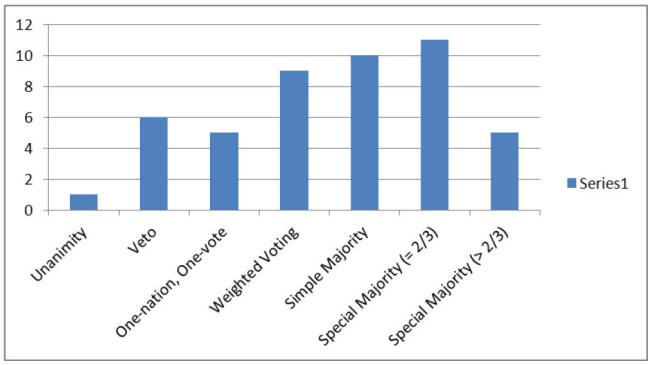
Graph 1.1- UN Organizations



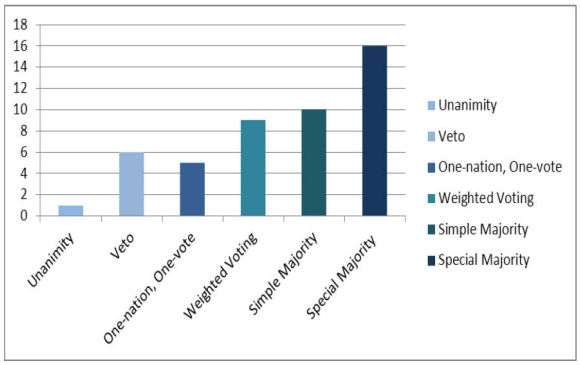
Graph 1.2-UN Organizations



Graph 1.3- Non UN Organizations



Graph 1.4- Non UN Organizations



Appendix 4. : Page 97

Table 2.3 Distribution of voting weights and Normalized Banzhaf index before 2008 and post 2008 and 2010 IMF reforms

Country	Weights (%) 2008 before reform	Normalized Banzhaf Index (%) 2008 before reform (q=50%)	Normalized Banzhaf Index (%) 2008 before reform (q=75%)	Normalized Banzhaf Index (%) 2008 before reform (q=85%)	Country	Weights post reform 2008 for Board of Governors	Normalized Banzhaf Index post reform 2008 (%) (q=50%)	Normalized Banzhaf Index post reform 2008 (%) (q=75%)	Normalized Banzhaf Index post reform 2008 (%) (q=85%)	Country	Weights post reform 2010 for Executive Board	Normalized Banzhaf Index post reform 2010 (%) (q=50%)	Normalized Banzhaf Index post reform 2010 (%) (q=75%)	Normalized Banzhaf Index post reform 2010 (q=85%)
United States	17.20	23.49	5.91	3.69	United States *□	16.73	23.45	5.34	3.12	United States	16.48	22.69	5.27	3.19
Japan	6.17	5.64	5.48	3.68	Japan *□	6.23	5.61	5.09	3.11	Japan *□	6.14	5.61	5.03	3.18
Germany	6.03	5.52	5.43	3.68	Germany *□	5.80	5.27	4.99	3.11	China * (vi)□	6.07	5.55	5.02	3.18
France	4.98	4.59	5.00	3.64	France□	4.29	3.93	4.38	3.08	Germany *□	5.31	4.89	4.82	3.18
United Kingdom	4.98	4.59	5.00	3.64	United Kingdom□	4.29	3.93	4.38	3.08	France□	4.02	3.73	4.23	3.12
China	3.75	3.47	4.15	3.49	China * (vi)□	3.81	3.50	4.07	3.04	United Kingdo	4.02	3.73	4.23	3.12
Italy	3.28	3.03	3.74	3.37	Italy *□	3.15	2.91	3.55	2.95	Italy *□	3.02	2.80	3.45	2.97
Saudi Arabia	3.24	3.00	3.70	3.35	Saudi Arabia□	2.80	2.58	3.23	2.86	India *□	2.63	2.44	3.08	2.50
Canada	2.96	2.74	3.43	3.24	Canada□	2.55	2.35	2.98	2.77	Russian Fede	2.59	2.40	3.04	2.51
Russian Federation	2.76	2.56	3.23	2.97	Russian Federation□	2.39	2.20	2.81	2.47	Brazil *□	2.22	2.06	2.66	2.48
Netherlands	2.40	2.22	2.85	2.84	India *□	2.34	2.16	2.76	2.46	Canada□	2.21	2.06	2.65	2.64
Belgium	2.14	1.98	2.57	2.69	Netherlands□	2.08	1.92	2.48	2.40	Saudi Arabia□	2.01	1.87	2.43	2.51
India	1.94	1.80	2.34	2.53	Belgium□	1.86	1.71	2.24	2.30	Spain *□	1.92	1.78	2.33	2.36
Switzerland	1.61	1.49	1.96	2.22	Brazil *□	1.71	1.58	2.08	2.21	Mexico *□	1.80	1.67	2.19	2.29
Australia	1.51	1.40	1.84	2.11	Spain *□	1.62	1.50	1.98	2.14	Netherlands□	1.76	1.64	2.15	2.27
Mexico	1.47	1.36	1.80	2.07	Mexico *□	1.47	1.35	1.79	2.00	Korea, Republ	1.73	1.61	2.12	2.25
Spain	1.42	1.32	1.74	2.01	Switzerland□	1.40	1.29	1.71	1.94	Australia□	1.33	1.24	1.65	1.89
Brazil	1.42	1.32	1.74	2.01	Korea, Republic of *□	1.36	1.26	1.67	1.90	Belgium□	1.30	1.21	1.61	1.86
Korea	1.37	1.27	1.68	1.95	Australia□	1.31	1.21	1.61	1.85	Switzerland□	1.17	1.09	1.46	1.71
Venezuela, República Bolivariana de	1.24	1.15	1.52	1.80	Venezuela, R.B. de□	1.08	1.00	1.34	1.59	Turkey *□	0.95	0.89	1.19	1.44
Sweden	1.12	1.04	1.38	1.64	Sweden□	0.98	0.90	1.21	1.46	Indonesia□	0.95	0.88	1.19	1.44
Argentina	0.99	0.92	1.22	1.47	Argentina□	0.87	0.80	1.08	1.31	Sweden□	0.91	0.84	1.14	1.38
Indonesia	0.97	0.90	1.20	1.44	Austria *□	0.87	0.80	1.07	1.31	Poland *□	0.84	0.78	1.05	1.29
Austria	0.88	0.82	1.09	1.32	Indonesia□	0.85	0.79	1.06	1.29	Austria *□	0.81	0.75	1.01	1.24
South Africa	0.88	0.82	1.09	1.32	Denmark *□	0.78	0.72	0.97	1.19	Singapore *□	0.80	0.74	1.00	1.23
Nigeria	0.82	0.76	1.01	1.23	Norway *□	0.78	0.72	0.96	1.19	Norway *□	0.77	0.72	0.97	1.19
Norway	0.79	0.73	0.98	1.19	South Africa□	0.77	0.71	0.96	1.18	Venezuela, R	0.77	0.71	0.96	1.18
Denmark	0.77	0.71	0.95	1.16	Malaysia *□	0.73	0.68	0.91	1.13	Malaysia *□	0.75	0.70	0.94	1.16
Iran, Islamic Republic of	0.70	0.65	0.87	1.06	Nigeria□	0.72	0.67	0.90	1.11	Iran, Islamic R	0.74	0.68	0.92	1.14
Malaysia	0.70	0.65	0.87	1.06	Poland *□	0.70	0.65	0.87	1.08	Ireland *□	0.71	0.66	0.90	1.11
Kuwait	0.65	0.60	0.81	0.99	Iran, Islamic Republic	0.62	0.58	0.78	0.97	Denmark *□	0.71	0.66	0.89	1.10
Finland	0.60	0.56	0.74	0.92	Turkey *□	0.61	0.56	0.76	0.94	Thailand *□	0.67	0.62	0.84	1.04
Algeria	0.59	0.55	0.73	0.90	Thailand *□	0.60	0.55	0.75	0.93	Argentina□	0.66	0.61	0.83	1.03
Turkey	0.56	0.52	0.69	0.86	Singapore *□	0.59	0.54	0.73	0.92	South Africa□	0.63	0.59	0.80	0.99
Iraq	0.56	0.52	0.69	0.86	Kuwait□	0.58	0.53	0.72	0.90	Nigeria□	0.52	0.48	0.65	0.81
Libyan Arab Jamahiriya	0.53	0.49	0.66	0.81	Ukraine□	0.57	0.53	0.71	0.89	Greece *□	0.51	0.47	0.64	0.81
Thailand	0.51	0.47	0.63	0.78	Finland□	0.53	0.49	0.66	0.83	Finland□	0.51	0.47	0.64	0.80
Hungary	0.49	0.45	0.61	0.75	Ireland *□	0.53	0.49	0.66	0.83	United Arab E	0.49	0.45	0.61	0.77
Pakistan	0.49	0.45	0.61	0.75	Algeria□	0.53	0.49	0.66	0.82	Czech Republ	0.46	0.43	0.58	0.73
Romania	0.49	0.45	0.61	0.75	Iraq□	0.50	0.46	0.62	0.78	Portugal *□	0.44	0.41	0.55	0.69
Egypt	0.45	0.42	0.56	0.69	Libya□	0.48	0.44	0.59	0.75	Colombia□	0.44	0.40	0.55	0.69
Israel	0.44	0.41	0.55	0.68	Greece *□	0.47	0.43	0.58	0.73	Philippines *□	0.43	0.40	0.55	0.69
New Zealand	0.43	0.40	0.53	0.66	Israel *□	0.45	0.42	0.56	0.71	Egypt□	0.43	0.40	0.55	0.69
Philippines	0.42	0.39	0.52	0.65	Hungary□	0.44	0.41	0.55	0.69	Pakistan□	0.43	0.40	0.54	0.69
Portugal	0.41	0.38	0.51	0.63	Pakistan□	0.44	0.41	0.55	0.69	Ukraine□	0.43	0.40	0.54	0.68
Singapore	0.41	0.38	0.51	0.63	Romania□	0.44	0.40	0.55	0.69	Algeria□	0.42	0.39	0.53	0.66
Chile	0.41	0.38	0.51	0.63	Portugal *□	0.44	0.40	0.55	0.69	Hungary□	0.41	0.38	0.52	0.66
Ireland	0.40	0.37	0.50	0.62	Philippines *□	0.43	0.40	0.54	0.68	Kuwait□	0.41	0.38	0.52	0.66
Czech Republic	0.39	0.36	0.48	0.60	Czech Republic *□	0.43	0.39	0.53	0.67	Israel *□	0.41	0.38	0.52	0.65

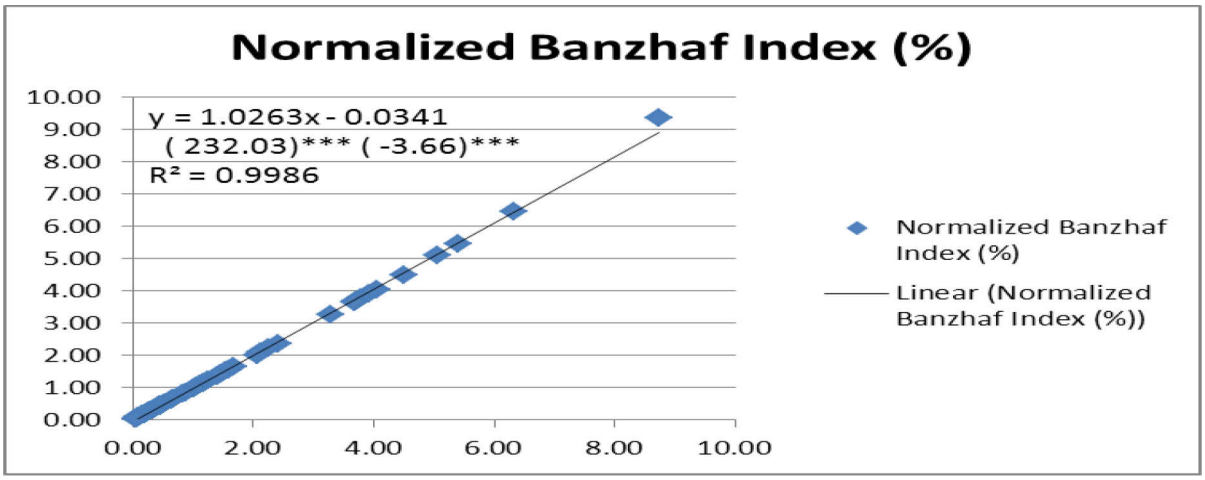
Bulgaria	0.31	0.29	0.39	0.48	Egypt□	0.40	0.37	0.50	0.64	Romania□	0.39	0.36	0.49	0.62
Peru	0.31	0.29	0.39	0.48	New Zealand□	0.38	0.35	0.48	0.61	Chile□	0.38	0.35	0.47	0.60
United Arab Emirates	0.29	0.27	0.36	0.45	Chile□	0.37	0.34	0.46	0.58	Iraq□	0.36	0.33	0.45	0.57
Morocco	0.28	0.26	0.35	0.43	Colombia□	0.34	0.31	0.42	0.53	Libya□	0.34	0.32	0.43	0.54
Bangladesh	0.26	0.24	0.32	0.40	United Arab Emirates	0.33	0.30	0.41	0.52	Peru□	0.29	0.27	0.37	0.47
Zambia	0.24	0.22	0.30	0.37	Bulgaria□	0.28	0.26	0.35	0.45	Luxembourg *	0.29	0.27	0.37	0.46
Serbia	0.23	0.21	0.29	0.36	Peru□	0.28	0.26	0.35	0.45	New Zealand□	0.28	0.26	0.35	0.44
Sri Lanka	0.20	0.19	0.25	0.31	Morocco□	0.26	0.24	0.33	0.42	Kazakhstan *	0.26	0.24	0.33	0.41
Belarus	0.19	0.18	0.24	0.29	Bangladesh□	0.24	0.22	0.30	0.38	Vietnam *□	0.26	0.24	0.33	0.41
Kazakhstan	0.18	0.17	0.22	0.28	Congo, Democratic Re	0.24	0.22	0.30	0.38	Syrian Arab R	0.25	0.23	0.31	0.40
Croatia	0.18	0.17	0.22	0.28	Zambia□	0.22	0.21	0.28	0.35	Bangladesh□	0.24	0.22	0.30	0.39
Slovak Republic	0.18	0.17	0.22	0.28	Serbia□	0.22	0.20	0.27	0.34	Congo, Democ	0.24	0.22	0.30	0.39
Zimbabwe	0.18	0.17	0.22	0.28	Vietnam *□	0.21	0.20	0.26	0.34	Slovak Republ	0.23	0.21	0.29	0.37
Trinidad and Tobago	0.17	0.16	0.21	0.26	Kazakhstan *□	0.20	0.18	0.25	0.32	Zambia□	0.22	0.21	0.28	0.36
Vietnam	0.16	0.15	0.20	0.25	Slovak Republic *□	0.20	0.18	0.25	0.32	Bulgaria□	0.21	0.19	0.26	0.33
Côte d'Ivoire	0.16	0.15	0.20	0.25	Luxembourg *□	0.20	0.18	0.24	0.31	Morocco□	0.21	0.19	0.26	0.33
Uruguay	0.15	0.14	0.19	0.23	Sri Lanka□	0.19	0.18	0.24	0.31	Ghana□	0.18	0.16	0.22	0.28
Ecuador	0.15	0.14	0.19	0.23	Belarus□	0.18	0.17	0.23	0.29	Angola□	0.18	0.16	0.22	0.28
Syrian Arab Republic	0.15	0.14	0.19	0.23	Ghana□	0.18	0.16	0.22	0.28	Qatar *□	0.18	0.16	0.22	0.28
Tunisia	0.14	0.13	0.17	0.22	Croatia□	0.17	0.16	0.22	0.28	Croatia□	0.17	0.16	0.22	0.28
Angola	0.14	0.13	0.17	0.22	Zimbabwe□	0.17	0.16	0.21	0.27	Zimbabwe□	0.17	0.16	0.21	0.27
Luxembourg	0.14	0.13	0.17	0.22	Ecuador *□	0.17	0.15	0.21	0.27	Ecuador *□	0.17	0.16	0.21	0.27
Uzbekistan	0.14	0.13	0.17	0.22	Syrian Arab Republic *	0.17	0.15	0.21	0.27	Belarus□	0.16	0.15	0.21	0.26
Jamaica	0.14	0.13	0.17	0.22	Trinidad and Tobago□	0.16	0.15	0.20	0.26	Serbia□	0.16	0.15	0.20	0.26
Kenya	0.14	0.13	0.17	0.22	Côte d'Ivoire□	0.16	0.15	0.20	0.25	Côte d'Ivoire□	0.16	0.15	0.20	0.25
Qatar	0.13	0.12	0.16	0.20	Sudan□	0.15	0.14	0.19	0.25	Lebanon *□	0.16	0.14	0.20	0.25
Myanmar	0.13	0.12	0.16	0.20	Uruguay□	0.15	0.14	0.19	0.24	Sudan□	0.15	0.14	0.19	0.25
Yemen, Republic of	0.12	0.11	0.15	0.19	Qatar *□	0.15	0.14	0.19	0.24	Slovenia *□	0.15	0.14	0.18	0.23
Slovenia	0.12	0.11	0.15	0.19	Tunisia□	0.14	0.13	0.18	0.23	Sri Lanka□	0.14	0.13	0.18	0.23
Dominican Republic	0.11	0.10	0.14	0.17	Angola□	0.14	0.13	0.18	0.23	Uzbekistan□	0.14	0.13	0.18	0.22
Brunei Darussalam	0.11	0.10	0.14	0.17	Uzbekistan□	0.14	0.13	0.17	0.22	Tunisia□	0.14	0.13	0.17	0.22
Guatemala	0.11	0.10	0.14	0.17	Slovenia *□	0.14	0.13	0.17	0.22	Kenya□	0.14	0.13	0.17	0.22
Panama	0.11	0.10	0.14	0.17	Jamaica□	0.14	0.13	0.17	0.22	Oman *□	0.14	0.13	0.17	0.22
Tanzania	0.10	0.09	0.12	0.16	Kenya□	0.14	0.13	0.17	0.22	Myanmar□	0.13	0.12	0.17	0.21
Cameroon	0.10	0.09	0.12	0.16	Lebanon *□	0.14	0.12	0.17	0.22	Yemen, Repul	0.13	0.12	0.16	0.20
Uganda	0.10	0.09	0.12	0.16	Myanmar□	0.13	0.12	0.16	0.21	Dominican Re	0.12	0.12	0.16	0.20
Bolivia	0.09	0.08	0.11	0.14	Yemen, Republic of□	0.13	0.12	0.16	0.20	Trinidad and T	0.12	0.11	0.16	0.20
El Salvador	0.09	0.08	0.11	0.14	Oman *□	0.12	0.11	0.15	0.20	Lithuania *□	0.12	0.11	0.15	0.19
Jordan	0.09	0.08	0.11	0.14	Dominican Republic□	0.12	0.11	0.14	0.18	Uruguay□	0.11	0.11	0.14	0.18
Sudan	0.09	0.08	0.11	0.14	Brunei Darussalam□	0.12	0.11	0.14	0.18	Guatemala□	0.11	0.11	0.14	0.18
Bosnia and Herzegovina	0.09	0.08	0.11	0.14	Guatemala□	0.11	0.10	0.14	0.18	Tanzania□	0.11	0.10	0.14	0.17
Costa Rica	0.09	0.08	0.11	0.14	Panama□	0.11	0.10	0.14	0.18	Bahrain *□	0.11	0.10	0.14	0.17
Afghanistan, Islamic Republic of	0.09	0.08	0.11	0.14	Tanzania□	0.11	0.10	0.13	0.17	Azerbaijan□	0.11	0.10	0.14	0.17
Senegal	0.09	0.08	0.11	0.14	Costa Rica *□	0.10	0.10	0.13	0.17	Jamaica□	0.11	0.10	0.13	0.17
Azerbaijan, Republic of	0.09	0.08	0.11	0.14	Cameroon□	0.10	0.10	0.13	0.16	Panama□	0.10	0.10	0.13	0.17
Gabon	0.08	0.07	0.10	0.12	Lithuania *□	0.10	0.09	0.13	0.16	Costa Rica *□	0.10	0.10	0.13	0.17
Georgia	0.08	0.07	0.10	0.12	Uganda□	0.10	0.09	0.13	0.16	Uganda□	0.10	0.09	0.13	0.16
Lithuania	0.08	0.07	0.10	0.12	Bahrain *□	0.10	0.09	0.12	0.16	Jordan□	0.10	0.09	0.12	0.16
Cyprus	0.08	0.07	0.10	0.12	Bolivia□	0.10	0.09	0.12	0.15	Latvia *□	0.10	0.09	0.12	0.15
Namibia	0.07	0.06	0.09	0.11	El Salvador□	0.10	0.09	0.12	0.15	Afghanistan, Is	0.09	0.09	0.12	0.15
Ethiopia	0.07	0.06	0.09	0.11	Jordan□	0.10	0.09	0.12	0.15	Senegal□	0.09	0.09	0.12	0.15
Papua New Guinea	0.07	0.06	0.09	0.11	Bosnia and Herzegovir	0.10	0.09	0.12	0.15	Iceland□	0.09	0.09	0.12	0.15
Bahamas, The	0.07	0.06	0.09	0.11	Afghanistan, Islamic R	0.09	0.09	0.12	0.15	Cyprus *□	0.09	0.08	0.11	0.14
Honduras	0.07	0.06	0.09	0.11	Senegal□	0.09	0.09	0.12	0.15	Brunei Daruss	0.09	0.08	0.11	0.14
Liberia	0.07	0.06	0.09	0.11	Azerbaijan□	0.09	0.09	0.12	0.15	Ethiopia□	0.09	0.08	0.11	0.14
Latvia	0.07	0.06	0.09	0.11	Cyprus *□	0.09	0.09	0.11	0.15	El Salvador□	0.09	0.08	0.11	0.14
Moldova	0.07	0.06	0.09	0.11	Gabon□	0.09	0.08	0.11	0.15	Cameroon□	0.08	0.08	0.11	0.13
Madagascar	0.07	0.06	0.09	0.11	Georgia□	0.09	0.08	0.11	0.14	Bosnia and He	0.08	0.08	0.10	0.13
Iceland	0.07	0.06	0.09	0.11	Latvia *□	0.09	0.08	0.11	0.14	Papua New Gu	0.08	0.08	0.10	0.13

Ukraine	0.06	0.06	0.07	0.09	Namibia□	0.08	0.08	0.10	0.13	Nicaragua□	0.08	0.08	0.10	0.13
Poland	0.06	0.06	0.07	0.09	Ethiopia□	0.08	0.08	0.10	0.13	Liberia□	0.08	0.08	0.10	0.13
Mozambique, Republic of	0.06	0.06	0.07	0.09	Papua New Guinea□	0.08	0.08	0.10	0.13	Honduras□	0.08	0.07	0.10	0.13
Guinea	0.06	0.06	0.07	0.09	Bahamas, The□	0.08	0.07	0.10	0.13	Madagascar□	0.08	0.07	0.10	0.13
Sierra Leone	0.06	0.06	0.07	0.09	Nicaragua□	0.08	0.07	0.10	0.13	Estonia *□	0.08	0.07	0.10	0.13
Mauritius	0.06	0.06	0.07	0.09	Honduras□	0.08	0.07	0.10	0.13	Bolivia□	0.08	0.07	0.10	0.12
Paraguay	0.06	0.06	0.07	0.09	Liberia□	0.08	0.07	0.10	0.13	Turkmenistan	0.08	0.07	0.10	0.12
Mali	0.05	0.05	0.06	0.08	Moldova□	0.08	0.07	0.10	0.12	Mozambique□	0.07	0.07	0.09	0.12
Suriname	0.05	0.05	0.06	0.08	Madagascar□	0.08	0.07	0.10	0.12	Gabon□	0.07	0.07	0.09	0.12
Guyana	0.05	0.05	0.06	0.08	Iceland□	0.08	0.07	0.09	0.12	Guinea□	0.07	0.07	0.09	0.12
Kyrgyz Republic	0.05	0.05	0.06	0.08	Mozambique□	0.07	0.07	0.09	0.12	Georgia□	0.07	0.07	0.09	0.11
Cambodia	0.05	0.05	0.06	0.08	Guinea□	0.07	0.07	0.09	0.11	Sierra Leone□	0.07	0.07	0.09	0.11
Congo, Republic of	0.05	0.05	0.06	0.08	Sierra Leone□	0.07	0.07	0.09	0.11	Paraguay□	0.07	0.06	0.09	0.11
Haiti	0.05	0.05	0.06	0.08	Malta□	0.07	0.06	0.09	0.11	Botswana *□	0.07	0.06	0.09	0.11
Rwanda	0.05	0.05	0.06	0.08	Mauritius□	0.07	0.06	0.09	0.11	Namibia□	0.07	0.06	0.08	0.11
Turkmenistan	0.05	0.05	0.06	0.08	Paraguay□	0.07	0.06	0.09	0.11	Bahamas, The	0.07	0.06	0.08	0.11
Togo	0.05	0.05	0.06	0.08	Turkmenistan *□	0.07	0.06	0.08	0.11	Mali□	0.07	0.06	0.08	0.11
Nepal	0.04	0.04	0.05	0.06	Estonia *□	0.07	0.06	0.08	0.11	Guyana□	0.07	0.06	0.08	0.10
Fiji	0.04	0.04	0.05	0.06	Mali□	0.07	0.06	0.08	0.11	Kyrgyz Republ	0.07	0.06	0.08	0.10
Malawi	0.04	0.04	0.05	0.06	Suriname□	0.07	0.06	0.08	0.11	Moldova□	0.06	0.06	0.08	0.10
Macedonia, former Yugoslav Republic of	0.04	0.04	0.05	0.06	Armenia□	0.07	0.06	0.08	0.11	Cambodia□	0.06	0.06	0.08	0.10
Barbados	0.04	0.04	0.05	0.06	Guyana□	0.07	0.06	0.08	0.10	Tajikistan□	0.06	0.06	0.08	0.10
Niger	0.04	0.04	0.05	0.06	Kyrgyz Republic□	0.07	0.06	0.08	0.10	Malta□	0.06	0.06	0.08	0.10
Estonia	0.04	0.04	0.05	0.06	Botswana *□	0.06	0.06	0.08	0.10	Congo, Republ	0.06	0.06	0.08	0.10
Mauritania	0.04	0.04	0.05	0.06	Cambodia□	0.06	0.06	0.08	0.10	Haiti□	0.06	0.06	0.08	0.10
Botswana	0.04	0.04	0.05	0.06	Tajikistan□	0.06	0.06	0.08	0.10	Somalia□	0.06	0.06	0.08	0.10
Benin	0.04	0.04	0.05	0.06	Congo, Republic of□	0.06	0.06	0.08	0.10	Rwanda□	0.06	0.06	0.08	0.10
Burkina Faso	0.04	0.04	0.05	0.06	Haiti□	0.06	0.06	0.08	0.10	Nepal□	0.06	0.06	0.08	0.10
Greece	0.04	0.04	0.05	0.06	Somalia□	0.06	0.06	0.08	0.10	Equatorial Gui	0.06	0.06	0.08	0.10
Kosovo	0.04	0.04	0.05	0.06	Rwanda□	0.06	0.06	0.08	0.10	Burundi□	0.06	0.06	0.08	0.10
Chad	0.04	0.04	0.05	0.06	Burundi□	0.06	0.06	0.07	0.10	Togo□	0.06	0.05	0.07	0.09
Central African Republic	0.04	0.04	0.05	0.06	Togo□	0.06	0.05	0.07	0.09	Mauritius□	0.06	0.05	0.07	0.09
Colombia	0.04	0.04	0.05	0.06	Nepal□	0.06	0.05	0.07	0.09	Malawi□	0.06	0.05	0.07	0.09
Lao People's Democratic Republic	0.04	0.04	0.05	0.06	Fiji□	0.06	0.05	0.07	0.09	Macedonia, Fo	0.06	0.05	0.07	0.09
Mongolia	0.04	0.04	0.05	0.06	Malawi□	0.06	0.05	0.07	0.09	Chad *□	0.06	0.05	0.07	0.09
Swaziland	0.04	0.04	0.05	0.06	Macedonia, Former Yu	0.06	0.05	0.07	0.09	Albania *□	0.06	0.05	0.07	0.09
Albania	0.03	0.03	0.04	0.05	Barbados□	0.06	0.05	0.07	0.09	Suriname□	0.06	0.05	0.07	0.09
Somalia	0.03	0.03	0.04	0.05	Chad *□	0.06	0.05	0.07	0.09	Armenia□	0.06	0.05	0.07	0.09
Lesotho	0.03	0.03	0.04	0.05	Niger□	0.06	0.05	0.07	0.09	Niger□	0.06	0.05	0.07	0.09
Equatorial Guinea	0.03	0.03	0.04	0.05	Mauritania□	0.06	0.05	0.07	0.09	Mauritania□	0.06	0.05	0.07	0.09
Gambia, The	0.03	0.03	0.04	0.05	Benin□	0.05	0.05	0.07	0.09	Benin□	0.05	0.05	0.07	0.09
Congo, Democratic Republic of the	0.03	0.03	0.04	0.05	Burkina Faso□	0.05	0.05	0.07	0.08	Burkina Faso□	0.05	0.05	0.07	0.09
Montenegro	0.02	0.02	0.02	0.03	Albania *□	0.05	0.05	0.07	0.08	Central African	0.05	0.05	0.06	0.08
Belize	0.02	0.02	0.02	0.03	Kosovo□	0.05	0.05	0.07	0.08	Lao People's D	0.05	0.05	0.06	0.08
San Marino	0.02	0.02	0.02	0.03	Central African Republ	0.05	0.05	0.06	0.08	Fiji□	0.05	0.05	0.06	0.08
Vanuatu	0.02	0.02	0.02	0.03	Lao People's Dem. Re	0.05	0.05	0.06	0.08	Barbados□	0.05	0.04	0.06	0.08
Djibouti	0.02	0.02	0.02	0.03	Equatorial Guinea *□	0.05	0.05	0.06	0.08	Kosovo□	0.05	0.04	0.06	0.07
Eritrea	0.02	0.02	0.02	0.03	Mongolia□	0.05	0.05	0.06	0.08	Swaziland□	0.05	0.04	0.06	0.07
St, Lucia	0.02	0.02	0.02	0.03	Swaziland□	0.05	0.05	0.06	0.08	Mongolia□	0.04	0.04	0.06	0.07
Ghana	0.02	0.02	0.02	0.03	Lesotho□	0.04	0.04	0.05	0.07	Lesotho□	0.04	0.04	0.05	0.07
Guinea-Bissau	0.02	0.02	0.02	0.03	Gambia, The□	0.04	0.04	0.05	0.07	Gambia, The□	0.04	0.04	0.05	0.07
Antigua and Barbuda	0.02	0.02	0.02	0.03	Montenegro□	0.04	0.04	0.05	0.06	Montenegro□	0.04	0.04	0.05	0.07
Grenada	0.02	0.02	0.02	0.03	San Marino *□	0.04	0.04	0.05	0.06	San Marino *□	0.04	0.04	0.05	0.06
Samoa	0.02	0.02	0.02	0.03	Belize□	0.04	0.03	0.05	0.06	Eritrea *□	0.04	0.03	0.05	0.06
Solomon Islands	0.02	0.02	0.02	0.03	Eritrea *□	0.04	0.03	0.05	0.06	Djibouti□	0.04	0.03	0.05	0.06
Cape Verde	0.02	0.02	0.02	0.03	Vanuatu□	0.04	0.03	0.05	0.06	Belize□	0.04	0.03	0.04	0.06
Comoros	0.02	0.02	0.02	0.03	Djibouti□	0.04	0.03	0.05	0.06	Guinea-Bissau	0.04	0.03	0.04	0.06
St, Kitts and Nevis3	0.02	0.02	0.02	0.03	St. Lucia□	0.04	0.03	0.04	0.06	Vanuatu□	0.03	0.03	0.04	0.05
Seychelles	0.02	0.02	0.02	0.03	Guinea-Bissau□	0.04	0.03	0.04	0.06	St. Lucia□	0.03	0.03	0.04	0.05
St, Vincent and the Grenadines	0.02	0.02	0.02	0.03	Antigua and Barbuda□	0.04	0.03	0.04	0.06	Cape Verde *□	0.03	0.03	0.04	0.05
Dominica	0.02	0.02	0.02	0.03	Grenada□	0.03	0.03	0.04	0.05	Seychelles *□	0.03	0.03	0.04	0.05
Maldives	0.02	0.02	0.02	0.03	Samoa□	0.03	0.03	0.04	0.05	Timor-Leste *□	0.03	0.03	0.04	0.05
Timor-Leste	0.02	0.02	0.02	0.03	Cape Verde *□	0.03	0.03	0.04	0.05	Solomon Islan	0.03	0.03	0.04	0.05
São Tomé and Principe	0.01	0.01	0.01	0.02	Seychelles *□	0.03	0.03	0.04	0.05	Maldives *□	0.03	0.03	0.04	0.05
Tonga	0.01	0.01	0.01	0.02	Timor-Leste *□	0.03	0.03	0.04	0.05	Bhutan *□	0.03	0.03	0.04	0.05
Bhutan	0.01	0.01	0.01	0.02	Solomon Islands□	0.03	0.03	0.04	0.05	Antigua and B	0.03	0.03	0.04	0.05
Kiribati	0.01	0.01	0.01	0.02	Maldives *□	0.03	0.03	0.04	0.05	Grenada□	0.03	0.03	0.04	0.05
Micronesia, Federated States of	0.01	0.01	0.01	0.02	Comoros□	0.03	0.03	0.04	0.05	Samoa□	0.03	0.03	0.04	0.05
Marshall Islands	0.01	0.01	0.01	0.02	St. Kitts and Nevis□	0.03	0.03	0.04	0.05	Comoros□	0.03	0.03	0.04	0.05
Palau	0.01	0.01	0.01	0.02	Bhutan *□	0.03	0.03	0.04	0.05	São Tomé and	0.03	0.03	0.04	0.05
Lebanon	0.01	0.01	0.01	0.02	St. Vincent and the Gr	0.03	0.03	0.04	0.05	Tonga□	0.03	0.03	0.04	0.05
Oman	0.01	0.01	0.01	0.02	Dominica□	0.03	0.03	0.04	0.05	St. Kitts and N	0.03	0.03	0.04	0.05
Nicaragua	0.01	0.01	0.01	0.02	São Tomé and Príncip	0.03	0.03	0.04	0.05	St. Vincent an	0.03	0.03	0.04	0.05
Malta	0.01	0.01	0.01	0.02	Tonga□	0.03	0.03	0.04	0.05	Dominica□	0.03	0.03	0.04	0.05
Armenia	0.01	0.01	0.01	0.02	Kiribati□	0.03	0.03	0.04	0.05	Kiribati□	0.03	0.03	0.04	0.05
Tajikistan	0.01	0.01	0.01	0.02	Micronesia, Federated	0.03	0.03	0.04	0.05	Micronesia, Fe	0.03	0.03	0.04	0.05
Burundi	0.00	0.00	0.00	0.00	Marshall Islands□	0.03	0.03	0.04	0.05	Marshall Islan	0.03	0.03	0.04	0.05
Bahrain	0.00	0.00	0.00	0.00	Palau *□	0.03	0.03	0.04	0.05	Palau *□	0.03	0.03	0.04	0.05

Appendix 5. :Page 78

Linear regressions with 'Outliers' under different majority requirements in weighted voting organizations:

Figure 2.16 - AfDB (q = 50%)



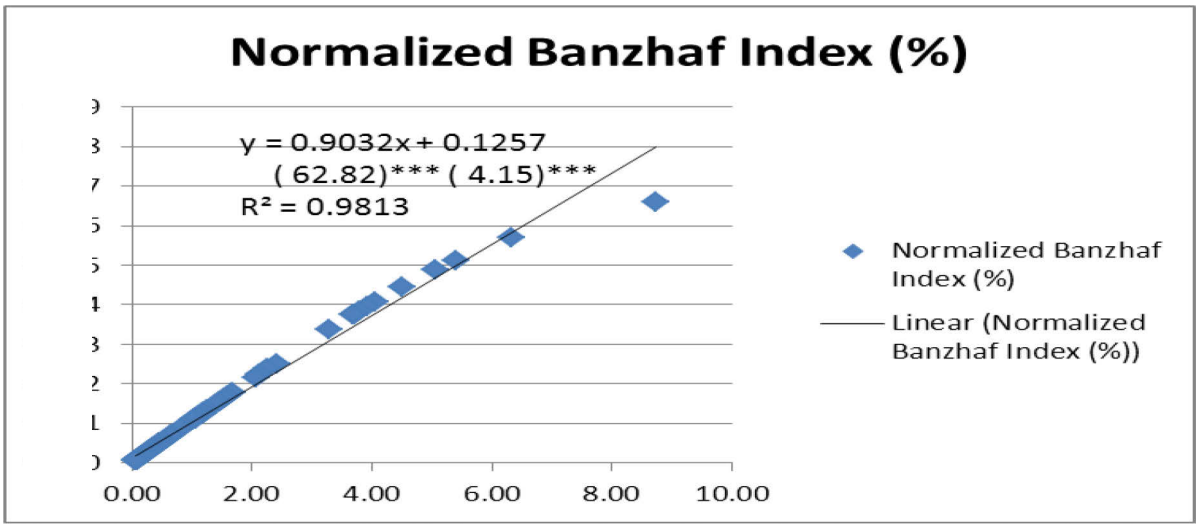
This graph represents the relationship between voting weights and voting power at the AfDB for a majority requirement q of 50%. Voting weights are on horizontal axis (x) and voting power (normalized Banzhaf index) on vertical axis (y);

t-student are shown in parenthesis;

R^2 is the R-squared;

**** significant at 1% level;*

Figure 2.17 - AfDB (q = 70%)



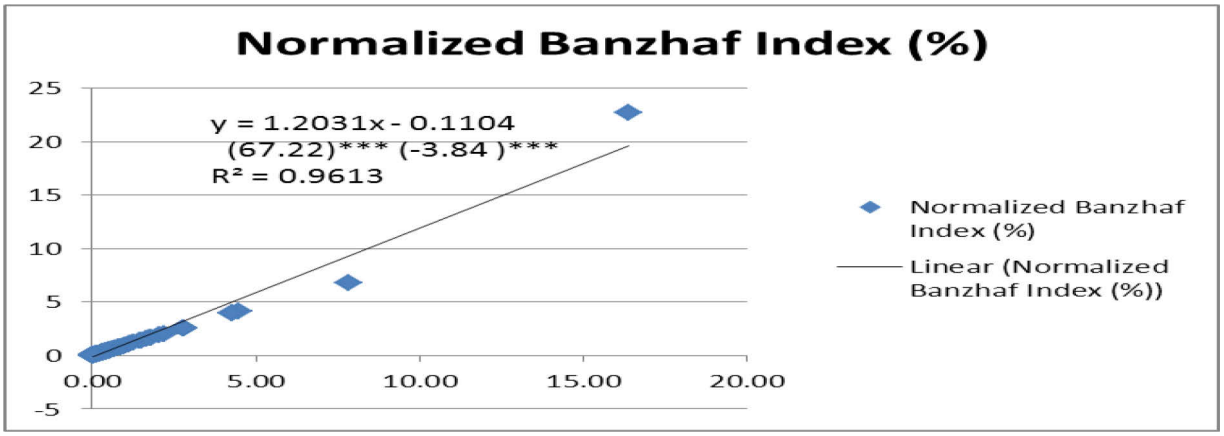
This graph represents the relationship between voting weights and voting power at the AfDB for a majority requirement q of 70%. Voting weights are on horizontal axis (x) and voting power (normalized Banzhaf index) on vertical axis (y);

t-student are shown in parenthesis;

R^2 is the R-squared;

**** significant at 1% level;*

Figure 2.18 - IBRD (q = 50%)



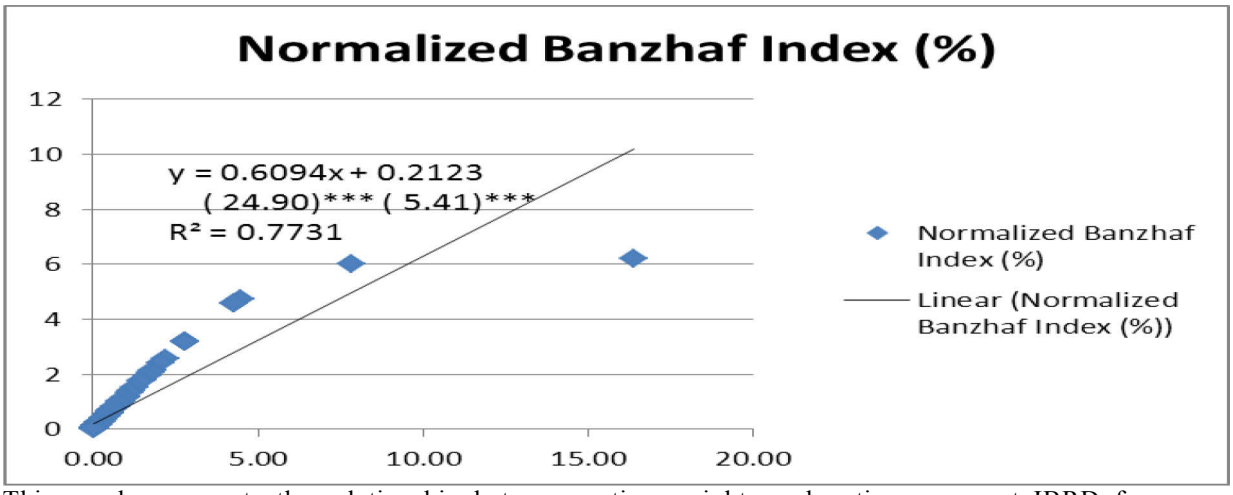
This graph represents the relationship between voting weights and voting power at IBRD for a majority requirement q of 50%. Voting weights are on horizontal axis (x) and voting power (normalized Banzhaf index) on vertical axis (y);

t-student are shown in parenthesis;

R^2 is the R-squared;

**** significant at 1% level;*

Figure 2.19 - IBRD (q = 75%)



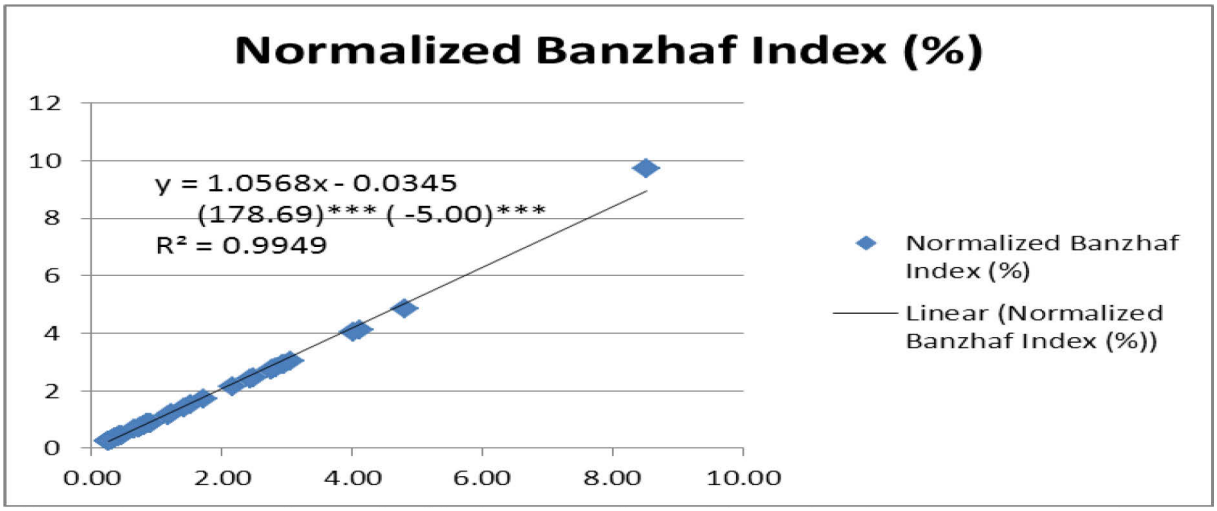
This graph represents the relationship between voting weights and voting power at IBRD for a majority requirement q of 75%. Voting weights are on horizontal axis (x) and voting power (normalized Banzhaf index) on vertical axis (y);

t-student are shown in parenthesis;

R^2 is the R-squared;

**** significant at 1% level;*

Figure 2.20 - IFAD (q = 50%)



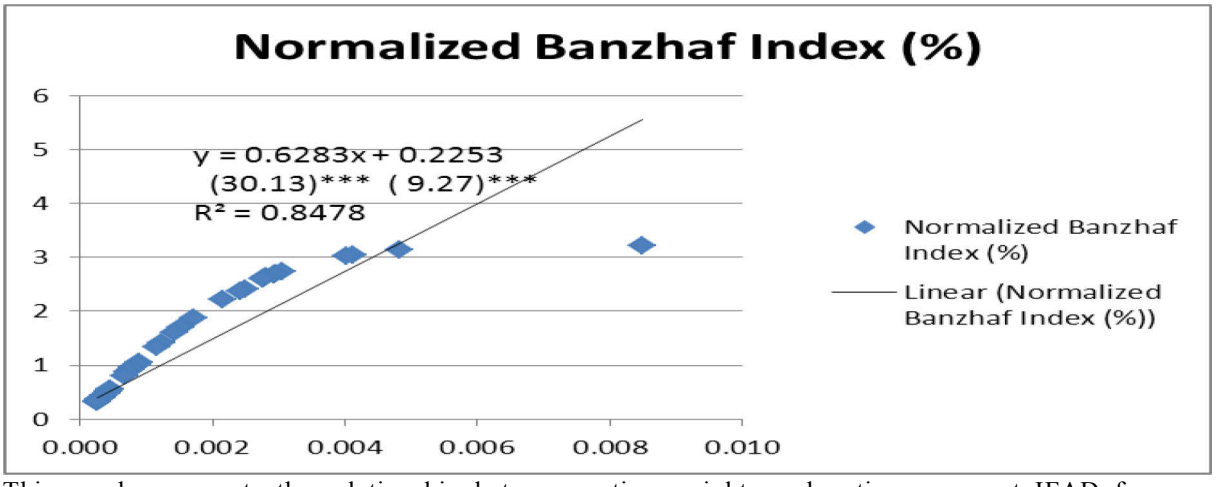
This graph represents the relationship between voting weights and voting power at IFAD for a majority requirement q of 50%. Voting weights are on horizontal axis (x) and voting power (normalized Banzhaf index) on vertical axis (y);

t-student are shown in parenthesis;

R^2 is the R-squared;

**** significant at 1% level;*

Figure 2.21 - IFAD (q = 75%)



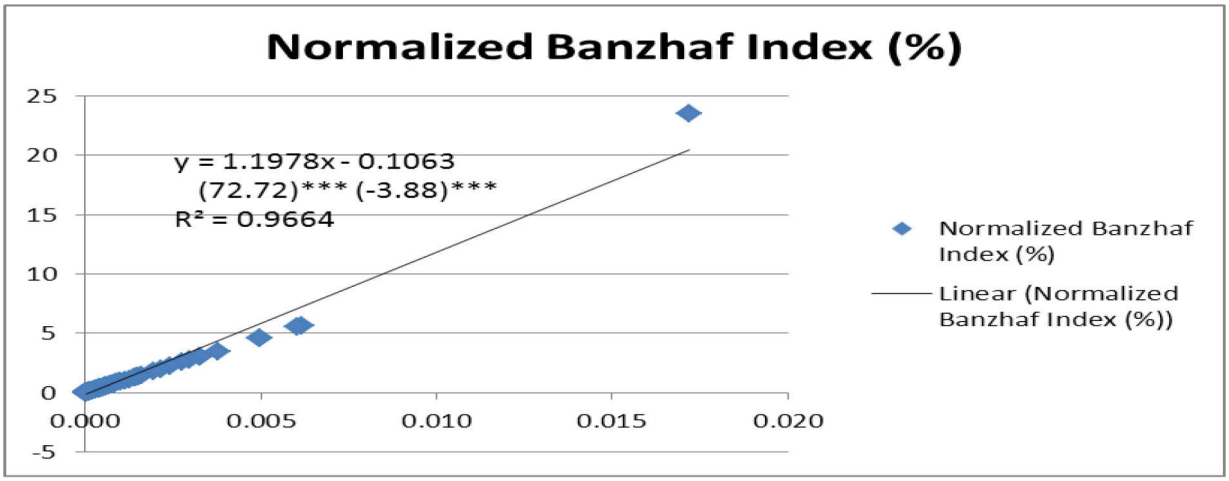
This graph represents the relationship between voting weights and voting power at IFAD for a majority requirement q of 75%. Voting weights are on horizontal axis (x) and voting power (normalized Banzhaf index) on vertical axis (y);

t-student are shown in parenthesis;

R^2 is the R-squared;

**** significant at 1% level;*

Figure 2.22 - IMF (q = 50%)



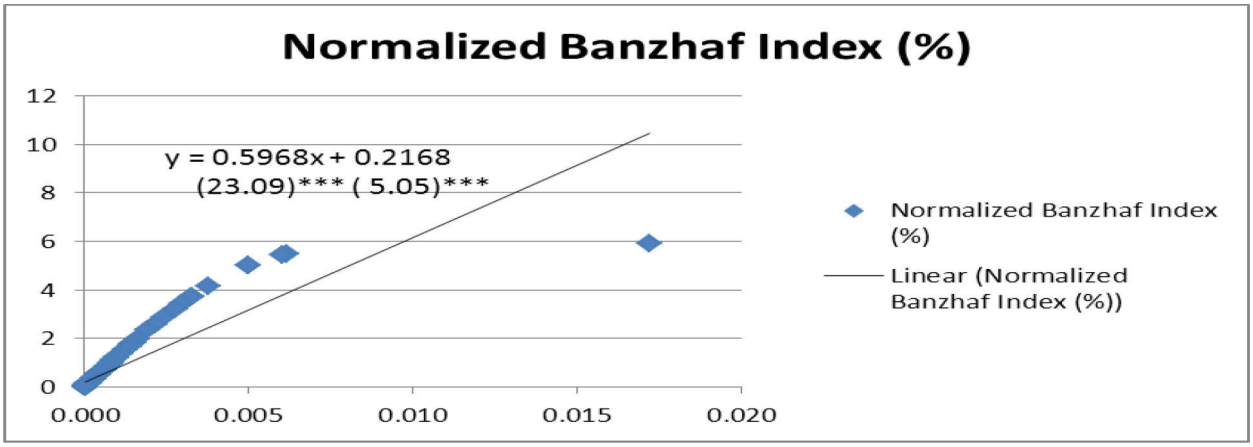
This graph represents the relationship between voting weights and voting power at the IMF for a majority requirement q of 50%. Voting weights are on horizontal axis (x) and voting power (normalized Banzhaf index) on vertical axis (y);

t-student are shown in parenthesis;

R^2 is the R-squared;

**** significant at 1% level;*

Figure 2.23 - IMF (q = 75%)



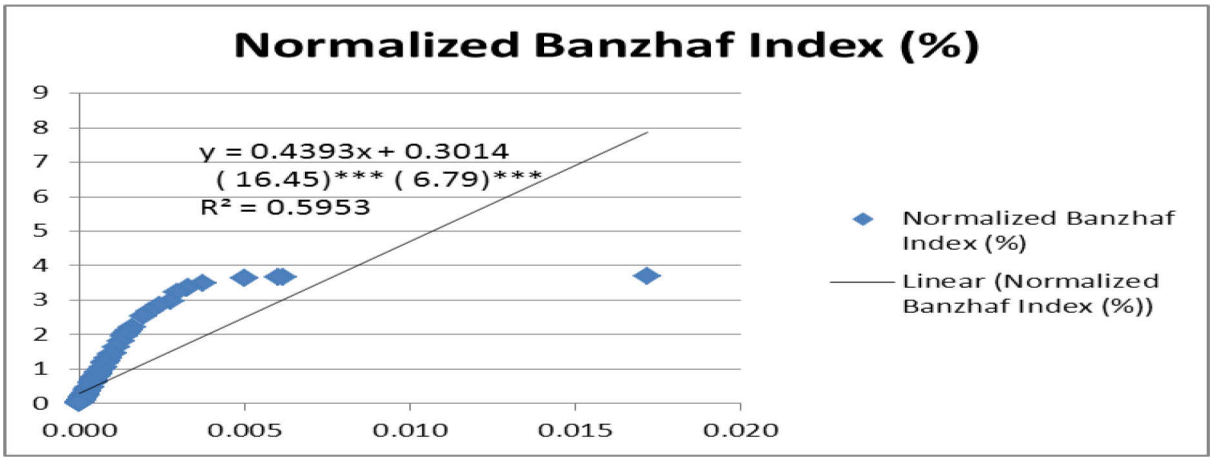
This graph represents the relationship between voting weights and voting power at the IMF for a majority requirement q of 75%. Voting weights are on horizontal axis (x) and voting power (normalized Banzhaf index) on vertical axis (y);

t-student are shown in parenthesis;

R^2 is the R-squared;

**** significant at 1% level;*

Figure 2.24 - IMF (q = 85%)



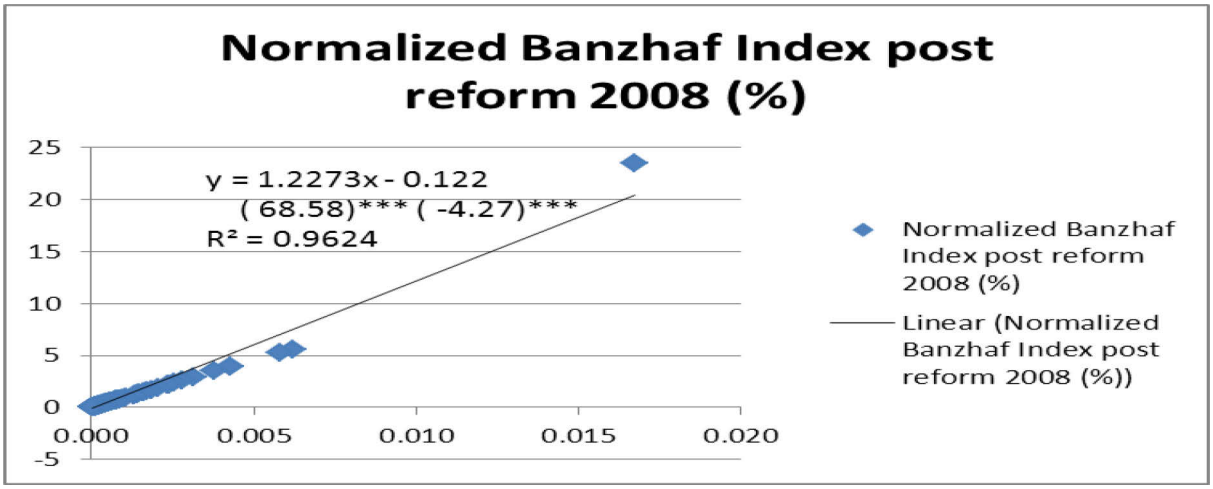
This graph represents the relationship between voting weights and voting power at the IMF for a majority requirement q of 85%. Voting weights are on horizontal axis (x) and voting power (normalized Banzhaf index) on vertical axis (y);

t-student are shown in parenthesis;

R^2 is the R-squared;

**** significant at 1% level;*

Figure 2.25 - IMF 50%



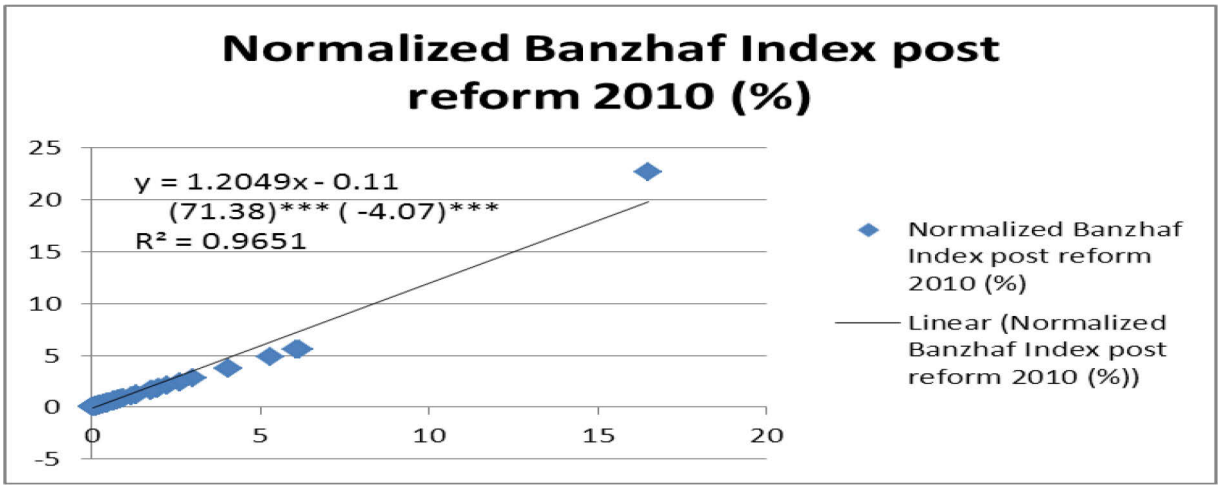
This graph represents the relationship between voting weights and voting power at the IMF for a majority requirement q of 50%. Voting weights are on horizontal axis (x) and voting power (normalized Banzhaf index) on vertical axis (y);

t-student are shown in parenthesis;

R^2 is the R-squared;

**** significant at 1% level;*

Figure 2.26 - IMF 50%



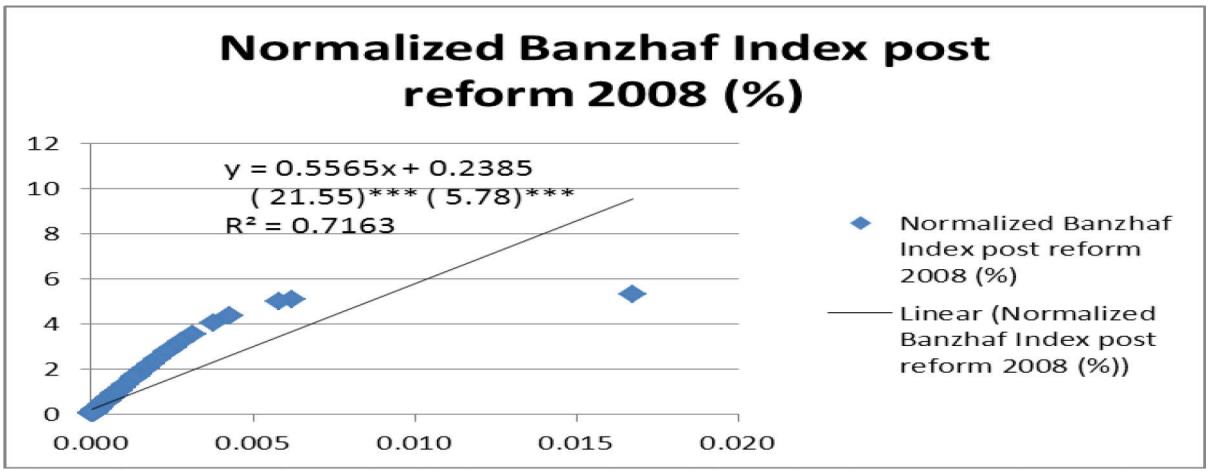
This graph represents the relationship between voting weights and voting power at the IMF for a majority requirement q of 50%. Voting weights are on horizontal axis (x) and voting power (normalized Banzhaf index) on vertical axis (y);

t-student are shown in parenthesis;

R^2 is the R-squared;

**** significant at 1% level;*

Figure 2.27 - IMF 75%



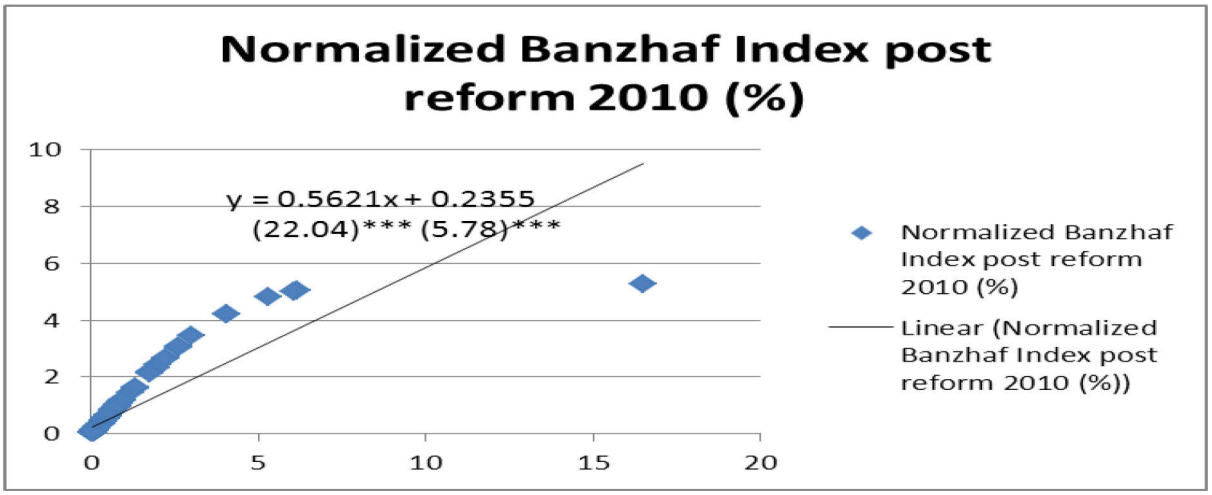
This graph represents the relationship between voting weights and voting power at the IMF for a majority requirement q of 75%. Voting weights are on horizontal axis (x) and voting power (normalized Banzhaf index) on vertical axis (y);

t-student are shown in parenthesis;

R^2 is the R-squared;

**** significant at 1% level;*

Figure 2.28 - IMF 75%



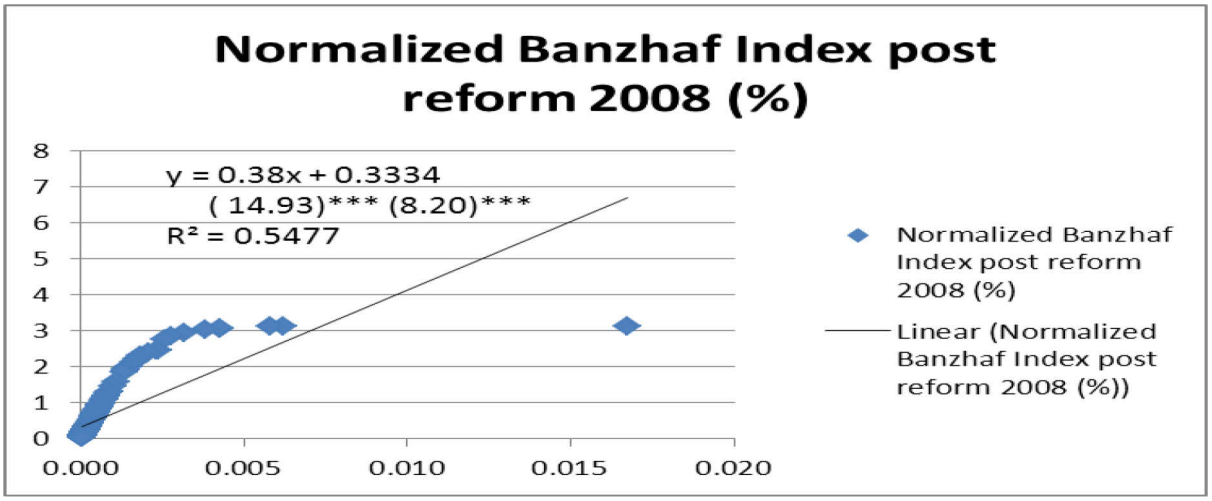
This graph represents the relationship between voting weights and voting power at the IMF for a majority requirement q of 75%. Voting weights are on horizontal axis (x) and voting power (normalized Banzhaf index) on vertical axis (y);

t-student are shown in parenthesis;

R^2 is the R-squared;

**** significant at 1% level;*

Figure 2.29 - IMF 85%



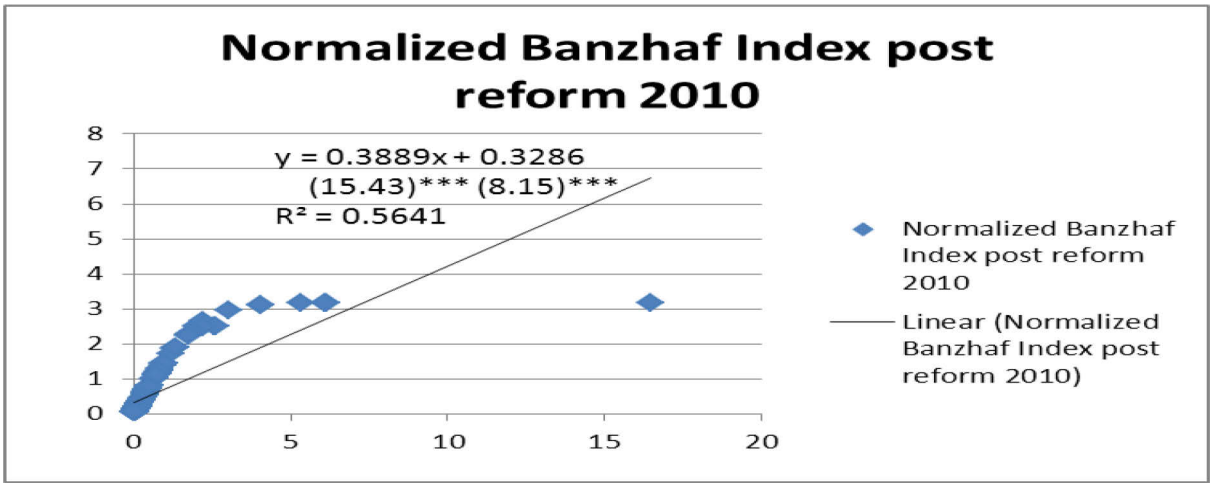
This graph represents the relationship between voting weights and voting power at the IMF for a majority requirement q of 85%. Voting weights are on horizontal axis (x) and voting power (normalized Banzhaf index) on vertical axis (y);

t-student are shown in parenthesis;

R^2 is the R-squared;

**** significant at 1% level;*

Figure 2.30 - IMF 85%



This graph represents the relationship between voting weights and voting power at the IMF for a majority requirement q of 85%. Voting weights are on horizontal axis (x) and voting power (normalized Banzhaf index) on vertical axis (y);

t-student are shown in parenthesis;

R^2 is the R-squared;

**** significant at 1% level;*

Appendix 6. :Page 120

Table 3.6- Relative Performance of high incomes per capita countries

Country	The number of Weighted voting Organizations in which country		The number of One-nation, One-vote Organizations in which country		Total Number of organizations in which country		
	Under-payments	Over-payments	Under-payments	Over-payments	Under-payments	Over-payments	Total Number of Organizations
Belgium	3	3	3	2	6	5	11
Denmark	1	4	1	5	2	9	11
France	6	0	4	2	10	2	12
Germany	6	0	5	1	11	1	12
Ireland	5	0	2	3	7	3	10
Italy	6	0	4	2	10	2	12
Luxembourg	1	3	0	6	1	9	10
Netherlands	3	3	2	4	5	7	12
Norway	4	2	1	5	5	7	12
United Kingdom	6	0	4	2	10	2	12
United States of America	5	1	5	0	10	1	11

Appendix 7. : Page 112

Table 3.7- Values of under-and over-payments/contributions[250] per country[251]

Weighted voting organizations								One-nation, One-vote organizations					
Country	gni/hab	IDB	ADB	AfDB	BRD	IMF	IFAD	ICAO	UNFPA	UNHCR	UNICEF	UNIDO	WHO
Luxembourg	64320		157,61		-39,75	27,72	-24,08	-24,65	360,28	482,23	235,56	-28,24	63,75
Norway	58500	-88,73	-71,03	-54,99	-59,07	-13,98	276,03	-87,29	549,51	460,32	620,20	-25,74	69,42
Kuwait	53480			-66,80	4,13	35,91	543,24	-91,90	-99,74	-69,34		-66,92	-24,61
Brunei Darussalam	50820		314,93		34,68	53,25	-91,21	-81,29					-22,05
Singapore	47940		-65,17		-98,42	-46,63		-33,51	-99,92				-100
United States of America	46970	-60,91	-74,05	-95,10	-78,78	-62,66	-71,52	-89,09		-46,73	-78,46	-100	-51,21
Switzerland	46460	-75,34	-60,90	-55,13	-14,14	40,06	48,27	-64,91	31,29	50,83	-39,87	-9,05	107,32
Netherlands	41670	-90,86	-64,45	-86,47	-40,72	8,17	110,35	-82,21	338,67	219,52	192,22	-27,59	-83,48
Sweden	38180	-82,79	-77,04	-52,39	-51,34	-2,31	-44,35	-72,81	559,07	346,26		-19,31	83,88
Austria	37680	-90,59	-74,30	-84,60	-59,75	-14,51	-4,59	-85,36	-77,80			-25,25	70,52
Ireland	37350		-51,48		-63,79	-27,74	-47,82	-84,30	52,27	309,12	106,87	-29,10	-79,17
Denmark	37280	-84,66	-60,57	-38,73	-24,91	15,08	238,97	-83,03	792,61	490,91	300,44	-4,39	117,95
Canada	36220	-38,33	2,97	-66,24	-57,53	-24,21	0,38	-87,22	-52,20	-29,42			49,13
United Kingdom	36130	-91,93	-78,14	-91,78	-64,21	-30,50	14,45	-81,55	-47,24	-37,93	-2,09	-20,60	80,97
Germany	35940	-88,06	-65,20	-84,85	-71,94	-36,74	-36,35	-85,09	-65,57	-71,24	-94,35	-22,95	-98,24
Finland	35660	-84,39	-57,34	-72,01	-48,31	-4,23	28,25	-84,25	369,04		66,26	-21,05	79,92
Japan	35220	-79,32	-17,59	-86,76	-67,70	-57,51	-59,48	-83,19	-74,88	-60,26	-65,22	-6,68	123,40
Belgium	34760	-83,61	-78,28	-81,28	-10,88	77,70	117,64	-86,12	-57,22	-18,48		-21,52	79,02
France	34400	-83,49	-74,10	-80,92	-62,80	-27,77	-39,07	-84,94	-93,40	-72,45	-89,74	-21,72	85,81
Australia	34040		88,89		-61,53	-36,14		-84,87	-70,23	-27,03	12,67		48,45

[250] The values of under- and over- 'pay' are in percentage calculated by the following formula:
(Country's share in contributions per capita – Country's share in GNI per capita) *100
Country's share in GNI per capita
A country over-'pays' if the percentage is positive, in other words, greater than zero, and under-'pays' if the percentage is negative, in other words, less than zero

[251] Countries are classified from higher to lower GNI per capita.

Weighted voting organizations								One-nation, One-vote organizations					
Country	gni/hab	IDB	ADB	AfDB	BRD	IMF	IFAD	ICAO	UNFPA	UNHCR	UNICEF	UNIDO	WHO
Bahrain	32290				-49,03	-21,73		-82,40	-99,85			-64,60	-19,46
Spain	31130	-75,15	-94,30	-91,90	-77,42	-69,14	-73,85	-79,13	-49,33	-44,99	-26,73	-44,52	26,46
Italy	30250	-80,53	-76,29	-85,49	-71,70	-44,06	-26,67	-87,26	-87,59	-55,27	-76,34	-25,61	69,55
Greece	28470	1453,37			-93,98	-63,07	-92,36	-91,07	-99,91			-50,63	12,58
Korea, Republic of	28120	-99,97	-12,47	-96,46	-86,77	-69,25	-94,42	-77,70	-100	-97,49		-57,89	-89,60
Israel	27450	-85,47			-72,91	-33,57	-99,13	-85,42	-99,81			-44,65	26,23
Slovenia	26910	-90,13			-73,72	-39,39		-84,11	-98,61			-53,76	5,72
Iceland	25220				79,97	111,21	-77,77	-45,47	-4,68				179,75
New Zealand	25090		240,57		-22,71	19,92	-488	-78,55	23,49	11,49		-36,64	44,46
Cyprus	24160				-19,87	-3,95	-94,64	-81,92	-99,73			-44,22	27,45
Trinidad and Tobago	23950	150,56			-4,89	50,39		-76,45	-99,41			-77,37	-49,06
Saudi Arabia	23320			-96,34	-10,83	74,50		-84,66		-99,42			-21,33
Czech Republic	22790				-69,64	-50,51		-95,27	-96,36			-68,61	-92,85
Oman	22170				-71,08	-54,90	-97,17	-88,87	-98,39			-68,83	-92,85
Portugal	22080	-95,76	-65,55	-88,91	-73,37	-46,92	-89,27	-75,06	-96,75	-89,86		-40,53	36,66
Equatorial Guinea	21700			20,25	-42,85	-67,28		-73,63	-89,07			-100	-83,10
Slovakia	21300				-68,05	-55,43		-93,45	-99,79			-85,42	-66,93
Malta	20580				45,04	72,94	-96,22	-55,45				-45,92	21,33
Antigua and Barbuda	20570					10,16	-100	114,40	-97,84				-31,29
Seychelles	19770			257,80	76,69	-25,98	-93,29	121,02	-98,71			-100	41,66
Estonia	19280				-59,13	-63,79		-85,41	-93,21				-100
Croatia	18420	-89,06			-67,88	-35,83	-100	-95,38	-98,97			-83,88	-633
Lithuania	18210				-71,81	-66,15		-93,83				-86,59	-69,36
Hungary	17790				-48,43	-16,51		-95,12	-99,57			-63,78	-17,42
Poland	17310				-81,09	-70,22		-92,07	-99,94			-79,90	-54,12
Latvia	16740				-58,25	-529		-90,06	-99,80				-71,32
Libyan Arab Jamahiriya	15630			325,14	-8,57	64,45	172,73	-96,16				-100	-23,61
Russian Federation	15630				-76,88	-61,49		-95,90	-99,48	-97,98		-85,66	-67,27

Weighted voting organizations								One-nation, One-vote organizations					
Country	gni/hab	IDB	ADB	AfDB	BRD	IMF	IFAD	ICAO	UNFPA	UNHCR	UNICEF	UNIDO	WHO
Saint Kitts and Nevis	15170				321,93	71,23	-84,38	405,54	-97,45			-74,46	-18,91
Mexico	14270	-15,28			-85,83	-70,17	-87,42	-94,02	-99,79			-60,60	-10,11
Argentina	14020	257,77		-94,78	-63,35	-45,63	-89,68	-96,33	-99,97			-84,59	-29,73
Montenegro	13920				-9,11	-54,43		-56,45	-99,87			-97,80	-86,03
Turkey	13770		-92,06		-90,64	-83,20	-90,72	-96,94	-99,44	-99,05		-90,07	-77,41
Malaysia	13740		74,38		-74,57	-42,45	-98,23	-90,44	-97,79			-86,42	-69,04
Romania	13500				-84,20	-49,07	-99,50	-97	-99,87	-96,51		-93,63	-85,43
Chile	13270	146,96			-64,34	-44,73	-97,90	-92,72	-99,91	-98,66		-100	-33,32
Botswana	13100			832,32	-71,80	-63,76	-90,43	-84,88	-99,31			-85,49	-96,60
Venezuela	12830	198,91			-35,03	6,49	208,33	-96,17	-99,89			-100	-38,57
Uruguay	12540	412,91			-23,04	5,25	-94,08	3627,66	-99,73			-82,68	-21,94
Mauritius	12480			344,07	-10,29	-7,89	-90,06	-72,47	-99,13			-81,95	-95,74
Gabon	12270			660,76	-36,49	24,67	8,12	-78,77	-97,46			-100	-72,79
Belarus	12150				-67,69	-52,84		-96,79				-95,46	-79,45
Bulgaria	11950				-34,51	0,89		-95,86	-99,92			-94,14	-86,73
Panama	11650	102,98			-88,87	-25	-97,06	-90,46	-99,04			-84,58	-29,70
Serbia	11150				-60,26	-18,07		-90,79	-100			-93,25	-69,03
Iran	10965				-65,66	-72,76	-89,79	-98,58	-99,70			-100	-72,43
Costa Rica	10950	61,95			-94,62	-52,47	-100	-92,39	-99,57		219,97	-100	-60,98
Lebanon	10880				-91,37	-35,29	-97,48	-91,62	-99,83			-100	-8,74
Brazil	10070	3,47		-97,50	-80,30	-77,45	-84,73	-97,04	-99,96			-87,99	-96,84
Macedonia,	9950				-75,91	-51,21	-100					-93,41	-85,10
South Africa	9780			4,01	-67,66	-43,66	-99,39	-88,03	-99,82	-99,54		-83,85	-62,66
Kazakhstan	9690		26,11		-77,52	-65,43	-100	-97,52	-98,75			-94,98	-88,46
Saint Lucia	9190				304,37	40,63	-91,79	340,10	-98,78			-87,80	-61,26
Saint Vincent and the Grenadines	8770				231,99	24,52	-100	294,21	-99,60			-80,09	-36,77
Bosnia and Herzegovina	8620				-80,70	-25,36	-98,66	-88,40				-95,31	-88,85
Colombia	8510	44,91			-80,83	-70,68	-99,02	-96,55	-99,63			-92,66	-83,26
Dominica	8300				849,12	93,79	-47,25					-100	99,22
Grenada	8060	595,58			614,54	97,44	-48,63	343,42	-99,55			-100	-28,87
Peru	7980	16,31			-73,50	-60,17	-97,57	-94,65	-99,97			-91,06	-59,03
Albania	7950				-62,01	-72,02	-99,07	-84,90	-99,99			-93,90	-85,49
Algeria	7940			58,30	-61,21	-33,98	11,99	-98,19	-99,86			-91,76	-62,51

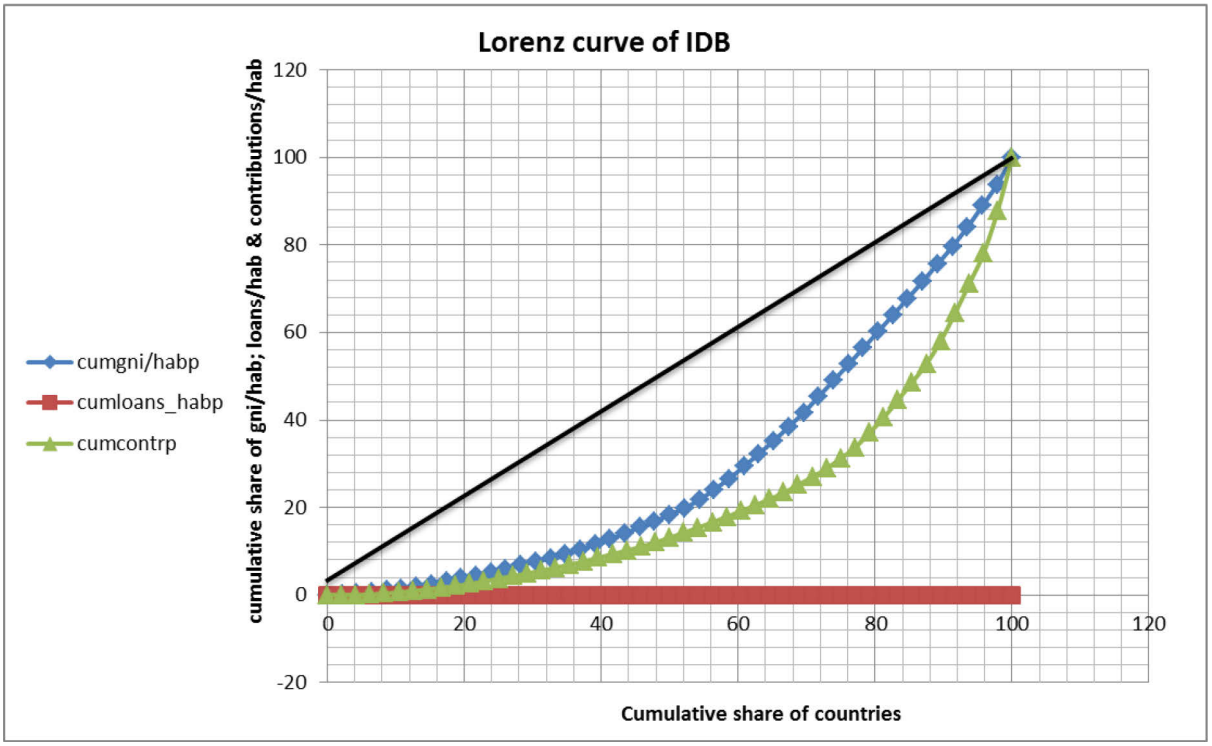
Weighted voting organizations								One-nation, One-vote organizations					
Country	gni/hab	IDB	ADB	AfDB	BRD	IMF	IFAD	ICAO	UNFPA	UNHCR	UNICEF	UNIDO	WHO
Dominican Republic	7890	38,04			-69,16	-59,51	-99,37	-95,14	-99,26			-100	-81,31
Azerbaijan	7770		56,64		-72,09	-65,74	-99,14	-94,41	-99,80			-98,02	-91,04
Ecuador	7760	2,44			-69,69	-58,51	-95,59	-96,39	-99,93			-100	-87,87
Jamaica	7360	441,36			49,02	98,39	-90,42	-80,94	-99,81			-100	-69,47
Ukraine	7210				-62,58	-40,94		-97,74	-99,88			-100	-91,85
Suriname	7130	344,34			28,33	260,01		2,71	-97,93			-100	-83,52
Tunisia	7070			108,38	-88,73	-43,66	-76,71	-89,67	-98,95			-88,95	-74,34
El Salvador	6670	96,20			-96,06	-39,89	-98,58	-90,78	-99,91			-100	-70,45
Armenia	6310		264,97		-32,89	-31,97	-99,33	-80,57	-99,80			-97,06	-93,77
Namibia	6270			178,41	31,42	47,84	-84,17	-71,54	-99,71			-88,50	-72,64
Turkmenistan	6210		92,58		-80,74	-65,42		-12,48				-100	-88,38
Belize	6040	987,18			257,49	43,91	-36,20	101,14	-89,84			-89,84	-66,90
China	6020	-100	-80,82	-98,48	-93,58	-85,45	-96,23	-98,11	-99,57	-99,83		-91,15	-97,98
Thailand	5990		-19,89		-825	-61,52	-98,70	-82,76	-99,09			-87,76	-72,15
Jordan	5530				-51,39	-25,05	-85,01	-88,45	-94,17			-90,07	-77,79
Egypt	5460			25,34	-81,73	-69,56	-77,75	-97,63	-99,08			-99,06	-88,05
Maldives	5280		-41,85		227,44	-28,19	-81,87	130,12	-88,38			-88,36	-63,09
Angola	5020			40,11	-66,15	-54,56	-98,33	-95,83	-99,79			-99,16	-98
Swaziland	5010			518,32	-13,93	24,41	-72,80	-35,52	-93,49			-90,22	-79,34
Bhutan	4880		-55,94		63,55	-73,01	-76,53	12,56	-93,24			-94,31	-81,95
Georgia	4850		283,10		-14,38	1,94	-100	-82,18	-99,71			-100	-91,43
Paraguay	4820	167,46			-53,17	-52,21	-87,41	-74,86	-99,90			-95,55	-89,93
Guatemala	4690	186,44			-64,31	-52,95	-931	-94,12	-99,70			-87,17	-69,85
Timor-Leste	4690		-54,40		14,69	-77,15	-100	-26,77	-99,26			-99,77	-88,25
Sri Lanka	4460		53,22		-51,43	-33,98	-55,04	-89	-99,24			-95,33	-89,24
Syrian Arab Republic	4350				-72,71	-54,35	-93,37	-95,92	-99,55			-95,45	-79,05
Samoa	4340		-1,14		671,60	111,39	-63,02	857,66	-95,16			24113,67	-23,19
Morocco	4330			166,65	-57,93	-37,55	-73,71	-95,85	-99,71	-88,97		-91,83	-98,12
Fiji	4270		350,96		215,38	181,82	-66,77	5,33	-96,52				-49,35
Bolivia	4140	300,49			-49,07	-38,59	-79,65	-90,59	-99,99			-96,20	-90,92
Vanuatu	3940		73,95		636,23	168		719,25	-96,26			-79,07	-33,55
Philippines	3900		60,60		-77,78	-64,15	-97,02	-93,62	-99,35			-94,16	-86,62

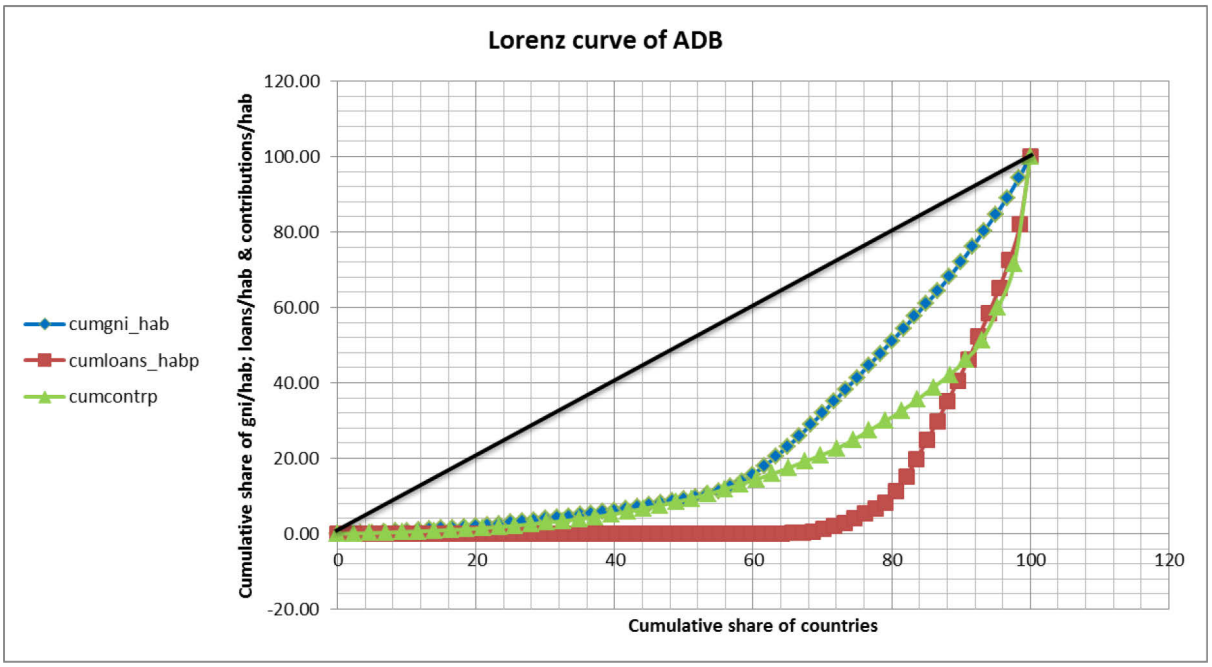
Weighted voting organizations								One-nation, One-vote organizations					
Country	gni/hab	IDB	ADB	AfDB	BRD	IMF	IFAD	ICAO	UNFPA	UNHCR	UNICEF	UNIDO	WHO
Tonga	3880		137,21		1306,58	146,52	-20,24	838,79	-90,52			-52,53	50,59
Honduras	3870				-73,84	-33,66	-83,34	-86,54	-99,54			-95,99	-89,21
Indonesia	3830		47,96		-80,39	-65,85	-70,03	-97,94	-99,70			-95,11	-88,87
Kiribati	3660		169,73		1405,45	127,50	-91,76	967,46				-100	229,61
Mongolia	3480		-61,02		-41,82	-19,92	-100	-58,82	-98,34			-97,92	-93,39
Cape Verde	3450			384,88	237,91	-19,89	-91,19	119,27	-97,38			-88,92	-29,65
Moldova	3210				34,16	51,65	-100	-35,31	-100			-98,37	-94,81
Congo	3090			341,10	-5,09	8,73	-56,41	-66,23	-82,32			-98,29	-94,58
Micronesia	3000		185,46		1541,55	119,27		1029,73	-88,59				262,44
India	2960		-55,44	-99,28	-84,81	-82,31	-87,35	-994	-99,47			-96,47	-98,88
Pakistan	2700		15,41		-76,17	-66,90	-82,32	-97,78	-96,45			-96,51	-91,67
Viet Nam	2700		-65,18		-95,24	-79,70	-96,49	-93,88	-99,93			-99,98	-93,77
Uzbekistan	2660		120,20		-60,74	-45,54		-90,08	-99,96			-99,99	-93,34
Nicaragua	2620	439,62			-53,21	25,47	-95,36	-74,64	-98,98			-96,16	-91,87
Solomon Islands	2580		21,12		348,81	14,15	-95,55	476,83	-99,42			-100	-100
Guyana	2510				531,50	581,04	93,23	96,87	-996			-90,05	-67,08
Djibouti	2330			206,52	224,08	15,57	-98,23	90,99	-98,07			-100	-38,73
Yemen	2210				-50,34	-31,38	-72,82	-84,04	-98,88			-99,99	-91,65
Cameroon	2180			173,37	-57,60	-35,29	-76,19	-90,84	-98,04		7,46	-93,99	-86,80
Kyrgyzstan	2140		528,88		12,18	12,88	-100	-66,60	-99,56			-100	-94,64
Lao People's Democratic Republic	2040		-73,91		-83,89	-405	-92,91	-70,20	-99,55			-99,46	-98
Lesotho	2000			311,19	87,85	24,22	-44,68	-6,48	-97,38			-100	-85
Papua New Guinea	2000		72,78		14,78	46,49	-92,32	-70,75	-98,89			-95,57	-81,25
Mauritania	1990			151,72	61,57	45,18	-95,62	-40,77	-92,71				-90,50
Nigeria	1940			228,32	-50,68	-14,26	110,76	-98,72	-99,60			-95,65	-90,12
Sudan	1930			-44,80	-87,82	-69,47	-92,58	-95,27	-100			-97,61	-84,85
Tajikistan	1860		434,98		-4,68	-1,77	-99,95	-88,29	-99,91			-100	-95,24
Cambodia	1820		-56,09		-90,86	-53,05	-86,28	-85,90	-99,69			-99,29	-97,74

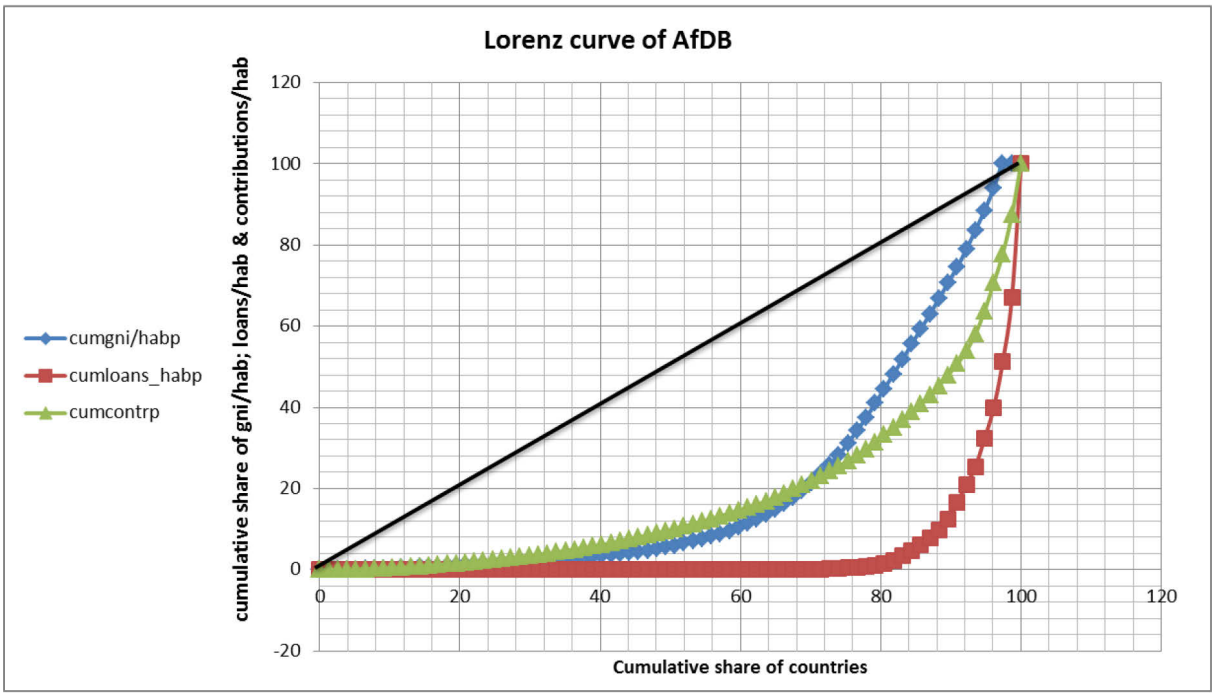
Weighted voting organizations								One-nation, One-vote organizations					
Country	gni/hab	IDB	ADB	AfDB	BRD	IMF	IFAD	ICAO	UNFPA	UNHCR	UNICEF	UNIDO	WHO
Sao Tome and Principe	1780			842,79	1876,16	270,83		1216,73	-54,15			-33,48	111,22
Senegal	1760			407,92	10,32	8,09	-89,53	-64,89	-96,45			-100	-87,97
Côte d'Ivoire	1580			1142,30	-11,53	43,51	-72,08	-88,41	-98,83			-97,56	-66,56
Kenya	1580			159,83	-53,75	-362	-63,74	-93,80	-99,38			-99,81	-82,76
Benin	1460			67,47	-21,49	-29,73	-90,93	-70,17	-95,34			-98,49	-95,22
Bangladesh	1440		5,25		-75,90	-66,77	-90,77	-97,85	-99,54			-99,17	-97,38
Ghana	1430	67,05		641,47	-47,77	58,65	-70,92	-88,70	-98,57			-96,57	-87,97
Gambia	1280			684,51	192,31	110,11	-87,64	77,52	-65,78			-100	-43,05
United Republic of Tanzania	1230			70,54	-71,65	-45,35	-100	614,21	-99,63			-100	-93,06
Zambia	1230			770,62	107,11	352,36	-85,22	-54,10	-98,53			-99,99	-92,20
Guinea	1190			278,16	26,35	31,41	-98,51	-67,76	-98,70			-98,37	-94,83
Haiti	1180				5,76	1,89	-94,59	-67,31	-96,70			-95,04	-89,52
Comoros	1170			221,30	328,22	69,69	-100	401	-97,47			-100	60,73
Burkina Faso	1160			163,22	-43,72	-51,01	-91,21	-78,62	-99,57			-96,76	-93,15
Chad	1160			-36,22	-23,18	-37,38	-100	-70,62	-91,10			-100	-90,57
Uganda	1140			52,24	-80,42	-28,19	-95,32	-79,09	-99,89			-99,36	-94,97
Nepal	1120		9,08		-65,43	-68,02	-97,09	-88,22	-99,40			-97,62	-94,33
Mali	1090			243,35	-4,04	-3,32	-92,10	-72,77	-98,17				-95,63
Afghanistan	1080		-100		-100	-100	-100	-100	-100			-100	-100
Madagascar	1040			255,51	-18,12	-11,73	-88,95	-81,02	-97,62			-97,12	-93,92
Rwanda	1010			47,46	21,81	17,13	-89,84	-61,58	-99,88			-98,06	-93,84
Ethiopia	870			147,10	-84,06	-72,67	-98,17	-93,79	-99,82			-98,91	-97,42
Malawi	830			172,47	5,63	-15,93	-96,39	-68,17	-99,04			-98,39	-94,89
Togo	820			225,16	138,70	98,98	-96,54	42,46	-91,75				-88,57
Mozambique	770			309,57	-36,56	-2,75	-86,10	-77,51	-99,55			-98,86	-96,39
Sierra Leone	750			533,96	96,95	257,04	-97,42	68,87	-90,80			-100	-85,49
Central African Republic	730			50,31	205,43	147,65	-96,48	-100	-97,05			-94,10	-62,52
Niger	680			176,40	-2,26	-5,29	-86,30	-62,18	-96,18			-98,09	-93,93

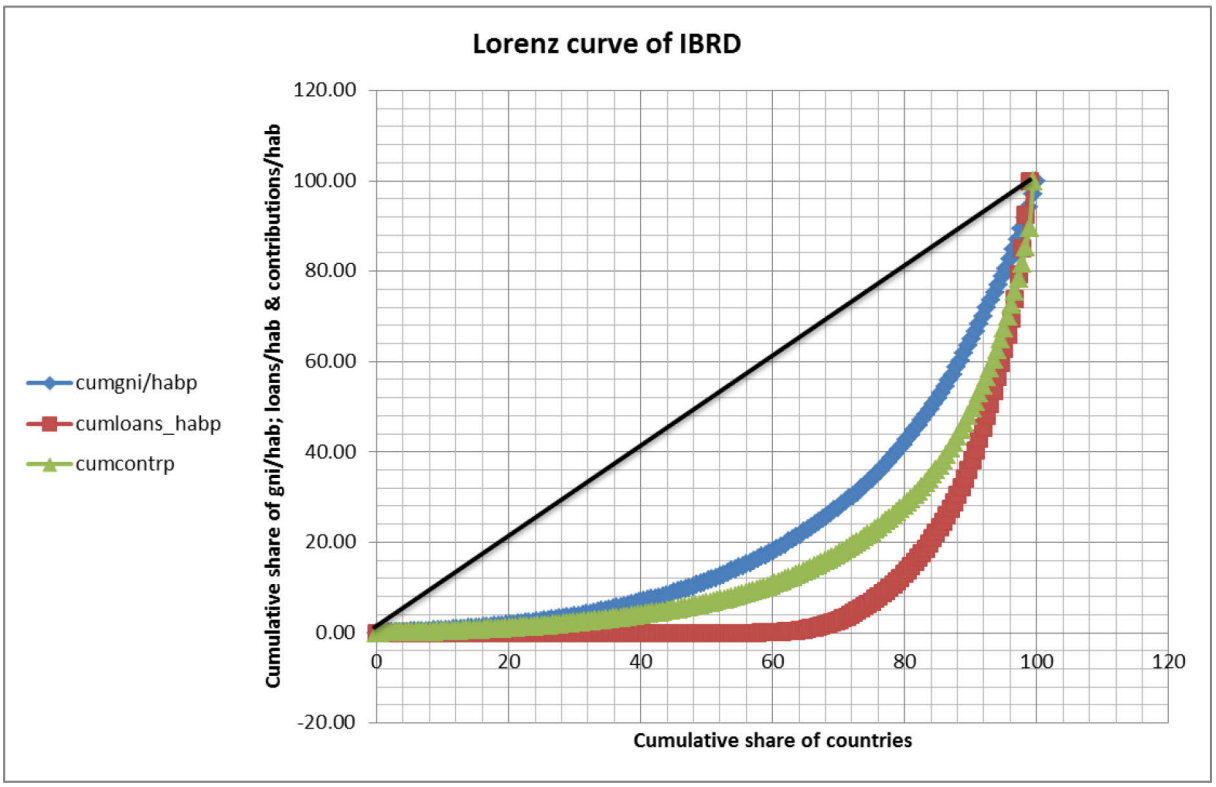
Weighted voting organizations								One-nation, One-vote organizations					
Country	gni/hab	IDB	ADB	AfDB	BRD	IMF	IFAD	ICAO	UNFPA	UNHCR	UNICEF	UNIDO	WHO
Eritrea	630			217,47	115,42	-27,48	-94,45	19,85	-97,58			-97,21	-80,78
Guinea-Bissau	530			258,51	639,38	144,16	116,35	351,79	-95,44			-100	44,94
Burundi	380			741,05	167,05	260,30	-84,83	22,95	-98,95			-93,79	-60,56
Liberia	300			1754,67	365,83	1529,94	-80,03	231,49	-66,52			-100	-46,83
Democratic Republic of the Congo	290			509,34	62,43	310,98	-63,07	-79,74	-98,98				-80,51

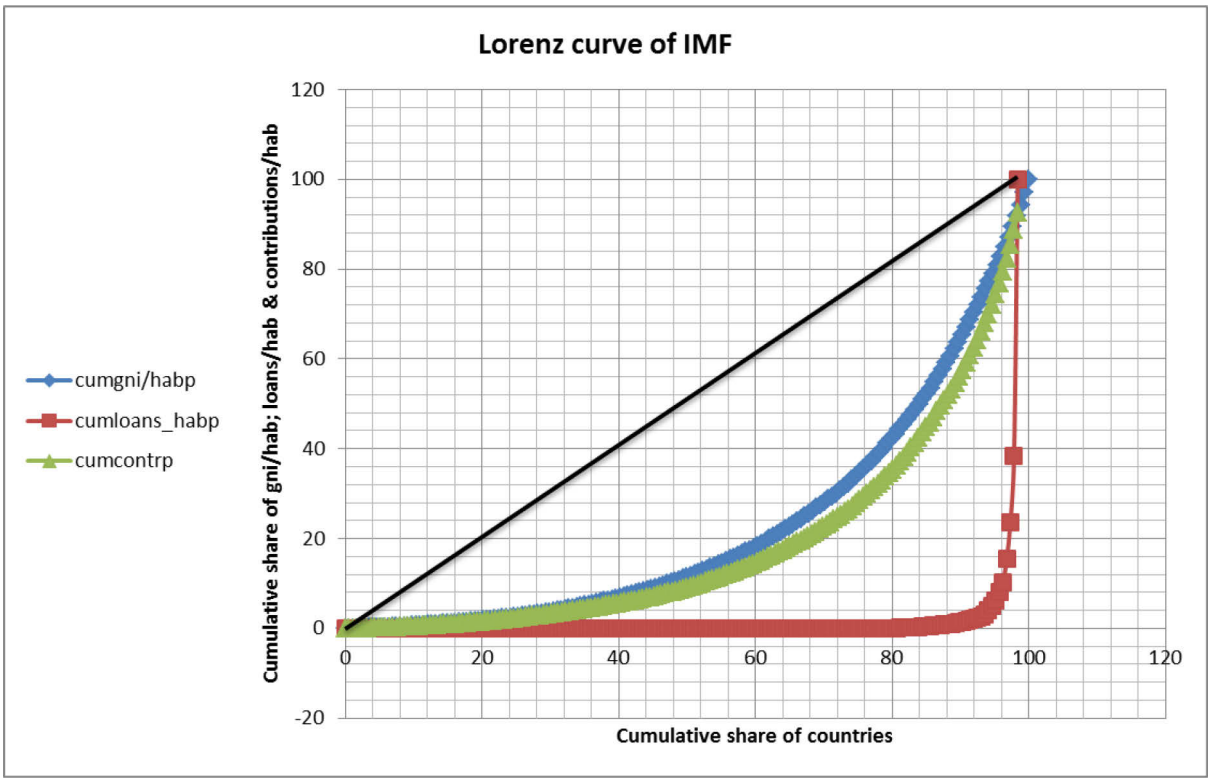
Appendix 8. : Page 141

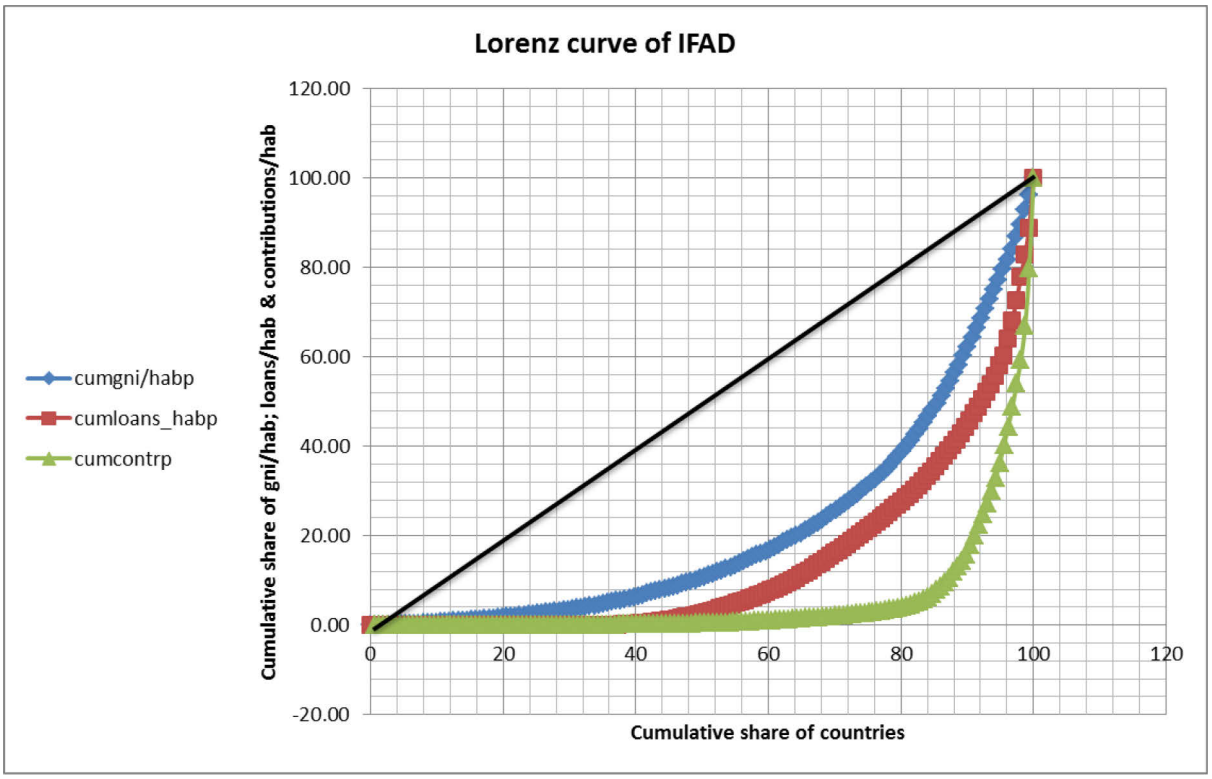


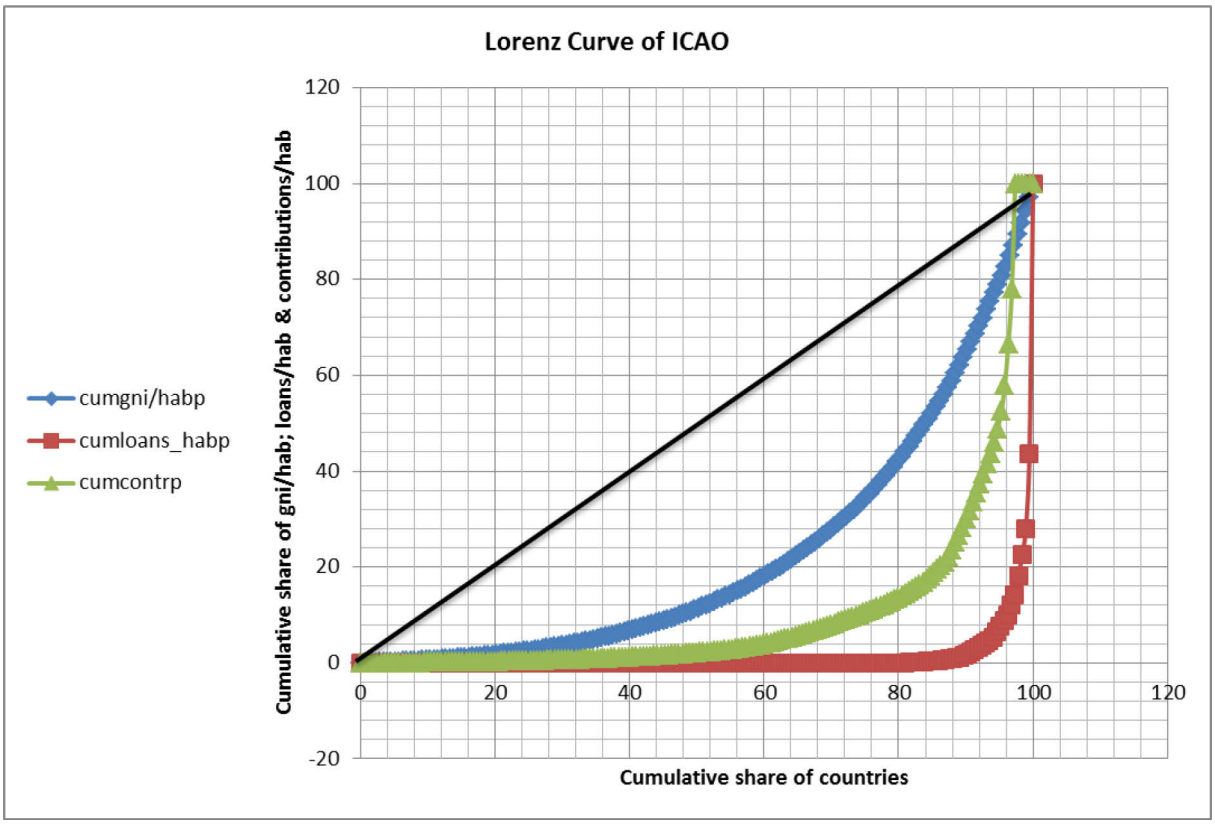


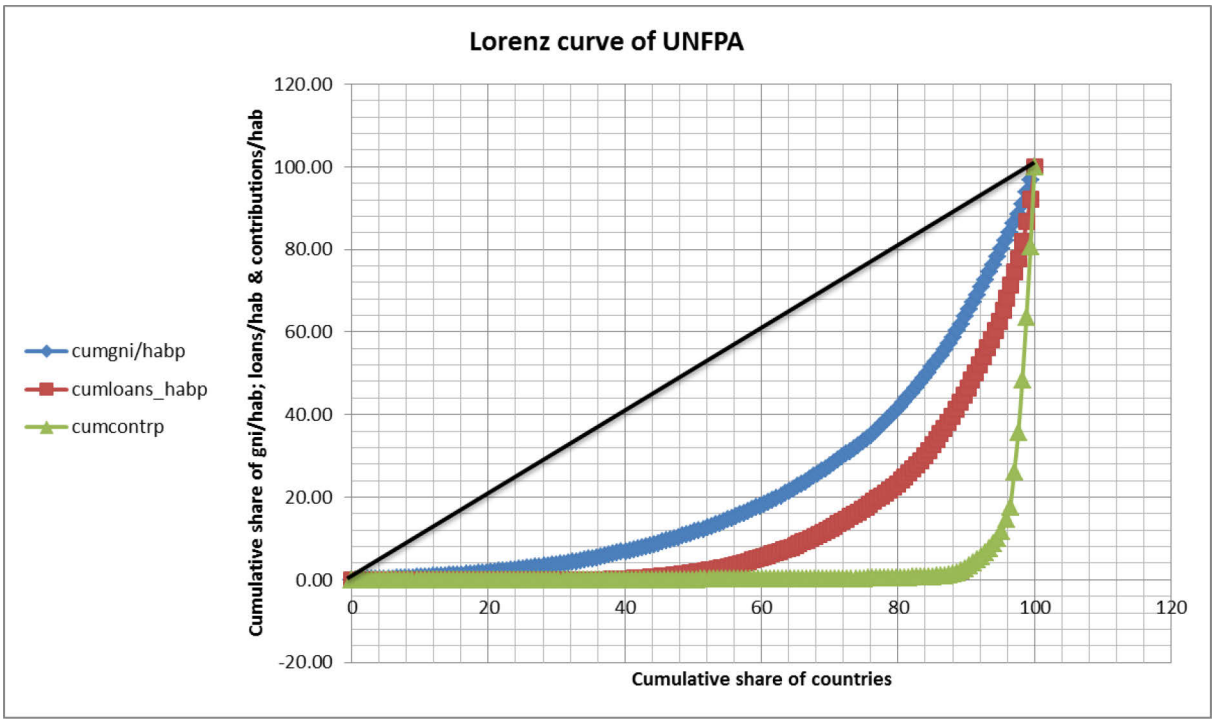

Lorenz curve of AfDB
cumulative share of gni/hab; loans/hab & contributions/hab
Cumulative share of countries
cumgni/habp
cumloans_habp
cumcontrp
120
100
80
60
40
20
0
-20
0
20
40
60
80
100
120

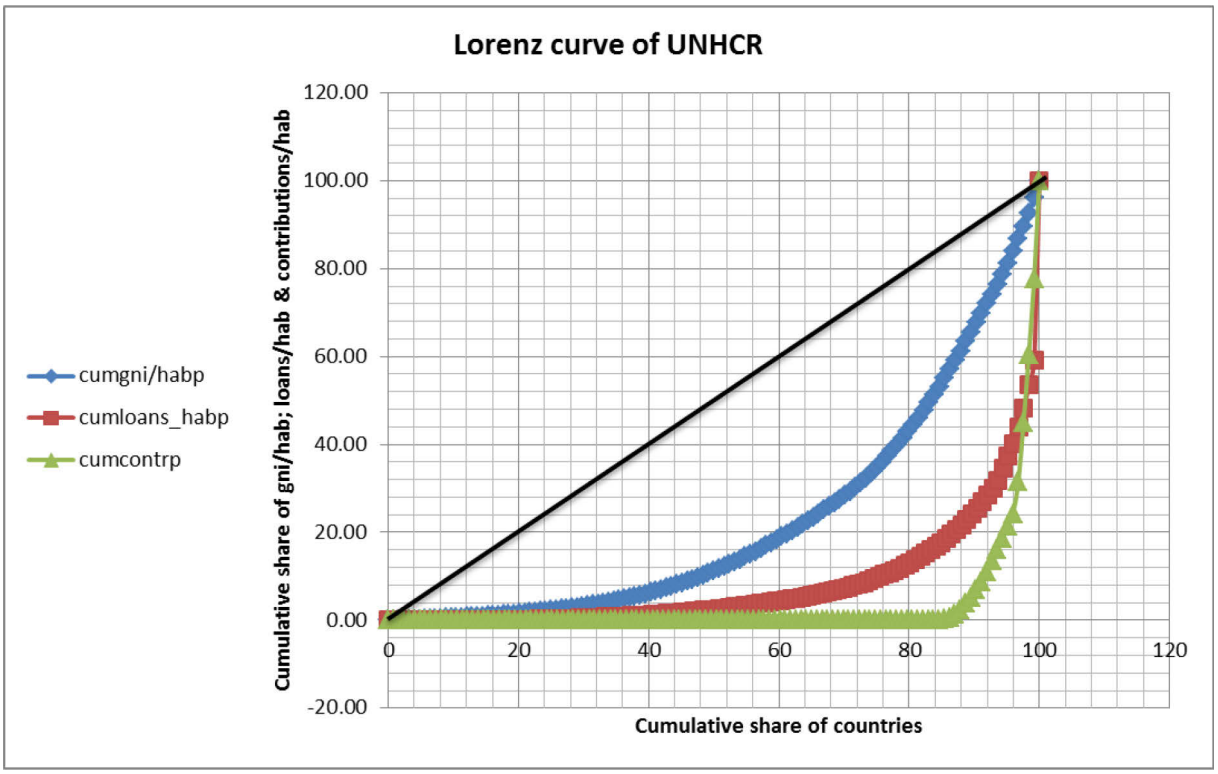

Lorenz curve of IBRD
Cumulative share of gni/hab; loans/hab & contributions/hab
Cumulative share of countries
cumgni/habp
cumloans_habp
cumcontrp
120.00
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
0
20
40
60
80
100
120

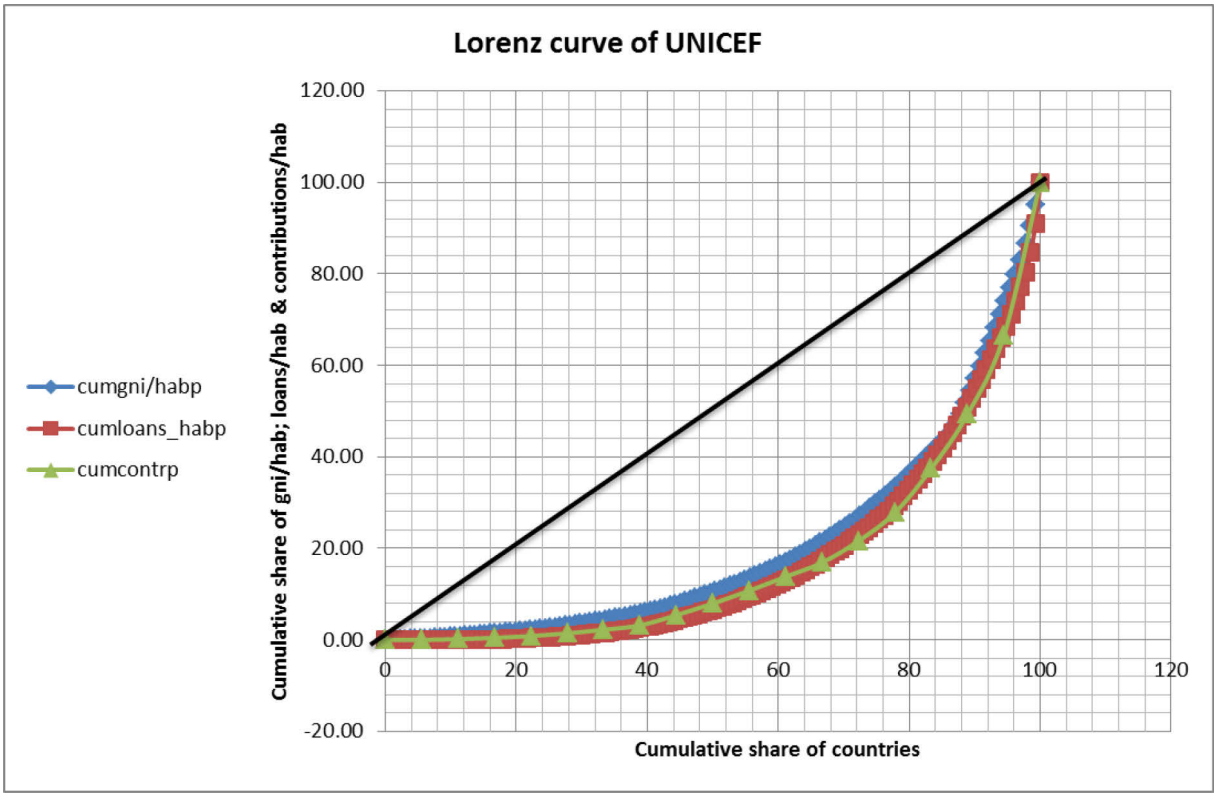

Lorenz curve of IMF
cumgni/habp
cumloans_habp
cumcontrp
Cumulative share of gni/hab; loans/hab & contributions/hab
Cumulative share of countries
120
100
80
60
40
20
0
-20
0
20
40
60
80
100
120

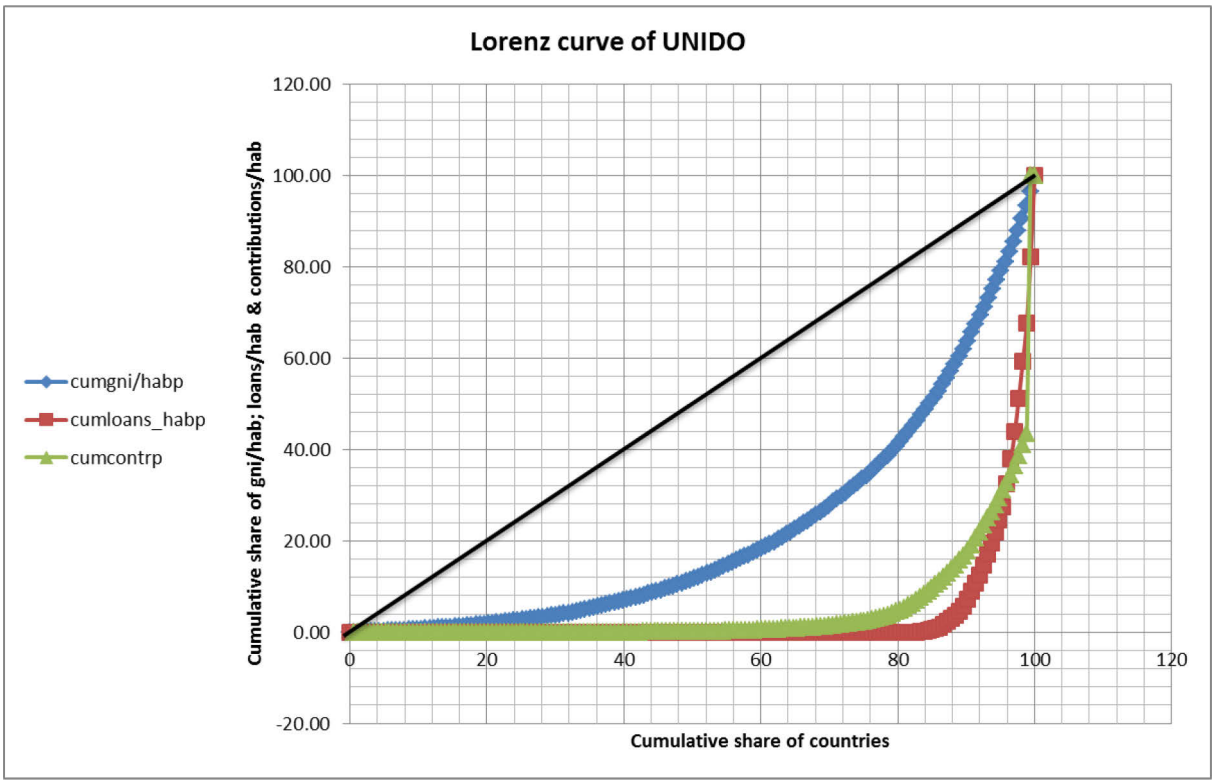

Lorenz curve of IFAD
cumgni/habp
cumloans_habp
cumcontrp
Cumulative share of gni/hab; loans/hab & contributions/hab
Cumulative share of countries
120.00
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
0
20
40
60
80
100
120

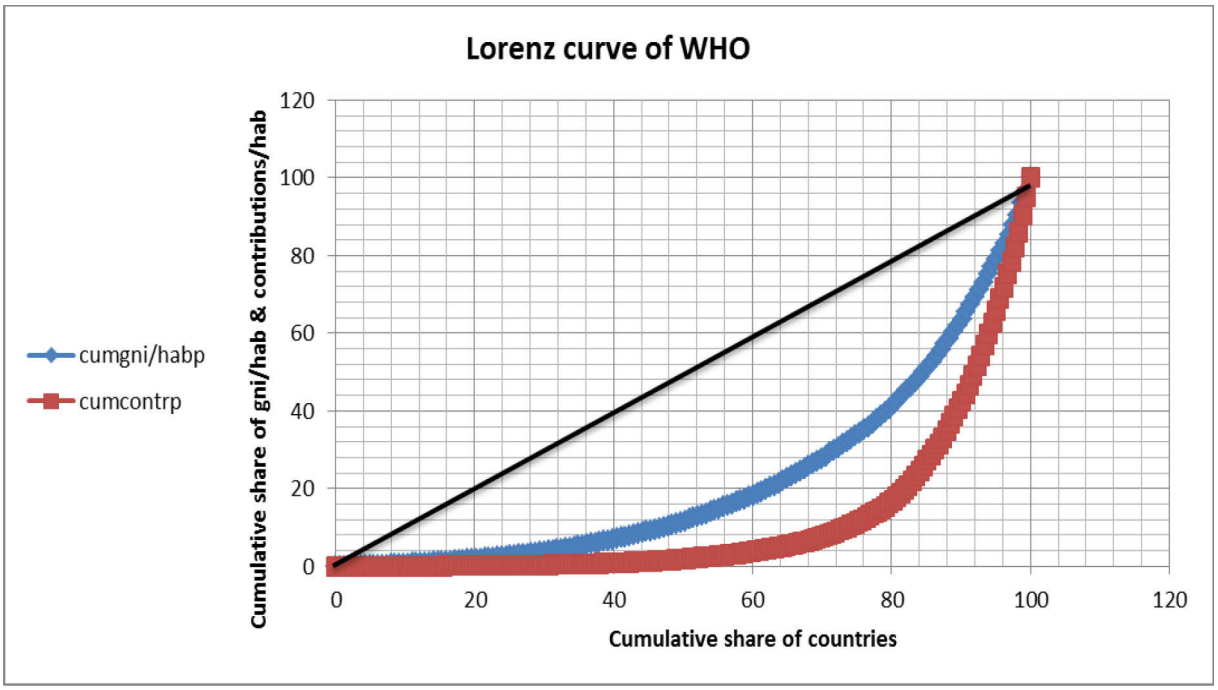

Lorenz Curve of ICAO
cumgni/habp
cumloans_habp
cumcontrp
Cumulative share of gni/hab; loans/hab & contributions/hab
Cumulative share of countries
120
100
80
60
40
20
0
-20
0
20
40
60
80
100
120


Lorenz curve of UNFPA
cumgni/habp
cumloans_habp
cumcontrp
Cumulative share of gni/hab; loans/hab & contributions/hab
Cumulative share of countries
120.00
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
0
20
40
60
80
100
120


Lorenz curve of UNHCR
cumgni/habp
cumloans_habp
cumcontrp
Cumulative share of gni/hab; loans/hab & contributions/hab
120.00
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
0
20
40
60
80
100
120
Cumulative share of countries


Lorenz curve of UNICEF
cumgni/habp
cumloans_habp
cumcontrp
Cumulative share of gni/hab; loans/hab & contributions/hab
120.00
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
0
20
40
60
80
100
120
Cumulative share of countries


Lorenz curve of UNIDO
cumgni/habp
cumloans_habp
cumcontrp
Cumulative share of gni/hab; loans/hab & contributions/hab
120.00
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
0
20
40
60
80
100
120
Cumulative share of countries


Lorenz curve of WHO
cumgni/habp
cumcontrp
Cumulative share of gni/hab & contributions/hab
120
100
80
60
40
20
0
0
20
40
60
80
100
120
Cumulative share of countries

Appendix 9. : Page 136

Table 4.6 - Values of under-and over-'receive' loans/expenditures[252] per country[253]

Weighted voting organizations								One-nation, One-vote organizations					
Country	gni/hab	IDB	ADB	AfDB	BRD	IMF	IFAD	ICAO	UNFPA	UNHCR	UNICEF	UNIDO	WHO
Luxembourg	64320		157,61		-39,75	27,72	-24,08	-24,65	360,28	482,23	235,56	-28,24	63,75
Norway	58500	-88,73	-71,03	-54,99	-59,07	-13,98	276,03	-87,29	549,51	460,32	620,20	-25,74	69,42
Kuwait	53480			-66,80	4,13	35,91	543,24	-91,90	-99,74	-69,34		-66,92	-24,61
Brunei Darussalam	50820		314,93		34,68	53,25	-91,21	-81,29					-22,05
Singapore	47940		-65,17		-98,42	-46,63		-33,51	-99,92				-100
United States of America	46970	-60,91	-74,05	-95,10	-78,78	-62,66	-71,52	-89,09		-46,73	-78,46	-100	-51,21
Switzerland	46460	-75,34	-60,90	-55,13	-14,14	40,06	48,27	-64,91	31,29	50,83	-39,87	-9,05	107,32
Netherlands	41670	-90,86	-64,45	-86,47	-40,72	8,17	110,35	-82,21	338,67	219,52	192,22	-27,59	-83,48
Sweden	38180	-82,79	-77,04	-52,39	-51,34	-2,31	-44,35	-72,81	559,07	346,26		-19,31	83,88
Austria	37680	-90,59	-74,30	-84,60	-59,75	-14,51	-4,59	-85,36	-77,80			-25,25	70,52
Ireland	37350		-51,48		-63,79	-27,74	-47,82	-84,30	52,27	309,12	106,87	-29,10	-79,17
Denmark	37280	-84,66	-60,57	-38,73	-24,91	15,08	238,97	-83,03	792,61	490,91	300,44	-4,39	117,95
Canada	36220	-38,33	2,97	-66,24	-57,53	-24,21	0,38	-87,22	-52,20	-29,42			49,13
United Kingdom	36130	-91,93	-78,14	-91,78	-64,21	-30,50	14,45	-81,55	-47,24	-37,93	-2,09	-20,60	80,97
Germany	35940	-88,06	-65,20	-84,85	-71,94	-36,74	-36,35	-85,09	-65,57	-71,24	-94,35	-22,95	-98,24
Finland	35660	-84,39	-57,34	-72,01	-48,31	-4,23	28,25	-84,25	369,04		66,26	-21,05	79,92
Japan	35220	-79,32	-17,59	-86,76	-67,70	-57,51	-59,48	-83,19	-74,88	-60,26	-65,22	-6,68	123,40
Belgium	34760	-83,61	-78,28	-81,28	-10,88	77,70	117,64	-86,12	-57,22	-18,48		-21,52	79,02
France	34400	-83,49	-74,10	-80,92	-62,80	-27,77	-39,07	-84,94	-93,40	-72,45	-89,74	-21,72	85,81
Australia	34040		88,89		-61,53	-36,14		-84,87	-70,23	-27,03	12,67		48,45

[252] The values of under- and over- 'receive' are in percentage calculated by the following formula:
(Country's share in loans/exp. per capita – Country's share in GNI per capita) *100
Country's share in GNI per capita
A country over-'receives' if the percentage is positive, in other words, greater than zero, and under-'receives' if the percentage is negative, in other words, less than zero.

[253] Countries are classified from higher to lower GNI per capita.

Weighted voting organizations								One-nation, One-vote organizations					
Country	gni/hab	IDB	ADB	AfDB	BRD	IMF	IFAD	ICAO	UNFPA	UNHCR	UNICEF	UNIDO	WHO
Bahrain	32290				-49,03	-21,73		-82,40	-99,85			-64,60	-19,46
Spain	31130	-75,15	-94,30	-91,90	-77,42	-69,14	-73,85	-79,13	-49,33	-44,99	-26,73	-44,52	26,46
Italy	30250	-80,53	-76,29	-85,49	-71,70	-44,06	-26,67	-87,26	-87,59	-55,27	-76,34	-25,61	69,55
Greece	28470	1453,37			-93,98	-63,07	-92,36	-91,07	-99,91			-50,63	12,58
Korea, Republic of	28120	-99,97	-12,47	-96,46	-86,77	-69,25	-94,42	-77,70	-100	-97,49		-57,89	-89,60
Israel	27450	-85,47			-72,91	-33,57	-99,13	-85,42	-99,81			-44,65	26,23
Slovenia	26910	-90,13			-73,72	-39,39		-84,11	-98,61			-53,76	5,72
Iceland	25220				79,97	111,21	-77,77	-45,47	-4,68				179,75
New Zealand	25090		240,57		-22,71	19,92	-488	-78,55	23,49	11,49		-36,64	44,46
Cyprus	24160				-19,87	-3,95	-94,64	-81,92	-99,73			-44,22	27,45
Trinidad and Tobago	23950	150,56			-4,89	50,39		-76,45	-99,41			-77,37	-49,06
Saudi Arabia	23320			-96,34	-10,83	74,50		-84,66		-99,42			-21,33
Czech Republic	22790				-69,64	-50,51		-95,27	-96,36			-68,61	-92,85
Oman	22170				-71,08	-54,90	-97,17	-88,87	-98,39			-68,83	-92,85
Portugal	22080	-95,76	-65,55	-88,91	-73,37	-46,92	-89,27	-75,06	-96,75	-89,86		-40,53	36,66
Equatorial Guinea	21700			20,25	-42,85	-67,28		-73,63	-89,07			-100	-83,10
Slovakia	21300				-68,05	-55,43		-93,45	-99,79			-85,42	-66,93
Malta	20580				45,04	72,94	-96,22	-55,45				-45,92	21,33
Antigua and Barbuda	20570					10,16	-100	114,40	-97,84				-31,29
Seychelles	19770			257,80	76,69	-25,98	-93,29	121,02	-98,71			-100	41,66
Estonia	19280				-59,13	-63,79		-85,41	-93,21				-100
Croatia	18420	-89,06			-67,88	-35,83	-100	-95,38	-98,97			-83,88	-633
Lithuania	18210				-71,81	-66,15		-93,83				-86,59	-69,36
Hungary	17790				-48,43	-16,51		-95,12	-99,57			-63,78	-17,42
Poland	17310				-81,09	-70,22		-92,07	-99,94			-79,90	-54,12
Latvia	16740				-58,25	-529		-90,06	-99,80				-71,32
Libyan Arab Jamahiriya	15630			325,14	-8,57	64,45	172,73	-96,16				-100	-23,61
Russian Federation	15630				-76,88	-61,49		-95,90	-99,48	-97,98		-85,66	-67,27

Weighted voting organizations								One-nation, One-vote organizations					
Country	gni/hab	IDB	ADB	AfDB	BRD	IMF	IFAD	ICAO	UNFPA	UNHCR	UNICEF	UNIDO	WHO
Saint Kitts and Nevis	15170				321,93	71,23	-84,38	405,54	-97,45			-74,46	-18,91
Mexico	14270	-15,28			-85,83	-70,17	-87,42	-94,02	-99,79			-60,60	-10,11
Argentina	14020	257,77		-94,78	-63,35	-45,63	-89,68	-96,33	-99,97			-84,59	-29,73
Montenegro	13920				-9,11	-54,43		-56,45	-99,87			-97,80	-86,03
Turkey	13770		-92,06		-90,64	-83,20	-90,72	-96,94	-99,44	-99,05		-90,07	-77,41
Malaysia	13740		74,38		-74,57	-42,45	-98,23	-90,44	-97,79			-86,42	-69,04
Romania	13500				-84,20	-49,07	-99,50	-97	-99,87	-96,51		-93,63	-85,43
Chile	13270	146,96			-64,34	-44,73	-97,90	-92,72	-99,91	-98,66		-100	-33,32
Botswana	13100			832,32	-71,80	-63,76	-90,43	-84,88	-99,31			-85,49	-96,60
Venezuela	12830	198,91			-35,03	6,49	208,33	-96,17	-99,89			-100	-38,57
Uruguay	12540	412,91			-23,04	5,25	-94,08	3627,66	-99,73			-82,68	-21,94
Mauritius	12480			344,07	-10,29	-7,89	-90,06	-72,47	-99,13			-81,95	-95,74
Gabon	12270			660,76	-36,49	24,67	8,12	-78,77	-97,46			-100	-72,79
Belarus	12150				-67,69	-52,84		-96,79				-95,46	-79,45
Bulgaria	11950				-34,51	0,89		-95,86	-99,92			-94,14	-86,73
Panama	11650	102,98			-88,87	-25	-97,06	-90,46	-99,04			-84,58	-29,70
Serbia	11150				-60,26	-18,07		-90,79	-100			-93,25	-69,03
Iran	10965				-65,66	-72,76	-89,79	-98,58	-99,70			-100	-72,43
Costa Rica	10950	61,95			-94,62	-52,47	-100	-92,39	-99,57		219,97	-100	-60,98
Lebanon	10880				-91,37	-35,29	-97,48	-91,62	-99,83			-100	-8,74
Brazil	10070	3,47		-97,50	-80,30	-77,45	-84,73	-97,04	-99,96			-87,99	-96,84
Macedonia,	9950				-75,91	-51,21	-100					-93,41	-85,10
South Africa	9780			4,01	-67,66	-43,66	-99,39	-88,03	-99,82	-99,54		-83,85	-62,66
Kazakhstan	9690		26,11		-77,52	-65,43	-100	-97,52	-98,75			-94,98	-88,46
Saint Lucia	9190				304,37	40,63	-91,79	340,10	-98,78			-87,80	-61,26
Saint Vincent and the Grenadines	8770				231,99	24,52	-100	294,21	-99,60			-80,09	-36,77
Bosnia and Herzegovina	8620				-80,70	-25,36	-98,66	-88,40				-95,31	-88,85
Colombia	8510	44,91			-80,83	-70,68	-99,02	-96,55	-99,63			-92,66	-83,26
Dominica	8300				849,12	93,79	-47,25					-100	99,22
Grenada	8060	595,58			614,54	97,44	-48,63	343,42	-99,55			-100	-28,87
Peru	7980	16,31			-73,50	-60,17	-97,57	-94,65	-99,97			-91,06	-59,03
Albania	7950				-62,01	-72,02	-99,07	-84,90	-99,99			-93,90	-85,49
Algeria	7940			58,30	-61,21	-33,98	11,99	-98,19	-99,86			-91,76	-62,51

Weighted voting organizations								One-nation, One-vote organizations					
Country	gni/hab	IDB	ADB	AfDB	BRD	IMF	IFAD	ICAO	UNFPA	UNHCR	UNICEF	UNIDO	WHO
Dominican Republic	7890	38,04			-69,16	-59,51	-99,37	-95,14	-99,26			-100	-81,31
Azerbaijan	7770		56,64		-72,09	-65,74	-99,14	-94,41	-99,80			-98,02	-91,04
Ecuador	7760	2,44			-69,69	-58,51	-95,59	-96,39	-99,93			-100	-87,87
Jamaica	7360	441,36			49,02	98,39	-90,42	-80,94	-99,81			-100	-69,47
Ukraine	7210				-62,58	-40,94		-97,74	-99,88			-100	-91,85
Suriname	7130	344,34			28,33	260,01		2,71	-97,93			-100	-83,52
Tunisia	7070			108,38	-88,73	-43,66	-76,71	-89,67	-98,95			-88,95	-74,34
El Salvador	6670	96,20			-96,06	-39,89	-98,58	-90,78	-99,91			-100	-70,45
Armenia	6310		264,97		-32,89	-31,97	-99,33	-80,57	-99,80			-97,06	-93,77
Namibia	6270			178,41	31,42	47,84	-84,17	-71,54	-99,71			-88,50	-72,64
Turkmenistan	6210		92,58		-80,74	-65,42		-12,48				-100	-88,38
Belize	6040	987,18			257,49	43,91	-36,20	101,14	-89,84			-89,84	-66,90
China	6020	-100	-80,82	-98,48	-93,58	-85,45	-96,23	-98,11	-99,57	-99,83		-91,15	-97,98
Thailand	5990		-19,89		-825	-61,52	-98,70	-82,76	-99,09			-87,76	-72,15
Jordan	5530				-51,39	-25,05	-85,01	-88,45	-94,17			-90,07	-77,79
Egypt	5460			25,34	-81,73	-69,56	-77,75	-97,63	-99,08			-99,06	-88,05
Maldives	5280		-41,85		227,44	-28,19	-81,87	130,12	-88,38			-88,36	-63,09
Angola	5020			40,11	-66,15	-54,56	-98,33	-95,83	-99,79			-99,16	-98
Swaziland	5010			518,32	-13,93	24,41	-72,80	-35,52	-93,49			-90,22	-79,34
Bhutan	4880		-55,94		63,55	-73,01	-76,53	12,56	-93,24			-94,31	-81,95
Georgia	4850		283,10		-14,38	1,94	-100	-82,18	-99,71			-100	-91,43
Paraguay	4820	167,46			-53,17	-52,21	-87,41	-74,86	-99,90			-95,55	-89,93
Guatemala	4690	186,44			-64,31	-52,95	-931	-94,12	-99,70			-87,17	-69,85
Timor-Leste	4690		-54,40		14,69	-77,15	-100	-26,77	-99,26			-99,77	-88,25
Sri Lanka	4460		53,22		-51,43	-33,98	-55,04	-89	-99,24			-95,33	-89,24
Syrian Arab Republic	4350				-72,71	-54,35	-93,37	-95,92	-99,55			-95,45	-79,05
Samoa	4340		-1,14		671,60	111,39	-63,02	857,66	-95,16			24113,67	-23,19
Morocco	4330			166,65	-57,93	-37,55	-73,71	-95,85	-99,71	-88,97		-91,83	-98,12
Fiji	4270		350,96		215,38	181,82	-66,77	5,33	-96,52				-49,35
Bolivia	4140	300,49			-49,07	-38,59	-79,65	-90,59	-99,99			-96,20	-90,92
Vanuatu	3940		73,95		636,23	168		719,25	-96,26			-79,07	-33,55
Philippines	3900		60,60		-77,78	-64,15	-97,02	-93,62	-99,35			-94,16	-86,62

Weighted voting organizations								One-nation, One-vote organizations					
Country	gni/hab	IDB	ADB	AfDB	BRD	IMF	IFAD	ICAO	UNFPA	UNHCR	UNICEF	UNIDO	WHO
Tonga	3880		137,21		1306,58	146,52	-20,24	838,79	-90,52			-52,53	50,59
Honduras	3870				-73,84	-33,66	-83,34	-86,54	-99,54			-95,99	-89,21
Indonesia	3830		47,96		-80,39	-65,85	-70,03	-97,94	-99,70			-95,11	-88,87
Kiribati	3660		169,73		1405,45	127,50	-91,76	967,46				-100	229,61
Mongolia	3480		-61,02		-41,82	-19,92	-100	-58,82	-98,34			-97,92	-93,39
Cape Verde	3450			384,88	237,91	-19,89	-91,19	119,27	-97,38			-88,92	-29,65
Moldova	3210				34,16	51,65	-100	-35,31	-100			-98,37	-94,81
Congo	3090			341,10	-5,09	8,73	-56,41	-66,23	-82,32			-98,29	-94,58
Micronesia	3000		185,46		1541,55	119,27		1029,73	-88,59				262,44
India	2960		-55,44	-99,28	-84,81	-82,31	-87,35	-994	-99,47			-96,47	-98,88
Pakistan	2700		15,41		-76,17	-66,90	-82,32	-97,78	-96,45			-96,51	-91,67
Viet Nam	2700		-65,18		-95,24	-79,70	-96,49	-93,88	-99,93			-99,98	-93,77
Uzbekistan	2660		120,20		-60,74	-45,54		-90,08	-99,96			-99,99	-93,34
Nicaragua	2620	439,62			-53,21	25,47	-95,36	-74,64	-98,98			-96,16	-91,87
Solomon Islands	2580		21,12		348,81	14,15	-95,55	476,83	-99,42			-100	-100
Guyana	2510				531,50	581,04	93,23	96,87	-996			-90,05	-67,08
Djibouti	2330			206,52	224,08	15,57	-98,23	90,99	-98,07			-100	-38,73
Yemen	2210				-50,34	-31,38	-72,82	-84,04	-98,88			-99,99	-91,65
Cameroon	2180			173,37	-57,60	-35,29	-76,19	-90,84	-98,04		7,46	-93,99	-86,80
Kyrgyzstan	2140		528,88		12,18	12,88	-100	-66,60	-99,56			-100	-94,64
Lao People's Democratic Republic	2040		-73,91		-83,89	-405	-92,91	-70,20	-99,55			-99,46	-98
Lesotho	2000			311,19	87,85	24,22	-44,68	-6,48	-97,38			-100	-85
Papua New Guinea	2000		72,78		14,78	46,49	-92,32	-70,75	-98,89			-95,57	-81,25
Mauritania	1990			151,72	61,57	45,18	-95,62	-40,77	-92,71				-90,50
Nigeria	1940			228,32	-50,68	-14,26	110,76	-98,72	-99,60			-95,65	-90,12
Sudan	1930			-44,80	-87,82	-69,47	-92,58	-95,27	-100			-97,61	-84,85
Tajikistan	1860		434,98		-4,68	-1,77	-99,95	-88,29	-99,91			-100	-95,24
Cambodia	1820		-56,09		-90,86	-53,05	-86,28	-85,90	-99,69			-99,29	-97,74

Weighted voting organizations								One-nation, One-vote organizations					
Country	gni/hab	IDB	ADB	AfDB	BRD	IMF	IFAD	ICAO	UNFPA	UNHCR	UNICEF	UNIDO	WHO
Sao Tome and Principe	1780			842,79	1876,16	270,83		1216,73	-54,15			-33,48	111,22
Senegal	1760			407,92	10,32	8,09	-89,53	-64,89	-96,45			-100	-87,97
Côte d'Ivoire	1580			1142,30	-11,53	43,51	-72,08	-88,41	-98,83			-97,56	-66,56
Kenya	1580			159,83	-53,75	-362	-63,74	-93,80	-99,38			-99,81	-82,76
Benin	1460			67,47	-21,49	-29,73	-90,93	-70,17	-95,34			-98,49	-95,22
Bangladesh	1440		5,25		-75,90	-66,77	-90,77	-97,85	-99,54			-99,17	-97,38
Ghana	1430	67,05		641,47	-47,77	58,65	-70,92	-88,70	-98,57			-96,57	-87,97
Gambia	1280			684,51	192,31	110,11	-87,64	77,52	-65,78			-100	-43,05
United Republic of Tanzania	1230			70,54	-71,65	-45,35	-100	614,21	-99,63			-100	-93,06
Zambia	1230			770,62	107,11	352,36	-85,22	-54,10	-98,53			-99,99	-92,20
Guinea	1190			278,16	26,35	31,41	-98,51	-67,76	-98,70			-98,37	-94,83
Haiti	1180				5,76	1,89	-94,59	-67,31	-96,70			-95,04	-89,52
Comoros	1170			221,30	328,22	69,69	-100	401	-97,47			-100	60,73
Burkina Faso	1160			163,22	-43,72	-51,01	-91,21	-78,62	-99,57			-96,76	-93,15
Chad	1160			-36,22	-23,18	-37,38	-100	-70,62	-91,10			-100	-90,57
Uganda	1140			52,24	-80,42	-28,19	-95,32	-79,09	-99,89			-99,36	-94,97
Nepal	1120		9,08		-65,43	-68,02	-97,09	-88,22	-99,40			-97,62	-94,33
Mali	1090			243,35	-4,04	-3,32	-92,10	-72,77	-98,17				-95,63
Afghanistan	1080		-100		-100	-100	-100	-100	-100			-100	-100
Madagascar	1040			255,51	-18,12	-11,73	-88,95	-81,02	-97,62			-97,12	-93,92
Rwanda	1010			47,46	21,81	17,13	-89,84	-61,58	-99,88			-98,06	-93,84
Ethiopia	870			147,10	-84,06	-72,67	-98,17	-93,79	-99,82			-98,91	-97,42
Malawi	830			172,47	5,63	-15,93	-96,39	-68,17	-99,04			-98,39	-94,89
Togo	820			225,16	138,70	98,98	-96,54	42,46	-91,75				-88,57
Mozambique	770			309,57	-36,56	-2,75	-86,10	-77,51	-99,55			-98,86	-96,39
Sierra Leone	750			533,96	96,95	257,04	-97,42	68,87	-90,80			-100	-85,49
Central African Republic	730			50,31	205,43	147,65	-96,48	-100	-97,05			-94,10	-62,52
Niger	680			176,40	-2,26	-5,29	-86,30	-62,18	-96,18			-98,09	-93,93

Weighted voting organizations								One-nation, One-vote organizations					
Country	gni/hab	IDB	ADB	AfDB	BRD	IMF	IFAD	ICAO	UNFPA	UNHCR	UNICEF	UNIDO	WHO
Eritrea	630			217,47	115,42	-27,48	-94,45	19,85	-97,58			-97,21	-80,78
Guinea-Bissau	530			258,51	639,38	144,16	116,35	351,79	-95,44			-100	44,94
Burundi	380			741,05	167,05	260,30	-84,83	22,95	-98,95			-93,79	-60,56
Liberia	300			1754,67	365,83	1529,94	-80,03	231,49	-66,52			-100	-46,83
Democratic Republic of the Congo	290			509,34	62,43	310,98	-63,07	-79,74	-98,98				-80,51

Appendix 10. : Page 144

Table 4.5 – Countries receiving loans/expenditures in each international organizations

Inter-American Dvp Bank (IDB)	loans	gni/hab	Asian dvp Bank (ADB)	loans	gni/hab	African Dvp Bank	loans	gni/hab	IBRD	loans	gni/hab	IMF	loans	gni/hab	International Fund for Agricultual dvp (IFAD)	loans	gni/hab
Brazil 1	3302.7	10070	China, People's Rep, of 2	14346.057	6020	Morocco 3	3134.776	4330	China 4	17521	6020	Hungary 5	6492.238	17790	India 6	667.583	2960
Argentina 1	1186.2	14020	India 2	12306.398	2960	Tunisia 3	2181.333	7070	Brazil 4	12897	10070	Ukraine 5	4620.810	7210	China 6	612.634	6020
Mexico 1	1104.5	14270	Indonesia 2	10801.277	3830	Egypt 3	1567.477	5460	Turkey 4	12165	13770	Turkey 5	3463.202	13770	Bangladesh 6	473.296	1440
Colombia 1	1074.2	8510	Pakistan 2	6947.892	2700	Democratic Republic of Congo 3	1170.605	290	India 4	11940	2960	Pakistan 5	3184.354	2700	Pakistan 6	408.006	2700
Costa Rica 1	860	10950	Philippines 2	4553.515	3900	Gabon 3	640.002	12270	Argentina 4	7921	14020	Iceland 5	862.551	25220	United Republic of Tanzania 6	272.612	1230
Panama 1	600.2	11650	Viet Nam 2	2151.207	2700	Côte d'Ivoire 3	480.245	1580	Indonesia 4	7508	3830	Liberia 5	857.974	300	Ethiopia 6	227.785	870
Chile 1	580.9	13270	Bangladesh 2	1422.066	1440	Zimbabwe 3	304.587		Colombia 4	6338	8510	Latvia 5	824.574	16740	Yemen 6	223.314	2210
El Salvador 1	554	6670	Sri Lanka 2	893.564	4460	Nigeria 3	259.684	1940	Mexico 4	5220	14270	Georgia 5	249.062	4850	Indonesia 6	221.891	3830
Uruguay 1	382.8	12540	Uzbekistan 2	826.434	2660	South Africa 3	232.766	9780	Russian Federation 4	5108	15630	Bangladesh 5	205.356	1440	Egypt 6	216.047	5460
Guatemala 1	278.5	4690	Kazakhstan 2	631.657	9690	Namibia 3	116.585	6270	Romania 4	4126	13500	Dominican Republic 5	118.675	7890	Uganda 6	213.023	1140
Peru 1	215	7980	Azerbaijan 2	506.28	7770	Swaziland 3	109.172	5010	Ukraine 4	3654	7210	Malawi 5	94.468	830	Viet Nam 6	209.238	2700
Jamaica 1	205	7360	Papua New Guinea 2	237.699	2000	Equatorial Guinea 3	101.701	21700	Philippines 4	3634	3900	Côte d'Ivoire 5	62.612	1580	Sudan 6	207.698	1930
Honduras 1	111.2	3870	Malaysia 2	212.368	13740	Sudan 3	89.833	1930	Morocco 4	3262	4330	Madagascar 5	57.480	1040	Sri Lanka 6	192.441	4460
Bahamas 1	100		Fiji Islands 2	119.397	4270	Cameroon 3	77.743	2180	Peru 4	2999	7980	Haiti 5	48.642	1180	Nigeria 6	189.272	1940
Paraguay 1	97.8	4820	Korea, Rep, Of 2	108.847	28120	Mauritius 3	75.889	12480	Serbia 4	2752	11150	Kyrgyz Republic 5	41.279	2140	Mozambique 6	182.130	770
Nicaragua 1	80.7	2620	Afghanistan 2	104.412	1080	Botswana 3	71.521	13100	Egypt, Arab Republic of 4	2555	5460	Lebanon 5	39.084	10880	Ghana 6	174.221	1430
Bolivia 1	78.1	4140	Lao People's Dem, Rep, 2	70	2040	Congo 3	50.744	3090	Pakistan 4	2424	2700	Senegal 5	37.382	1760	Madagascar 6	160.019	1040
Suriname 1	76	7130	Thailand 2	51.145	5990	Senegal 3	38.927	1760	Poland 4	2309	17310	Moldova 5	35.241	3210	Rwanda 6	136.032	1010
Ecuador 1	50	7760	Bhutan 2	51	4880	Mauritania 3	35.371	1990	Croatia 4	2107	18420	Nicaragua 5	28.341	2620	Philippines 6	135.038	3900

Barbados 1	41.1		**Georgia 2**	25	4850	**Ethiopia 3**	25.324	870	**Tunisia 4**	2031	7070	**Mali 5**	27.709	1090	**Kazakhstan 6**	131.132	9690
Dominican Republic 1	40	7890	**Nepal 2**	16.93	1120	**Guinea 3**	16.176	1190	**Korea, Republic of 4**	1920	28120	**Guinea 5**	27.101	1190	**Brazil 6**	129.030	10070
Guyana 1	33	2510	**Mongolia 2**	14.5	3480	**Comoros 3**	11.851	1170	**Azerbaijan 4**	1652	7770	**Central African Republic 5**	22.419	730	**Nepal 6**	127.917	1120
Belize 1	24.4	6040	**Maldives 2**	12	5280	**Zambia 3**	10.336	1230	**Bulgaria 4**	1566	11950	**Burundi 5**	21.179	380	**Zambia 6**	126.711	1230
Trinidad and Tobago 1	24.4	23950	**Cook Islands 2**	8.63		**Kenya 3**	9.339	1580	**Iran, Islamic Republic of 4**	1349	10965	**Benin 5**	18.375	1460	**Mali 6**	125.686	1090
Austria 1	0	37680	**Cambodia 2**	7	1820	**Liberia 3**	6.98	300	**Guatemala 4**	1109	4690	**Burkina Faso 5**	17.772	1160	**Morocco 6**	122.789	4330
Belgium 1	0	34760	**Micronesia, Fed, States of 2**	4.80	3000	**Somalia 3**	6.241		**Jordan 4**	980	5530	**Sierra Leone 5**	17.559	750	**Burkina Faso 6**	121.986	1160
Canada 1	0	36220	**Marshall Islands 2**	3.14		**Malawi 3**	6.240	830	**Uruguay 4**	925	12540	**Niger 5**	11.583	680	**Guatemala 6**	120.547	4690
China, People's Republic of 1	0	6020	**Nauru 2**	1.21		**Seychelles 3**	5.028	19770	**Kazakhstan 4**	813	9690	**Zambia 5**	10.762	1230	**Guinea 6**	119.565	1190
Croatia 1	0	18420	**Armenia 2**	0	6310	**Central African Republic 3**	4.702	730	**Dominican Republic 4**	730	7890	**Grenada 5**	8.302	8060	**El Salvador 6**	117.097	6670
Denmark 1	0	37280	**Australia 2**	0	34040	**Tanzania 3**	4.008	1230	**Ecuador 4**	674	7760	**Cameroon 5**	8.163	2180	**Benin 6**	116.685	1460
Finland 1	0	35660	**Austria 2**	0	37680	**Ghana 3**	2.039	1430	**Macedonia, former Yugoslav Republic of 4**	478	9950	**Gambia, The 5**	6.161	1280	**Senegal 6**	114.693	1760
France 1	0	34400	**Belgium 2**	0	34760	**Lesotho 3**	1.223	2000	**El Salvador 4**	475	6670	**Djibouti 5**	5.952	2330	**Malawi 6**	112.656	830
Germany 1	0	35940	**Brunei Darussalam 2**	0	50820	**Angola 3**	1.178	5020	**Zimbabwe 4**	464		**Guinea-Bissau 5**	5.468	530	**Honduras 6**	110.651	3870
Haiti 1	0	1180	**Canada 2**	0	36220	**Uganda 3**	0.917	1140	**Bosnia and Herzegovina 4**	452	8620	**Comoros 5**	5.141	1170	**Haiti 6**	101.097	1180
Israel 1	0	27450	**Denmark 2**	0	37280	**Algeria 3**	0	7940	**Jamaica 4**	449	7360	**Romania 5**	3.512	13500	**Syrian Arab Republic 6**	98.425	4350
Italy 1	0	30250	**Finland 2**	0	35660	**Argentina 3**	0	14020	**Lebanon 4**	444	10880	**Dominica 5**	3.158	8300	**Peru 6**	88.132	7980
Japan 1	0	35220	**France 2**	0	34400	**Austria 3**	0	37680	**Panama 4**	404	11650	**Mauritania 5**	2.973	1990	**Mexico 6**	85.485	14270
Korea, Republic of 1	0	28120	**Germany 2**	0	35940	**Belgium 3**	0	34760	**Uzbekistan 4**	354	2660	**Congo, Republic of 5**	1.862	3090	**Bolivia 6**	85.051	4140
Netherlands 1	0	41670	**Hong Kong, China 2**	0	43960	**Benin 3**	0	1460	**Paraguay 4**	348	4820	**São Tomé and Principe 5**	0.001	1780	**Argentina 6**	81.147	14020

Barbados 1	41.1		Georgia 2	25	4850	Ethiopia 3	25.324	870	Tunisia 4	2031	7070	Mali 5	27.709	1090	Kazakhstan 6	131.132	9690
Dominican Republic 1	40	7890	Nepal 2	16.93	1120	Guinea 3	16.176	1190	Korea, Republic of 4	1920	28120	Guinea 5	27.101	1190	Brazil 6	129.030	10070
Guyana 1	33	2510	Mongolia 2	14.5	3480	Comoros 3	11.851	1170	Azerbaijan 4	1652	7770	Central African Republic 5	22.419	730	Nepal 6	127.917	1120
Belize 1	24.4	6040	Maldives 2	12	5280	Zambia 3	10.336	1230	Bulgaria 4	1566	11950	Burundi 5	21.179	380	Zambia 6	126.711	1230
Trinidad and Tobago 1	24.4	23950	Cook Islands 2	8.63		Kenya 3	9.339	1580	Iran, Islamic Republic of 4	1349	10965	Benin 5	18.375	1460	Mali 6	125.686	1090
Austria 1	0	37680	Cambodia 2	7	1820	Liberia 3	6.98	300	Guatemala 4	1109	4690	Burkina Faso 5	17.772	1160	Morocco 6	122.789	4330
Belgium 1	0	34760	Micronesia, Fed, States of 2	4.80	3000	Somalia 3	6.241		Jordan 4	980	5530	Sierra Leone 5	17.559	750	Burkina Faso 6	121.986	1160
Canada 1	0	36220	Marshall Islands 2	3.14		Malawi 3	6.240	830	Uruguay 4	925	12540	Niger 5	11.583	680	Guatemala 6	120.547	4690
China, People's Republic of 1	0	6020	Nauru 2	1.21		Seychelles 3	5.028	19770	Kazakhstan 4	813	9690	Zambia 5	10.762	1230	Guinea 6	119.565	1190
Croatia 1	0	18420	Armenia 2	0	6310	Central African Republic 3	4.702	730	Dominican Republic 4	730	7890	Grenada 5	8.302	8060	El Salvador 6	117.097	6670
Denmark 1	0	37280	Australia 2	0	34040	Tanzania 3	4.008	1230	Ecuador 4	674	7760	Cameroon 5	8.163	2180	Benin 6	116.685	1460
Finland 1	0	35660	Austria 2	0	37680	Ghana 3	2.039	1430	Macedonia, former Yugoslav Republic of 4	478	9950	Gambia, The 5	6.161	1280	Senegal 6	114.693	1760
France 1	0	34400	Belgium 2	0	34760	Lesotho 3	1.223	2000	El Salvador 4	475	6670	Djibouti 5	5.952	2330	Malawi 6	112.656	830
Germany 1	0	35940	Brunei Darussalam 2	0	50820	Angola 3	1.178	5020	Zimbabwe 4	464		Guinea-Bissau 5	5.468	530	Honduras 6	110.651	3870
Haiti 1	0	1180	Canada 2	0	36220	Uganda 3	0.917	1140	Bosnia and Herzegovina 4	452	8620	Comoros 5	5.141	1170	Haiti 6	101.097	1180
Israel 1	0	27450	Denmark 2	0	37280	Algeria 3	0	7940	Jamaica 4	449	7360	Romania 5	3.512	13500	Syrian Arab Republic 6	98.425	4350
Italy 1	0	30250	Finland 2	0	35660	Argentina 3	0	14020	Lebanon 4	444	10880	Dominica 5	3.158	8300	Peru 6	88.132	7980
Japan 1	0	35220	France 2	0	34400	Austria 3	0	37680	Panama 4	404	11650	Mauritania 5	2.973	1990	Mexico 6	85.485	14270
Korea, Republic of 1	0	28120	Germany 2	0	35940	Belgium 3	0	34760	Uzbekistan 4	354	2660	Congo, Republic of 5	1.862	3090	Bolivia 6	85.051	4140
Netherlands 1	0	41670	Hong Kong, China 2	0	43960	Benin 3	0	1460	Paraguay 4	348	4820	São Tomé and Principe 5	0.001	1780	Argentina 6	81.147	14020

			Timor-Leste 2	0	4690	Libya 3	0.000	15630	Estonia 4	31	19280	Brazil 5	0.000	10070	Gambia 6	46.855	1280
			Tonga 2	0	3880	Madagascar 3	0.000	1040	Slovenia 4	29	26910	Brunei Darussalam 5	0.000	50820	Cambodia 6	44.552	1820
			Turkey 2	0	13770	MALI 3	0.000	1090	Lithuania 4	28	18210	Bulgaria 5	0.000	11950	Bhutan 6	43.352	4880
			Turkmenistan 2	0	6210	Mozambique 3	0.000	770	St, Lucia 4	24	9190	Cambodia 5	0.000	1820	Sierra Leone 6	42.502	750
			Tuvalu 2	0		Netherlands 3	0.000	41670	Belize 4	23	6040	Canada 5	0.000	36220	Chad 6	41.941	1160
			United Kingdom 2	0	36130	Niger 3	0.000	680	Chad 4	23	1160	Cape Verde 5	0.000	3450	Eritrea 6	40.016	630
			United States 2	0	46970	Norway 3	0.000	58500	Grenada 4	17	8060	Chad 5	0.000	1160	Lesotho 6	38.755	2000
			Vanuatu 2	0	3940	Portugal 3	0.000	22080	St, Kitts and Nevis 4	17	15170	Chile 5	0.000	13270	Colombia 6	37.442	8510
						Rwanda 3	0.000	1010	Swaziland 4	17	5010	China 5	0.000	6020	Central African Republic 6	36.959	730
						Sao Tome & principe 3	0.000	4340	Turkmenistan 4	15	6210	Colombia 5	0.000	8510	Cote d'Ivoire 6	35.280	1580
						SAUDI ARABIA 3	0.000	23320	Barbados 4	14		Congo, Democratic Republic of the 5	0.000	290	Swaziland 6	32.723	5010
						Sierra Leone 3	0.000	750	St, Vincent and the Grenadines 4	10	8770	Costa Rica 5	0.000	10950	Paraguay 6	31.769	4820
						Spain 3	0.000	31130	Namibia 4	8	6270	Croatia 5	0.000	18420	Somalia 6	31.464	
						Sweden 3	0.000	38180	Armenia 4	5	6310	Cyprus 5	0.000	24160	Uruguay 6	30.281	12540
						Switzerland 3	0.000	46460	Lesotho 4	4	2000	Czech Republic 5	0.000	22790	Togo 6	28.172	820
						Togo 3	0.000	820	Dominica 4	2	8300	Denmark 5	0.000	37280	Angola 6	27.666	5020
						United Kingdom 3	0.000	36130	Fiji 4	2	4270	Ecuador 5	0.000	7760	Georgia 6	26.412	4850
						United States of America 3	0.000	46970	Afghanistan 4	0	1080	Egypt 5	0.000	5460	Cape Verde 6	23.639	3450
									Angola 4	0	5020	El Salvador 5	0.000	6670	Lebanon 6	23.309	10880
									Australia 4	0	34040	Equatorial Guinea 5	0.000	21700	Congo 6	22.374	3090

									Austria 4	0	37680	Eritrea 5	0.000	630	Sao Tome and Principe 6	22.071	1780
									Bahamas, The 4	0		Estonia 5	0.000	19280	Mongolia 6	21.981	3480
									Bahrain 4	0	32290	Ethiopia 5	0.000	870	Dominican Republic 6	20.800	7890
									Bangladesh 4	0	1440	Fiji 5	0.000	4270	Romania 6	19.888	13500
									Belgium 4	0	34760	Finland 5	0.000	35660	The Former Yugoslav Republic of Macedonia 6	18.858	8490
									Benin 4	0	1460	France 5	0.000	34400	Mauritius 6	18.685	12480
									Bhutan 4	0	4880	Gabon 5	0.000	12270	Maldives 6	17.472	5280
									Bolivia 4	0	4140	Germany 5	0.000	35940	Cuba 6	16.970	
									Botswana 4	0	13100	Ghana 5	0.000	1430	Liberia 6	16.327	300
									Brunei Darussalam 4	0	50820	Greece 5	0.000	28470	Costa Rica 6	14.836	10950
									Burkina Faso 4	.	1160	Guatemala 5	0.000	4690	Gabon 6	13.782	12270
									Burundi 4	.	380	Guyana 5	0.000	2510	Guyana 6	13.670	2510
									Cambodia 4	.	1820	Honduras 5	0.000	3870	Kenya 6	11.383	1580
									Canada 4	.	36220	India 5	0.000	2960	Equatorial Guinea 6	9.293	21700
									Cape Verde 4	.	3450	Indonesia 5	0.000	3830	Guinea-Bissau 6	8.207	530
									Central African Republic 4	.	730	Iran, Islamic Republic of 5	0.000	10965.4625	Tonga 6	7.758	3880
									Comoros 4	.	1170	Iraq 5	0.000		Djibouti 6	7.156	2330
									Congo, Democratic Republic of 4	.	290	Ireland 5	0.000	37350	Namibia 6	6.736	6270
									Congo, Republic of 4	.	3090	Israel 5	0.000	27450	Comoros 6	6.707	1170
									Cyprus 4	0	24160	Italy 5	0.000	30250	Papua New Guinea 6	6.257	2000

									Czech Republic 4	0	22790	Jamaica 5	0.000	7360	Grenada 6	5.213	8060
									Denmark 4	0	37280	Japan 5	0.000	35220	Belize 6	4.919	6040
									Djibouti 4	0	2330	Jordan 5	0.000	5530	Dominica 6	4.654	8300
									Equatorial Guinea 4	0	21700	Kazakhstan 5	0.000	9690	Solomon Islands 6	4.040	2580
									Eritrea 4	0	630	Kenya 5	0.000	1580	Saint Vincent and the Grenadines 6	2.380	8770
									Ethiopia 4	0	870	Kiribati 5	0.000	3660	Saint Lucia 6	1.992	9190
									Finland 4	0	35660	Korea 5	0.000	28120	Seychelles 6	1.322	19770
									France 4	0	34400	Kosovo 5	0.000		Algeria 6	0.983	7940
									Gambia, The 4	.	1280	Kuwait 5	0.000	53480	Afghanistan 6	0.00	1080
									Georgia 4	.	4850	Lao People's Democratic Republic 5	0.000	2040	Antigua and Barbuda 6	0.000	20570
									Germany 4	.	35940	Lesotho 5	0.000	2000	Austria 6	0.000	37680
									Ghana 4	.	1430	Libyan Arab Jamahiriya 5	0.000	15630	Bahamas 6	0.000	
									Greece 4	.	28470	Lithuania 5	0.000	18210	Barbados 6	0.000	
									Guinea 4	0	1190	Luxembourg 5	0.000	64320	Belgium 6	0.000	34760
									Guinea-Bissau 4	0	530	Macedonia, former Yugoslav Republic of 5	0.000	9950	Botswana 6	0.000	13100
									Guyana 4	0	2510	Malaysia 5	0.000	13740	Canada 6	0.000	36220
									Haiti 4	0	1180	Maldives 5	0.000	5280	Chile 6	0.000	13270
									Honduras 4	0	3870	Malta 5	0.000	20580	Cook Islands 6	0.000	
									Iceland 4	0	25220	Marshall Islands 5	0.000		Croatia 6	0.000	18420
									Iraq 4	0		Mauritius 5	0.000	12480	Cyprus 6	0.000	24160

									Ireland 4	0	37350	Mexico 5	0.000	14270	Denmark 6	0.000	37280
									Israel 4	0	27450	Micronesia, Federated States of 5	0.000	3000	Fiji 6	0.000	4270
									Italy 4	0	30250	Mongolia 5	0.000	3480	Finland 6	0.000	35660
									Japan 4	0	35220	Montenegro 5	0.000	13920	France 6	0.000	34400
									Kenya 4	0	1580	Morocco 5	0.000	4330	Germany 6	0.000	35940
									Kiribati 4	0	3660	Mozambique, Republic of 5	0.000	770	Greece 6	0.000	28470
									Kuwait 4	0	53480	Myanmar 5	0.000		Iceland 6	0.000	25220
									Kyrgyz Republic 4	0	2140	Namibia 5	0.000	6270	Iran 6	0.000	10965.4625
									Lao People's Democratic Republic 4	0	2040	Nepal 5	0.000	1120	Iraq 6	0.000	
									Liberia 4	0	300	Netherlands 5	0.000	41670	Ireland 6	0.000	37350
									Libya 4	0	15630	New Zealand 5	0.000	25090	Israel 6	0.000	27450
									Luxembourg 4	0	64320	Nigeria 5	0.000	1940	Italy 6	0.000	30250
									Madagascar 4	0	1040	Norway 5	0.000	58500	Jamaica 6	0.000	7360
									Malawi 4	0	830	Oman 5	0.000	22170	Japan 6	0.000	35220
									Maldives 4	0	5280	Palau 5	0.000		Kiribati 6	0.000	3660
									Mali 4	0	1090	Panama 5	0.000	11650	Kuwait 6	0.000	53480
									Malta 4	0	20580	Papua New Guinea 5	0.000	2000	Kyrgyzstan 6	0.000	2140
									Marshall Islands 4	0		Paraguay 5	0.000	4820	Libyan Arab Jamahiriya 6	0.000	15630
									Mauritania 4	0	1990	Peru 5	0.000	7980	Luxembourg 6	0.000	64320
									Micronesia, Federated States of 4	0	3000	Philippines 5	0.000	3900	Malaysia 6	0.000	13740

									Mongolia 4	0	3480	Poland 5	0.000	17310	Malta 6	0.000	20580
									Mozambique 4	0	770	Portugal 5	0.000	22080	Marshall Islands' 6	0.000	
									Myanmar 4	0		Qatar 5	0.000		Myanmar 6	0.000	
									Nepal 4	0	1120	Russian Federation 5	0.000	15630	Netherlands 6	0.000	41670
									Netherlands 4	0	41670	Rwanda 5	0.000	1010	New Zealand 6	0.000	25090
									New Zealand 4	0	25090	St, Kitts and Nevis3 5	0.000	15170	Niue 6	0.000	
									Nicaragua 4	0	2620	St, Lucia 5	0.000	9190	Norway 6	0.000	58500
									Niger 4	0	680	St, Vincent and the Grenadines 5	0.000	8770	Oman 6	0.000	22170
									Norway 4	0	58500	Samoa 5	0.000	4340	Portugal 6	0.000	22080
									Oman 4	0	22170	San Marino 5	0.000		Qatar 6	0.000	
									Palau 4	0		Saudi Arabia 5	0.000	23320	Republic of Korea 6	0.000	28120
									Portugal 4	0	22080	Serbia 5	0.000	11150	Saint Kitts and Nevis 6	0.000	15170
									Qatar 4	0		Seychelles 5	0.000	19770	Samoa 6	0.000	4340
									Rwanda 4	0	1010	Singapore 5	0.000	47940	Saudi Arabia 6	0.000	
									Samoa 4	0	4340	Slovak Republic 5	0.000	21300	South Africa 6	0.000	9780
									San Marino 4	0		Slovenia 5	0.000	26910	Spain 6	0.000	31130
									São Tomé and Principe 4	0	1780	Solomon Islands 5	0.000	2580	Suriname 6	0.000	7130
									Saudi Arabia 4	0	23320	Somalia 5	0.000		Sweden 6	0.000	38180
									Senegal 4	0	1760	South Africa 5	0.000	9780	Switzerland 6	0.000	46460
									Seychelles 4	0	19770	Spain 5	0.000	31130	Tajikistan 6	0.000	1860

									Sierra Leone 4	0	750	Sri Lanka 5	0.000	4460	Thailand 6	0.000	5990		
									Singapore 4	0	47940	Sudan 5	0.000	1930	Timor-Leste 6	0.000	4690		
									Solomon Islands 4	0	2580	Suriname 5	0.000	7130	Trinidad and Tobago 6	0.000	23950		
									Somalia 4	0		Swaziland 5	0.000	5010	United Arab Emirates 6	0.000			
									South Africa 4	0	9780	Sweden 5	0.000	38180	United Kingdom 6	0.000	36130		
									Spain 4	0	31130	Switzerland 5	0.000	46460	United States 6	0.000	46970		
									Sri Lanka 4	0	4460	Syrian Arab Republic 5	0.000	4350					
									Sudan 4	0	1930	Tajikistan 5	0.000	1860					
									Sweden 4	0	38180	Tanzania 5	0.000	1230					
									Switzerland 4	0	46460	Thailand 5	0.000	5990					
									Syrian Arab Republic 4	0	4350	Timor-Leste 5	0.000	4690					
									Tajikistan 4	0	1860	Togo 5	0.000	820					
									Tanzania 4	0	1230	Tonga 5	0.000	3880					
									Timor-Leste 4	0	4690	Trinidad and Tobago 5	0.000	23950					
									Togo 4	0	820	Tunisia 5	0.000	7070					
									Tonga 4	0	3880	Turkmenistan 5	0.000	6210					
									Uganda 4	0	1140	Uganda 5	0.000	1140					
									United Arab Emirates 4	0		United Arab Emirates 5	0.000						
									United Kingdom 4	0	36130	United Kingdom 5	0.000	36130					
									United States 4	0	46970	United States 5	0.000	46970					
									Vanuatu 4	0	3940	Uruguay 5	0.000	12540					
									Venezuela, República Bolivariana de 4	0	12830	Uzbekistan 5	0.000	2660					
									Vietnam 4	0	2700	Vanuatu 5	0.000	3940					
									Yemen, Republic of 4	0	2210	Venezuela, República Bolivariana de 5	0.000	12830					
									Zambia 4	0	1230	Vietnam 5	0.000	2700					
												Yemen, Republic of 5	0.000	2210					
												Zimbabwe 5	0.000						

International Civil Aviation Organization (ICAO)	Expenditures	gni/hab	UN for population (UNFPA)	Expenditures	gni/hab	UN for High Commissioner Refugees (UNHCR)	Expenditures	gni/hab	UNICEF	Expenditures	gni/hab	UN for Industrial Dvp Organization	Expenditures	gni/hab
ARGENTINA 7	10.570	14020	Sudan 8	30.684	1930	Syrian Arab Republic 9	130.6697	4350	Nigeria 10	50.9868	1940	Sudan 11	7042.257	1930
BRAZIL 7	10.010	10070	Malawi 8	14.333	830	Sudan 9	105.8687	1930	Democratic Republic of the Congo 10	47.5725	290	Mozambique 11	4176.363	770
GUATEMALA 7	6.674	4690	Mozambique 8	13.904	770	Chad 9	95.3492	1160	India 10	40.725	2960	United Republic of Tanzania 11	1807.392	1230
PANAMA 7	6.62	11650	Democratic Republic of the Congo 8	12.689	290	Kenya 9	72.4743	1580	Ethiopia 10	30.03975	870	Senegal 11	1496.862	1760
PERU 7	4.56	7980	Nigeria 8	12.617	1940	Congo, Democratic Republic of the 9	71.8394	290	Bangladesh 10	17.445946	1440	Rwanda 11	1319.71	1010
LEBANON 7	2.770	10880	Ethiopia 8	9.673	870	Afghanistan 9	68.539	1080	United Republic of Tanzania 10	17.16866667	1230	Yemen 11	1211.668	2210
BOLIVIA 7	2.483	4140	India 8	9.162	2960	Jordan 9	52.3893	5530	Niger 10	16.9344	680	Angola 11	1097.262	5020
AFGHANISTAN 7	1.340	1080	Burundi 8	8.922	380	United Republic of Tanzania 9	42.6485	1230	Uganda 10	16.07791325	1140	Mali 11	633.364	1090
PHILIPPINES 7	1.32485644	3900	Peru 8	8.744	7980	Iraq 9	41.4773		China 10	15.25875	6020	Ethiopia 11	553.766	870
DEMOCRATIC REPUBLIC OF THE CONGO 7	0.696	290	Zimbabwe 8	8.599		Uganda 9	36.6355	1140	Mali 10	14.96	1090	Haiti 11	549.942	1180
SEYCHELLES 7	0.606234619	19770	Bangladesh 8	8.483	1440	Burundi 9	36.2401	11950	Pakistan 10	14.3415	2700	Congo 11	432.66	3090
ETHIOPIA 7	0.527	870	Chad 8	8.258	1160	Ethiopia 9	33.7096	870	Myanmar 10	13.0958115		Afghanistan 11	416.236	1080
GREECE 7	0.523	28470	Afghanistan 8	8.097	1080	Liberia 9	26.3503	300	Madagascar 10	11.63066667	1040	Lao People's Democratic Republic 11	399.557	2040
SOUTH AFRICA 7	0.479081214	9780	Uganda 8	7.88	7210	Serbia 9	21.7514	11150	Burkina Faso 10	10.8799275	1160	Zambia 11	327.157	1230
SYRIAN ARAB REPUBLIC 7	0.423297785	4350	Pakistan 8	7.719	2700	Pakistan 9	20.2346	2700	Kenya 10	10.317375	1580	Burundi 11	324.482	380
IRAQ 7	0.386		Côte d'Ivoire 8	7.627	1580	Colombia 9	18.2121	8510	Chad 10	10.203734	1160	Cambodia 11	297.325	1820
EQUATORIAL GUINEA 7	0.359	21700	Viet Nam 8	7.378	2700	Somalia 9	17.2511		Sudan 10	10.14233333	1930	Bhutan 11	229.263	4880
REPUBLIC OF KOREA 7	0.351107465	28120	Kenya 8	6.933	1580	Yemen 9	17.0767	2210	Nepal 10	10.107	1120	Niger 11	216	680
COSTA RICA 7	0.285	10950	China 8	6.765	6020	Iran, Islamic Republic of 9	16.8344	10965.46254	Afghanistan 10	10.0563	1080	Liberia 11	208.446	300

BOTSWANA 7	0.266	13100	Myanmar 8	6.72		Myanmar 9	15.2217		Malawi 10	10.048	830	Timor-Leste 11	199.815	4690
CHINA 7	0.210	6020	Nepal 8	6.708	1120	Sri Lanka 9	14.8763	4460	Rwanda 10	9.84375	1010	Bangladesh 11	197.093	1440
LITHUANIA 7	0.180	18210	Cambodia 8	6.461	1820	Thailand 9	13.7224	5990	Sierra Leone 10	9.7365	750	Sierra Leone 11	173.683	750
GABON 7	0.151	12270	Sierra Leone 8	6.065	750	South Africa 9	13.6473	9780	Mozambique 10	9.4805	770	Uganda 11	156.695	1140
INDIA 7	0.141	2960	Liberia 8	6.037	300	Russian Federation 9	12.5262	15630	Angola	8.625	5020	Guinea 11	140.011	1190
ECUADOR 7	0.129	7760	Indonesia 8	5.465	3830	Nepal 9	12.0155	1120	Argentina 10	8.625	14020	Benin 11	106.097	1460
NAMIBIA 7	0.116	6270	Niger 8	5.434	680	Zambia 9	10.504	1230	Somalia 10	8.465		Nepal 11	103.51	1120
FIJI 7	0.114	4270	Haiti 8	5.431	1180	Lebanon 9	10.2804	10880	Zambia 10	8.000666667	1230	Eritrea 11	92.398	630
LESOTHO 7	0.112	2000	Nicaragua 8	5.229	2620	Cameroon 9	9.4899	2180	Burundi 10	7.8075	380	Malawi 11	83.487	830
PAKISTAN 7	0.109926169	2700	Burkina Faso 8	5.163	1160	China 9	9.34	6020	Côte d'Ivoire 10	7.785	1580	Sao Tome and Principe 11	66	1780
EGYPT 7	0.094	5460	United Republic of Tanzania 8	5.068	1230	Algeria 9	8.5775	7940	Pacific Islands 10	6.875		Madagascar 11	49.112	1040
ANGOLA 7	0.080	5020	Philippines 8	5.014	3900	Côte d'Ivoire 9	8.5304	1580	Indonesia 10	6.625	3830	Djibouti 11	36.486	2330
HAITI 7	0.066	1180	Occupied Plestinian Territory 8	5.01		Egypt 9	8.3235	5460	Eastern Caribbean Islands 10	6.4		Burkina Faso 11	5.336	1160
URUGUAY 7	0.055783429	12540	Rwanda 8	4.727	1010	Mauritania 9	8.1186	1990	Cambodia 10	6.17075	1820	Solomon Islands	1.097	2580
ICELAND 7	0.045	25220	Turkey 8	4.517	13770	Turkey 9	7.6324	13770	Yemen 10	6.00875	2210	Gambia 11	0.107	1280
NICARAGUA 7	0.04	2620	Madagascar 8	4.406	1040	Ecuador 9	7.1779	7760	Ghana 10	5.9702265	1430	Albania 11	0	7950
DOMINICAN REPUBLIC 7	0.026	7890	Guatemala 8	4.402	4690	Guinea 9	7.0389	8060	Benin 10	5.776875	1460	Algeria 11	0	7940
CAPE VERDE 7	0.021	3450	Zambia 8	4.268	1230	Malaysia 9	6.8983	13740	Viet Nam 10	5	2700	Argentina 11	0	14020
MYANMAR 7	0.020		Ghana 8	3.922	1430	Senegal 9	6.7404	1760	Liberia 10	4.7125	300	Armenia 11	0	6310
TRINIDAD AND TOBAGO 7	0.02	23950	Caribbean, English- and Dutch - Speaking 8	3.895		Sierra Leone 9	6.6065	750	Guinea 10	4.51675	1190	Austria 11	0	37680

AUSTRIA 7	0.000	37680	Pacific Island Countries 8	2.569		Indonesia 9	3.3694	3830	Mauritania 10	1.6235	1990	Costa Rica 11	0	10950
AZERBAIJAN 7	0.000	7770	Bolivia 8	2.503	4140	Venezuela 9	3.3302	12830	Bolivia 10	1.6175	4140	Côte d'Ivoire 11	0	1580
BAHRAIN 7	0.000	32290	Cameroon 8	2.406	2180	Croatia 9	3.3132	18420	Congo 10	1.4085	3090	Croatia 11	0	18420
BANGLADESH 7	0.000	1440	Timor-Leste 8	2.264	4690	Western Sahara 9	3.2948		Algeria 10	1.3525	7940	Cuba 11	0	
BELARUS 7	0.000	12150	Morocco 8	2.228	4330	Ukraine 9	3.1632	7210	South Africa 10	1.329333333	9780	Cyprus 11	0	24160
BELGIUM 7	0.000	34760	Ukraine 8	2.18	7210	Japan 9	3.1308	35220	Azerbaijan 10	1.3205	7770	Czech Republic 11	0	22790
BELIZE 7	0.000	6040	Eritrea 8	2.113	630	Hungary 9	3.1076	17790	Lesotho 10	1.2925	2000	Democratic People's Republic of Korea 11	0	
BENIN 7	0.000	1460	Georgia 8	2.049	4850	Costa Rica 9	3.0741	10950	Timor-Leste 10	1.26575	4690	Democratic Republic of the Congo 11	0	290
BHUTAN 7	0.000	4880	Namibia 8	1.93	6270	The fYR of Macedonia 9	2.8478	9950	Kazakhstan 10	1.26425	9690	Denmark 11	0	37280
BRUNEI DARUSSALAM 7	0.000	50820	Sri Lanka 8	1.742	4460	Malawi 9	2.7619	830	Turkey 10	1.26125	13770	Dominica 11	0	8300
BULGARIA 7	0.000	11950	Botswana 8	1.716	13100	France 9	2.673	34400	Thailand 10	1.25	5990	Dominican Republic 11	0	7890
BURKINA FASO 7	0.000	1160	Dominican Republic 8	1.711	7890	Montenegro 9	2.6109	13920	Gambia 10	1.2175	1280	Ecuador 11	0	7760
BURUNDI 7	0.000	380	Equatorial Guinea 8	1.708	21700	Namibia 9	2.6072	6270	Bhutan 10	1.2075	4880	Egypt 11	0	5460
CAMEROON 7	0.000	2180	Togo 8	1.708	820	Saudi Arabia 9	2.5874	23320	Russian Federation 10	1.20125	15630	El Salvador 11	0	6670
CANADA 7	0.000	36220	Uruguay 8	1.676	12540	Germany 9	2.5642	35940	Turkmenistan 10	1.20067075	6210	Equatorial Guinea 11	0	21700
CENTRAL AFRICAN REPUBLIC 7	0.000	720	Papua New Guinea 8	1.649	2000	Armenia 9	2.4639	6310	Ukraine 10	1.19375	7210	Fiji 11	0	4270
CHAD 7	0.000	1160	Thailand 8	1.627	5990	United Arab Emirates 9	2.3432		Brazil 10	1.155	10070	Finland 11	0	35660
CHILE 7	0.000	13270	South Africa 8	1.603	9780	Gabon 9	2.2507	12270	Syrian Arab Republic 10	1.15125	4350	France 11	0	34400

CUBA 7	0.014		Central African Republic 8	3.816	730	Ghana 9	6.6	1430	Cameroon 10	4.415	2180	Azerbaijan 11	0	7770
BARBADOS 7	0.013		Mauritania 8	3.774	1990	Bangladesh 9	6.5916	1440	Togo 10	4.0125	820	Bahamas 11	0	
CAMBODIA 7	0.013	1820	Yemen Arab Republic 8	3.718	2210	Congo 9	6.2004	3090	Occupied Palestinian Territory 10	4		Bahrain 11	0	32290
LAO PEOPLE'S DEMOCRACTIC REPUBLIC 7	0.011	2040	Colombia 8	3.707	8510	Rwanda 9	6.1333	1010	Senegal 10	3.95625	1760	Barbados 11	0	
GUINEA 7	0.006	1190	Democratic People's Republic of Korea 8	3.703		Bosnia and Herzegovina 9	5.9428	8620	Philippines 10	3.3115	3900	Belarus 11	0	12150
YEMEN 7	0.01	2210	Mali 8	3.697	1090	Central African Republic 9	5.9122	720	Egypt 10	3.29875	5460	Belgium 11	0	34760
CYPRUS 7	0.005	24160	Iraq 8	3.644		Georgia 9	5.5974	4850	Uzbekistan 10	3.22660625	2660	Belize 11	0	6040
OMAN 7	0.00	22170	Senegal 8	3.41	1760	Angola 9	4.6645	5020	Armenia 10	3	6310	Bolivia 11	0	4140
LATVIA 7	0.002	16740	Syrian Arab Republic 8	3.369	4350	Mozambique 9	4.3585	770	Central African Republic 10	2.89125	720	Bosnia and Herzegovina 11	0	8620
BAHAMAS 7	0.002		Benin 8	3.088	1460	India 9	4.2231	2960	Iraq 10	2.812		Botswana 11	0	13100
MOZAMBIQUE 7	0.002	770	Guinea 8	2.995	1190	Italy 9	4.1425	30250	Zimbabwe 10	2.77875		Brazil 11	0	10070
JORDAN 7	0.001	5530	Egypt 8	2.859	5460	Argentina 9	4.0238	14020	Tajikistan 10	2.714	1230	Bulgaria 11	0	11950
LIBYAN ARAB JAMAHIRIYA 7	0.001	15630	Brazil 8	2.745	10070	Botswana 9	4.0235	13100	Democratic People's Republic of Korea 10	2.4144635		Cameroon 11	0	2180
SRI LANKA 7	0.00	4460	Mexico 8	2.736	14270	Djibouti 9	3.9827	2330	Lao People's Democratic Republic 10	2.23375	2040	Cape Verde 11	0	3450
ALBANIA 7	0.000	7950	Guinea-Bissau 8	2.714	530	Eritrea 9	3.9542	630	Eritrea 10	2.23125	630	Central African Republic 11	0	730
ALGERIA 7	0.000	7940	Honduras 8	2.711	3870	United States of America 9	3.8141	46970	Guinea-Bissau 10	2.05625	530	Chad 11	0	1160
ANDORRA 7	0.000		Angola 8	2.702	5020	Belgium 9	3.5637	34760	Haiti 10	2.0412	1180	Chile 11	0	13270
ANTIGUA AND BARBUDA 7	0.000	20570	Somalia 8	2.611		Brazil 9	3.4766	10070	Islamic Republic of Iran 10	2.0075035	10965.46254	China 11	0	6020
ARMENIA 7	0.000	6310	Congo 8	2.587	3090	Azerbaijan 9	3.4239	7770	Papua New Guinea 10	1.7875	2000	Colombia 11	0	8510
AUSTRALIA 7	0.000	34040	Mongolia 8	2.579	3480	Nigeria 9	3.4069	1940	Morocco 10	1.675	4330	Comoros 11	0	1170

AUSTRIA 7	0.000	37680	**Pacific Island Countries 8**	2.569		**Indonesia 9**	3.3694	3830	**Mauritania 10**	1.6235	1990	**Costa Rica 11**	0	10950
AZERBAIJAN 7	0.000	7770	**Bolivia 8**	2.503	4140	**Venezuela 9**	3.3302	12830	**Bolivia 10**	1.6175	4140	**Côte d'Ivoire 11**	0	1580
BAHRAIN 7	0.000	32290	**Cameroon 8**	2.406	2180	**Croatia 9**	3.3132	18420	**Congo 10**	1.4085	3090	**Croatia 11**	0	18420
BANGLADESH 7	0.000	1440	**Timor-Leste 8**	2.264	4690	**Western Sahara 9**	3.2948		**Algeria 10**	1.3525	7940	**Cuba 11**	0	
BELARUS 7	0.000	12150	**Morocco 8**	2.228	4330	**Ukraine 9**	3.1632	7210	**South Africa 10**	1.329333333	9780	**Cyprus 11**	0	24160
BELGIUM 7	0.000	34760	**Ukraine 8**	2.18	7210	**Japan 9**	3.1308	35220	**Azerbaijan 10**	1.3205	7770	**Czech Republic 11**	0	22790
BELIZE 7	0.000	6040	**Eritrea 8**	2.113	630	**Hungary 9**	3.1076	17790	**Lesotho 10**	1.2925	2000	**Democratic People's Republic of Korea 11**	0	
BENIN 7	0.000	1460	**Georgia 8**	2.049	4850	**Costa Rica 9**	3.0741	10950	**Timor-Leste 10**	1.26575	4690	**Democratic Republic of the Congo 11**	0	290
BHUTAN 7	0.000	4880	**Namibia 8**	1.93	6270	**The fYR of Macedonia 9**	2.8478	9950	**Kazakhstan 10**	1.26425	9690	**Denmark 11**	0	37280
BRUNEI DARUSSALAM 7	0.000	50820	**Sri Lanka 8**	1.742	4460	**Malawi 9**	2.7619	830	**Turkey 10**	1.26125	13770	**Dominica 11**	0	8300
BULGARIA 7	0.000	11950	**Botswana 8**	1.716	13100	**France 9**	2.673	34400	**Thailand 10**	1.25	5990	**Dominican Republic 11**	0	7890
BURKINA FASO 7	0.000	1160	**Dominican Republic 8**	1.711	7890	**Montenegro 9**	2.6109	13920	**Gambia 10**	1.2175	1280	**Ecuador 11**	0	7760
BURUNDI 7	0.000	380	**Equatorial Guinea 8**	1.708	21700	**Namibia 9**	2.6072	6270	**Bhutan 10**	1.2075	4880	**Egypt 11**	0	5460
CAMEROON 7	0.000	2180	**Togo 8**	1.708	820	**Saudi Arabia 9**	2.5874	23320	**Russian Federation 10**	1.20125	15630	**El Salvador 11**	0	6670
CANADA 7	0.000	36220	**Uruguay 8**	1.676	12540	**Germany 9**	2.5642	35940	**Turkmenistan 10**	1.20067075	6210	**Equatorial Guinea 11**	0	21700
CENTRAL AFRICAN REPUBLIC 7	0.000	720	**Papua New Guinea 8**	1.649	2000	**Armenia 9**	2.4639	6310	**Ukraine 10**	1.19375	7210	**Fiji 11**	0	4270
CHAD 7	0.000	1160	**Thailand 8**	1.627	5990	**United Arab Emirates 9**	2.3432		**Brazil 10**	1.155	10070	**Finland 11**	0	35660
CHILE 7	0.000	13270	**South Africa 8**	1.603	9780	**Gabon 9**	2.2507	12270	**Syrian Arab Republic 10**	1.15125	4350	**France 11**	0	34400
COMOROS 7	0.000	1170	**Lao People's Democratic Republic 8**	1.571	2040	**Mexico 9**	2.234	14270	**Mongolia 10**	1.13375	3480	**Gabon 11**	0	12270
CONGO 7	0.000	3090	**Paraguay 8**	1.56	4820	**Zimbabwe 9**	2.1604		**Peru 10**	1.125	7980	**Georgia 11**	0	4850

COOK ISLANDS 7	0.000		Iran 8	1.512	10965.46254	Kazakhstan 9	2.1545	9690	Honduras 10	1.12375	3870	Germany 11	0	35940
COTE D'IVOIRE 7	0.000	1580	Lebanon 8	1.462	10880	United Kingdom 9	2.0967	36130	Colombia 10	1.1125	8510	Ghana 11	0	1430
CROATIA 7	0.000	18420	El Salvador 8	1.447	6670	Israel 9	1.7979	27450	Kyrgyzstan 10	1.1124	2140	Greece 11	0	28470
CZECH REPUBLIC 7	0.000	22790	Cape Verde 8	1.437	3450	Sweden 9	1.7137	38180	Maldives 10	1.101	5280	Grenada 11	0	8060
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA 7	0.000		Romania 8	1.43	13500	Canada 9	1.709	36220	Nicaragua 10	1.04	2620	Guatemala 11	0	4690
DENMARK 7	0.000	37280	Ecuador 8	1.362	7760	Libyan Arab Jamahiriya 9	1.5931	15630	Sri Lanka 10	1	4460	Guinea-Bissau 11	0	530
EL SALVADOR 7	0.000	6670	Azerbaijan 8	1.299	7770	Kyrgyzstan 9	1.5622	2140	Djibouti 10	0.9875	2330	Guyana 11	0	2510
ERITREA 7	0.000	630	Lesotho 8	1.272	2000	Morocco 9	1.5601	4330	Swaziland 10	0.93875	5010	Honduras 11	0	3870
ESTONIA 7	0.000	19280	Swaziland 8	1.267	5010	Benin 9	1.4534	1460	Paraguay 10	0.9325	4820	Hungary 11	0	17790
FRANCE 7	0.000	34400	Venezuela 8	1.18	12830	Belarus 9	1.4482	12150	Comoros 10	0.92875	1170	India 11	0	2960
GAMBIA 7	0.000	1280	Gambia 8	1.169	1280	Cambodia 9	1.2406	1820	Equatorial Guinea 10	0.92	21700	Indonesia 11	0	3830
GEORGIA 7	0.000	4850	Uzbekistan 8	1.162	2660	Panama 9	1.2042	11650	Republic of Montenegro 10	0.9015	13920	Iran 11	0	10965.4625
GERMANY 7	0.000	35940	Bhutan 8	1.138	4880	Australia 9	1.1794	34040	Republic of Moldova 10	0.89875	3210	Iraq 11	0	
GHANA 7	0.000	1430	Cuba 8	1.023		New Zealand 9	1.1794	25090	Dominican Republic 10	0.87625	7890	Ireland 11	0	37350
GRENADA 7	0.000	8060	Armenia 8	1.001	6310	Poland 9	1.0139	17310	Bulgaria 10	0.871333333	11950	Israel 11	0	27450
GUINEA-BISSAU 7	0.000	530	Gabon 8	0.991	12270	Papua New Guinea 9	1.0089	2000	El Salvador 10	0.87	6670	Italy 11	0	30250
GUYANA 7	0.000	2510	Tajikistan 8	0.979	1860	Republic of Korea 9	1.0077	28120	Romania 10	0.84925	13500	Jamaica 11	0	7360
HONDURAS 7	0.000	3870	Panama 8	0.955	11650	Austria 9	0.9559	37680	Albania 10	0.84375	7950	Japan 11	0	35220
HUNGARY 7	0.000	17790	Kosovo 8	0.885		Greece 9	0.9434	28470	Georgia 10	0.8425	4850	Jordan 11	0	5530
INDONESIA 7	0.000	3830	Kyrgyzstan 8	0.869	2140	Spain 9	0.9305	31130	Guyana 10	0.83625	2510	Kazakhstan 11	0	9690

IRAN 7	0.000	10965.46254	**Comoros 8**	0.866	1170	**Viet Nam 9**	0.9064	2700	**Jordan 10**	0.83375	5530	**Kenya 11**	0	1580
IRELAND 7	0.000	37350	**Djibouti 8**	0.848	2330	**Romania 9**	0.8807	13500	**Namibia 10**	0.83375	6270	**Kiribati 11**	0	3660
ISRAEL 7	0.000	27450	**Oman 8**	0.845	22170	**Turkmenistan 9**	0.8676	6210	**Tunisia 10**	0.83	7070	**Kuwait 11**	0	53480
ITALY 7	0.000	30250	**Turkmenistan 8**	0.797	6210	**Cyprus 9**	0.8457	24160	**Cape Verde 10**	0.825	3450	**Kyrgyzstan 11**	0	2140
JAMAICA 7	0.000	7360	**Albania Iceland 8**	0.74	7950	**Tajikistan 9**	0.8156	1230	**Sao Tome and Principe 10**	0.825	1780	**Lebanon 11**	0	10880
JAPAN 7	0.000	35220	**Kazakhstan 8**	0.718	9690	**Bulgaria 9**	0.7734	11950	**Belarus 10**	0.815	12150	**Lesotho 11**	0	2000
KAZAKHSTAN 7	0.000	9690	**Republic of Korea 8**	0.672	28120	**Albania 9**	0.7627	7950	**Guatemala 10**	0.8019	4690	**Libyan Arab Jamahiriya 11**	0	15630
KENYA 7	0.000	1580	**Sao Tome and Principe 8**	0.653	1780	**Switzerland 9**	0.7505	46460	**Jamaica 10**	0.79125	7360	**Lithuania 11**	0	18210
KIRIBATI 7	0.000	3660	**Costa Rica 8**	0.641	10950	**Ireland 9**	0.7373	37350	**Cuba 10**	0.79		**Luxembourg 11**	0	64320
KUWAIT 7	0.000	53480	**Argentina 8**	0.636	14020	**Moldova 9**	0.617	3210	**Mexico 10**	0.785	14270	**Malaysia 11**	0	13740
KYRGYZSTAN 7	0.000	2140	**Tunisia 8**	0.514	7070	**Slovakia 9**	0.5268	21300	**Gabon 10**	0.76875	12270	**Maldives 11**	0	5280
LIBERIA 7	0.000	300	**Maldives 8**	0.513	5280	**Tunisia 9**	0.465	7070	**Belize 10**	0.765	6040	**Malta 11**	0	20580
LUXEMBOURG 7	0.000	64320	**Jordan 8**	0.509	5530	**Togo 9**	0.4612	820	**The former Yugoslav Republic of Macedonia 10**	0.765	9950	**Mauritania 11**	0	1990
MADAGASCAR 7	0.000	1040	**Republic of Moldova 8**	0.478	3210	**Czech Republic 9**	0.364	22790	**Bosnia and Herzegovina 10**	0.75	8620	**Mauritius 11**	0	12480
MALAWI 7	0.000	830	**Bosnia and Herzegovina 8**	0.474	8620	**Mongolia 9**	0.3448	3480	**Costa Rica 10**	0.75	10950	**Mexico 11**	0	14270
MALAYSIA 7	0.000	13740	**Belarus 8**	0.453	12150	**Timor-Leste 9**	0.2765	4690	**Malaysia 10**	0.75	13740	**Monaco 11**	0	
MALDIVES 7	0.000	5280	**Malaysia 8**	0.408	13740	**Cuba 9**	0.2675		**Ecuador 10**	0.6903	7760	**Mongolia 11**	0	3480
MALI 7	0.000	1090	**Algeria 8**	0.307	7940	**Philippines 9**	0.2014	3900	**Venezuela 10**	0.675	12830	**Montenegro 11**	0	13920
MALTA 7	0.000	20580	**Bulgaria 8**	0.257	11950	**Slovenia 9**	0.1843	26910	**Serbia and Montenegro 10**	0.672	11150	**Morocco 11**	0	4330
MARSHALL ISLANDS 7	0.000		**Chile 8**	0.204	13270	**Malta 9**	0.1192	20580	**Botswana 10**	0.63	13100	**Namibia 11**	0	6270

MAURITANIA 7	0.000	1990	**Serbia 8**	0.158	11150	**Uzbekistan 9**	0.1	2660	**Uruguay 10**	0.625	12540	**Netherlands 11**	0	41670
MAURITIUS 7	0.000	12480	**The former Yugoslav Republic of Macedonia 8**	0.155	8490	**Mali 9**	0.0963	1090	**Lebanon 10**	0.6	10880	**New Zealand 11**	0	25090
MICRONESIA 7	0.000	3000	**Seychelles 8**	0.087	19770	**Gambia 9**	0.0712	1280	**Panama 10**	0.5	11650	**Nicaragua 11**	0	2620
MONACO 7	0.000		**Mauritius 8**	0.083	12480	**Portugal 9**	0.045	22080	**Chile 10**	0.4874915	13270	**Nigeria 11**	0	1940
MONGOLIA 7	0.000	3480	**Poland 8**	0.016	17310	**Chile 9**	0	13270	**Australia 10**	0	34040	**Norway 11**	0	58500
MONTENEGRO 7	0.000	13920	**Andorra 8**	0		**Denmark 9**	0	37280	**Canada 10**	0	36220	**Oman 11**	0	22170
MOROCCO 7	0.000	4330	**Antigua and Barbuda 8**	0	20570	**Finland 9**	0	35660	**Denmark 10**	0	37280	**Pakistan 11**	0	2700
NAURU 7	0		**Australia 8**	0	34040	**Kuwait 9**	0	53480	**Finland 10**	0	35660	**Panama 11**	0	11650
NEPAL 7	0	1120	**Austria 8**	0	37680	**Luxembourg 9**	0	64320	**France 10**	0	34400	**Papua New Guinea 11**	0	2000
NETHERLANDS 7	0	41670	**Bahamas 8**	0		**Netherlands 9**	0	41670	**Germany 10**	0	35940	**Paraguay 11**	0	4820
NEW ZEALAND 7	0	25090	**Bahrain 8**	0	32290	**Norway 9**	0	58500	**Ireland 10**	0	37350	**Peru 11**	0	7980
NIGER 7	0	680	**Barbados 8**	0		**Singapore 9**	0	47940	**Italy 10**	0	30250	**Philippines 11**	0	3900
NORWAY 7	0	58500	**Belgium 8**	0	34760				**Japan 10**	0	35220	**Poland 11**	0	17310
PALAU 7	0		**Belize 8**	0	6040				**Luxembourg**	0	64320	**Portugal 11**	0	22080
PAPUA NEW GUINEA 7	0	2000	**Canada 8**	0	36220				**Netherlands 10**	0	41670	**Qatar 11**	0	
PARAGUAY 7	0	4820	**Cook Islands 8**	0					**Norway 10**	0	58500	**Republic of Korea 11**	0	28120
POLAND 7	0	17310	**Croatia 8**	0	18420				**Spain 10**	0	31130	**Republic of Moldova 11**	0	3210
PORTUGAL 7	0	22080	**Cyprus**	0	24160				**Sweden 10**	0	38180	**Romania 11**	0	13500
QATAR 7	0		**Czech Republic 8**	0	22790				**Switzerland 10**	0	46460	**Russian Federation 11**	0	15630
REPUBLIC OF MOLDOVA 7	0	3210	**Denmark 8**	0	37280				**United Arab Emirates 10**	0		**Saint Kitts and Nevis 11**	0	15170

RUSSIAN FEDERATION 7	0	15630	**Estonia 8**	0	19280				**United Kingdom 10**	0	36130	**Saint Lucia 11**	0	9190
RWANDA 7	0	1010	**Fiji 8**	0	4270				**United States 10**	0	46970	**Saint Vincent and the Grenadines 11**	0	8770
SAINT KITTS & NEVIS 7	0	15170	**Finland 8**	0	35660							**Samoa 11**	0	4340
SAINT LUCIA 7	0	9190	**France 8**	0	34400							**Saudi Arabia 11**	0	
SAINT VINCENT AND THE GRENADINES 7	0	8770	**Germany 8**	0	35940							**Serbia 11**	0	11150
SAMOA 7	0	4340	**Greece 8**	0	28470							**Seychelles 11**	0	19770
SAN MARINO 7	0		**Grenada 8**	0	8060							**Slovakia 11**	0	21300
SAO TOME AND PRINCIPE 7	0	1780	**Guyana 8**	0	2510							**Slovenia 11**	0	26910
SENEGAL 7	0	1760	**Hungary 8**	0	17790							**Somalia 11**	0	
SERBIA AND MONTENEGRO 7	0	11150	**Iceland 8**	0	25220							**South Africa 11**	0	9780
SIERRA LEONE 7	0	750	**Ireland 8**	0	37350							**Spain 11**	0	31130
SLOVAKIA 7	0	21300	**Israel 8**	0	27450							**Sri Lanka 11**	0	4460
SLOVENIA 7	0	26910	**Italy 8**	0	30250							**Suriname 11**	0	7130
SOLOMON ISLANDS 7	0	2580	**Jamaica 8**	0	7360							**Swaziland 11**	0	5010
SOMALIA 7	0		**Japan 8**	0	35220							**Sweden 11**	0	38180
SPAIN 7	0	31130	**Kuwait 8**	0	53480							**Switzerland 11**	0	46460
SUDAN 7	0	1930	**Latvia 8**	0	16740							**Syrian Arab Republic 11**	0	4350
SURINAME 7	0	7130	**Liechtenstein 8**	0								**Tajikistan 11**	0	1860
SWAZILAND 7	0	5010	**Luxembourg 8**	0	64320							**Thailand 11**	0	5990
SWEDEN 7	0	38180	**Marshall Islands 8**	0								**The former Yugoslav Rep, of Macedonia 11**	0	9950

SWITZERLAND 7	0	46460	Micronesia 8	0	3000							Togo 11	0	820	
TAJIKISTAN 7	0	1230	Montenegro 8	0	13920							Tonga 11	0	3880	
THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA 7	0	9950	Netherlands 8	0	41670							Trinidad and Tobago 11	0	23950	
TIMOR-LESTE 7	0	4690	New Zealand 8	0	25090							Tunisia 11	0	7070	
TOGO 7	0	820	Norway 8	0	58500							Turkey 11	0	13770	
TONGA 7	0	3880	Portugal 8	0	22080							Turkmenistan 11	0	6210	
TUNISIA 7	0	7070	Qatar 8	0								Tuvalu	0		
TURKEY 7	0	13770	Russian Federation 8	0	15630							Ukraine 11	0	7210	
TURKMENISTAN 7	0	6210	Saint Kitts and Nevis 8	0	15170							United Arab Emirates 11	0		
UGANDA 7	0	1140	Saint Lucia 8	0	9190							United Kingdom 11	0	36130	
UKRAINE 7	0	7210	Saint Vincent and the Grenadines 8	0	8770							United States of America 11	0	46970	
UNITED ARAB EMIRATES 7	0		Samoa 8	0	4340							Uruguay 11	0	12540	
UNITED KINGDOM 7	0	36130	Saudi Arabia 8	0								Uzbekistan 11	0	2660	
UNITED REPUBLIC OF TANZANIA 7	0	1230	Singapore 8	0	47940							Vanuatu 11	0	3940	
UNITED STATES OF AMERICA 7	0	46970	Slovak Republic 8	0	21300							Venezuela 11	0	12830	
UZBEKISTAN 7	0	2660	Slovenia 8	0	26910							Vietnam 11	0	2700	
VANUATU 7	0	3940	Solomon Islands 8	0	2580							Zimbabwe 11	0		
VENEZUELA 7	0	12830	Spain 8	0	31130							Myanmar 11	-0.015		
VIET NAM 7	0	2700	Suriname 8	0	7130										
ZAMBIA 7	0	1230	Sweden 8	0	38180										
ZIMBABWE 7	0		Switzerland 8	0	46460										
FINLAND 7	0.000	35660	Tonga 8	0	3880										
MEXICO 7	0.000	14270	Trinidad and Tobago 8	0	23950										
THAILAND 7	0.000	5990	Tuvalu	0	1140										
SINGAPORE 7	0.000	47940	United Kingdom 8	0	36130										
ROMANIA 7	0.000	13500	Vanuatu 8	0	3940										

Sommaire

Abstract:

"IMPACT OF THE VOTING STRUCTURE ON THE FUNCTIONING AND PERFORMANCE OF INTERNATIONAL ORGANIZATIONS"

Empirical studies and literature on the impact of voting structure in international organizations within public choice theory are very scarce. Therefore, this thesis attempts to examine more closely the impact of the voting structure on the functioning and performance of international organizations. The analysis in this research is, first, empirical, and second, positive. The latter allow us to understand how organizations actually function and react (and Lecaillon Lafay, 1993).

We show that the redistribution of contributions and expenditures in 'one-nation, one-vote' inter-governmental organizations is from rich to poor and middle classes, while there is less redistribution in terms of contributions in 'weighted voting' inter-governmental organizations. However, the redistribution of loans in weighted voting organizations is more spread among income classes. Thus, on the one hand, 'one-nation, one-vote' organizations perform better than 'weighted voting' organizations in terms of contributions and in accordance with the principle of' 'fairness' based on 'capacity to pay' of member states. On the other hand, in terms of loans and expenditures, 'one-nation, one-vote' organizations and 'weighted voting' organizations are both effective relatively to the nature of their voting structure and their missions or activities.

Keywords: International organizations, structure of vote, loans, expenditures, public choice, performance.

Résumé :

Les études et les travaux empiriques consacrés à l'impact de la structure du vote dans les organisations internationales dans le cadre de la théorie des choix publics sont très rares. Par conséquent, cette thèse s'attache à étudier de plus près l'impact de la structure du vote sur le fonctionnement et les performances des organisations internationales. L'analyse dans ce travail de recherche se veut, en premier lieu, empirique et en second lieu, positive. Cette dernière nous permettra de comprendre comment les organisations internationales réellement fonctionnent et réagissent (Lafay et Lecaillon, 1993).

Nous avons montré que les organisations inter-gouvernementales avec une structure de vote 'un pays – une voix' assurent une redistribution, en termes de contributions et de dépenses, des riches vers les pauvres et la classe moyenne, tandis que la redistribution en termes de contributions est moindre dans les organisations inter-gouvernementales à 'vote pondéré'. Toutefois, la redistribution des prêts dans les organisations à 'vote pondéré' s'avère plus répartie parmi les classes de revenu. Ainsi, d'une part, les organisations avec une structure de vote 'un pays – une voix' sont plus performantes que les organisations à 'vote pondéré' en termes de contributions et conformément au principe 'd'équité' fondée sur la 'capacité de payer' des pays membres. D'autre part, en termes de prêts et dépenses, les organisations avec une structure de vote 'un pays – une voix' et à 'vote pondéré' sont aussi performantes les unes que les autres par rapport à la nature de leur structure de vote et de leurs activités ou missions.

Descripteurs: Organisations internationales, structure de vote, prêts, dépenses, choix publics, performance.