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# Aid policy in transition economies: impact on growth and migration

Monica Beuran

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# THÈSE

Pour obtenir le grade de
Docteur de l'Université de Paris I
Discipline: Sciences Economiques

# Politiques d'aide dans les pays en transition: l'impact sur la croissance et la migration

Présentée et soutenue publiquement le 14 Janvier 2010 par

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*Cette thèse est dédiée*
*à la mémoire de ma mère*

# Abbreviations and Acronyms

| | |
|---|---|
| CEECs | Central and Eastern European Countries |
| CIS | Commonwealth of Independent States |
| CMEA | Council for Mutual Economic Assistance |
| EBRD | European Bank for Reconstruction and Development |
| EC | European Commission |
| ECB | European Central Bank |
| EDA | Effective Development Assistance |
| EU | European Union |
| FDI | Foreign Direct Investments |
| FGLS | Feasible Generalized Least Squares |
| GLS | Generalized Least Squares |
| GMM | Generalized Method of Moments |
| GDP | Gross Domestic Product |
| GNP | Gross National Product |
| IMF | International Monetary Fund |
| MDGs | Millennium Development Goals |
| NGOs | Non-Governmental Organizations |
| OA | Official Assistance |
| ODA | Official Development Assistance |
| OECD | Organisation for Economic Co-operation and Development |
| OLS | Ordinary Least Squares |
| PCA | Principal Component Analysis |
| PCD | Policy coherence for Development |
| M2 | Broad Money |
| SEE | South-Eastern Europe |
| 3SLS | Three Stages Least Squares |
| WB | World Bank |
| WDI | World Development Indicators |

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# Résumé

Le développement durable stimulé par une croissance auto-entretenue et qui, de par sa nature, garantirait le recul de la pauvreté de façon substantielle, est un thème qui a reçu beaucoup d'attention dans des cercles de réflexion, autant dans les milieux académiques que politiques, et occupe une place importante sur la liste des priorités d'actions-cibles dans l'orientation des politiques économiques pensées par les pays développés. L'aide est considérée comme un outil qui permet de promouvoir le développement durable et de lutter contre la pauvreté et les inégalités ; c'est ainsi un important instrument de la politique de développement implémentée par les économies développées vis-à-vis des économies en développement.

La conviction commune que l'aide, en tant que source additionnelle de financement pour les pays pauvres (pays récipiendaires qui manquent de ressources domestiques et dont l'accès aux marchés internationaux de capitaux est limité et coûteux) permet à ces pays d'obtenir un niveau suffisamment élevé de fonds d'investissements qui, à leur tour, stimulent la croissance, a dominé le discours international sur le développement. Les supporteurs de l'aide (Sachs, Stiglitz, Stern) mettent en avant les succès de l'aide dans les cas des pays comme Botswana, Indonésie, Corée, Tanzanie ou Mozambique (Radelet, 2006). Lorsque l'aide fait partie d'une stratégie cohérente de développement impliquant une coopération étroite entre les pays développés et les pays en développement, et lorsqu'elle est déployée de manière efficace, elle est porteuse d'effets durables sur le développement. Cette stratégie exige la mise en place par les pays développés d'un mix de politiques relatives à l'aide, au commerce, à l'investissement et à la migration, en accord avec les objectives de développement. Elle exige en même temps que les pays en développement multiplient leurs efforts pour améliorer la qualité de leurs politiques et institutions, dont notamment la qualité de la gouvernance.

Il s'avère néanmoins que l'expérience négative des pays pauvres qui n'ont réalisés que des maigres progrès en dépit des montants important d'aide reçus (e.g. le Tchad, la République Démocratique de Congo, la Somalie, et de nombreux pays d'Asie de Sud) a

remis en question le bien-fondé de l'aide (Radelet, 2006). Les critiques de l'aide (Friedman, Bauer, Easterly, Ditchter) soutiennent que l'aide a été souvent contre-productive car elle a contribué à enrichir les élites au pouvoir, peu soucieuses de la redistribution des montants reçus. D'autres voix expliquent les échecs de l'aide par le fait que les donneurs privilégient leurs intérêts stratégiques, politiques et commerciaux, plutôt que les besoins des pays receveurs.

Pour comprendre comment l'aide est devenue un outil important de la politique de développement, le chapitre préliminaire de cette thèse présente une synthèse des questions liées à l'histoire de l'aide depuis sa formalisation en tant que concept dans la littérature. Le chapitre propose un historique de l'aide publique au développement et esquisse la dynamique évolution de son rôle, de ses objectifs et des implications de politique économique, au cours du demi-siècle dernier. La deuxième partie du chapitre est consacrée aux questions méthodologiques (définitions et mesures de l'aide) et aussi aux faits stylisés sur l'évolution en termes de flux ainsi que sa répartition géographique, avec un accent mis sur les pays de l'Europe de l'Est.

Les objectifs de l'aide ont évolué au fil du temps sous l'effet conjoint de changements d'orientation économique et de la transformation des enjeux géopolitiques. Les analyses de l'historique de l'évolution de l'aide (Riddell, 1987; Krueger, Michalopoulos et Ruttan, 1989; Schulpen et Hoebink, 1998; Thorbecke 2000) permettent d'identifier plusieurs phases durant lesquelles l'aide internationale a soutenu des objectifs différents.

Ainsi, l'origine de l'aide internationale remonte à la période coloniale, période pendant laquelle elle répondait principalement à la logique d'intérêts particuliers (économiques et politiques) des "Métropoles". Dans sa forme moderne, le concept d'aide tire ses origines du *Plan Marshall* mis en oeuvre après la seconde guerre mondiale. Le contexte était tel que les pays détruits par la guerre avaient besoin de reconstruire leurs économies, et l'aide internationale était considérée comme un instrument financier permettant de dégager des flux nécessaires au développement économique des pays récipiendaires. Les motivations des donneurs étaient fondamentalement d'ordre moral, et dans une moindre mesure politiques où économiques. Néanmoins, la priorité n'était toujours pas donnée au pays en développement, mais aux pays occidentaux. Le *Plan Marshall* a été un succès et a conforté la conviction que l'aide pourrait contribuer à la transformation rapide des économies bénéficiaires.

Les stratégies de développement des années cinquante et soixante se sont ainsi tournées vers les pays en développement et ont été alors centrées sur la croissance économique considérée comme le résultat de la modernisation par l'investissement et l'accumulation du capital et de l'épargne. Le rôle de l'aide dans ce contexte était d'alimenter l'investissement

et de combler ainsi l'écart entre une épargne domestique insuffisante et l'épargne nécessaire à la croissance[1]. Dans les années soixante, les priorités de l'activité économique telles que l'industrialisation par la planification économique, la nationalisation et la substitution aux importations[2] apparaissent progressivement insuffisantes au développement économique.

Les années soixante-dix ont été caractérisées par l'hétérogénéité des objectifs de l'aide au développement. S'ajoutant au tout premier objectif, celui de la croissance économique des pays en développement, la réduction de la pauvreté par la lutte contre les inégalités et la satisfaction des besoins de base devient une priorité des stratégies de développement et entraîne une nouvelle perception du rôle de l'aide internationale. Cependant, plusieurs approches ont orienté les stratégies d'aide au développement: (i) une approche reliant la croissance et la redistribution des revenus (Chenery et al., 1974) et s'appuyant sur la mise en place d'un système de transferts vers les plus pauvres; (ii) l'approche dite des "besoins fondamentaux"[3] avec l'idée d'une nécessité de redistribuer, dans une certaine mesure, les dotations initiales et de mettre en place des changements structurels (Thorbecke 2000); (iii) une approche fondée sur une redistribution des terres favorisant ainsi l'adoption d'un modèle collectiviste. A cette période, le financement des projets dans le développement rural, l'agriculture, l'éducation et la santé devenait une priorité pour les donneurs bilatéraux et multilatéraux.

L'émergence des crises de la dette et les déficits des balances de paiements survenus au début des années quatre-vingt dans les économies développées ont eu pour conséquences des répercussions importantes sur les politiques économiques des pays en développement. La mise en oeuvre des réformes de stabilisation macroéconomique et d'ajustement structurel devenait l'objectif principal des politiques économiques visant à atteindre l'équilibre macroéconomique. Dans ce contexte, le rôle de l'aide d'une part, était de soutenir la dette publique, et d'autre part, de contribuer à la mise en place des politiques macroéconomiques et d'ajustement structurel appropriées. L'objectif de l'aide internationale changeait donc fondamentalement dans les années quatre-vingt. C'est dans ce cadre que le concept de conditionnalité apparut en imposant aux pays bénéficiaires des conditions pour d'allocation de l'aide. Généralement, cette conditionnalité était associée à l'aide multilatérale provenant des organisations internationales, telles que le Fond Monétaire International (FMI), la Banque Mondiale ou les banques de développement - la Banque

[1]Rostow (1956), dans sa théorie des "étapes de la croissance économique" identifie plusieurs étapes du développement économique: les sociétés traditionnelles, les sociétés ayant atteint les pré-conditions au décollage, le décollage, la phase de maturité, et la société de consommation.

[2]Il s'agit pour les pays dont l'économie est dépendante des importations (des produits manufacturés) de les sustituer à une production nationale en mettant en place de barrières tarifaires ou non tarifaires.

[3]Les besoins qualifiés de fondamentaux sont: (i) un minimum de consommation vitale (alimentaire, habillement); (ii) des services sociaux proposés à la communauté dans son ensemble, tels que l'accès à l'eau potable, aux soins médicales et à l'éducation.

interaméricaine de développement (BID), la Banque africaine de développement (BAfD), etc. Néanmoins, tout donneur bilatéral était libre d'imposer, dans une certaine mesure, ses propres conditions à l'allocation de l'aide.

De plus, la conjoncture défavorable à l'aide internationale qui s'était installée suite aux crises économiques et aux contraintes budgétaires auxquelles étaient confrontés la plupart des donneurs, a conduit, au début des années quatre-vingt-dix, à une réduction assez importante des flux d'aides vers les pays en développement. Notamment, c'est sur le fond de cette diminution des montants d'aide fournis que le débat sur l'efficacité de l'aide internationale a été relancé par la Banque Mondiale dans le rapport "Assessing Aid" (1998). Fondé sur les travaux de Brurnside et Dollar (2000), la Banque Mondiale s'est montrée ouverte à l'idée selon laquelle l'efficacité de l'aide du point de vue de la croissance économique dépendait de la qualité des politiques économiques menées dans les pays receveurs. Par conséquent, si l'aide au développement se révélait plus efficace dans les économies ayant mis en place de bonnes politiques économiques, alors ces pays devaient être récompensés par des montants plus élevés d'aide. L'efficacité de l'aide est devenue ainsi une priorité pour les bailleurs de fonds. Le concept de conditionnalité de l'aide a été embrassé par la communauté internationale, donnant ainsi naissance au concept de sélectivité qui consiste à cibler l'aider vers les pays susceptibles à l'utiliser de manière plus efficace.

Néanmoins, cette approche n'a pas été exempte de critiques. En premier lieu il convient de rappeler les critiques portant sur la restriction du champ des facteurs déterminant l'efficacité de l'aide à seulement trois, à savoir l'inflation, la balance budgétaire et l'ouverture commerciale (Lensink et White 2000). D'autres facteurs, tels que la vulnérabilité des pays bénéficiaires aux chocs externes, les conflits et les situations de post-conflit (Chauvet et Guillaumont 2001) devraient occuper aussi une place importante dans une analyse en terme d'efficacité de l'aide sur la croissance. Il est important de signaler également les critiques liées aux imprécisions méthodologiques. Ainsi, la spécification économétrique a été considérée inappropriée et les résultats manquer de robustes (Hanse et Tarp, 2000, 2001). La validité des résultats a apparu sensible à l'inclusion ou l'omission des observations (Roodman, 2003; Easterly et al., 2003; Jensen et Paldam, 2003).

Le milieu des années quatre-vingt-dix a apporté du nouveau dans le débat sur l'impact de l'aide sur la croissance économique avec la prise en compte de la qualité institutionnelle des récipiendaires dans l'analyse de l'efficacité de l'aide (Durbarry, Gemmell et Greenaway 1998 ; Hansen et Tarp 2000, 2001). Puisque la mauvaise qualité des institutions et un cadre réglementaire inadéquat sont des facteurs qui peuvent nuire à la croissance et à la bonne gestion du développement, ils sont également susceptibles d'affecter l'usage des ressources

financières reçues. La question de la "bonne gouvernance" devient ainsi une préoccupation des bailleurs de fonds.

Cependant, si les questions d'aide au développement n'ont pendant longtemps concerné que les pays en développement, la chute du mur de Berlin s'est traduit par une réorientation des flux d'aide vers de nouveaux bénéficiaires, tels que les pays d'Europe Centrale et Orientale (PECO) et la Communauté d'Etats Indépendants (CEI). Le succès du *Plan Marshall* dans la restructuration des économies détruites par la seconde guerre mondiale a amené la communauté internationale à l'idée qu'un *Plan Marshall pour les économies en transition* pouvait être l'instrument nécessaire pour mener à bien leur transformation en économies de marché. La mise en oeuvre de cette transformation a été recommandée par les organisations économiques internationales impliquées dans les recommandations de politiques économiques, i.e. la Banque Mondiale et le FMI. Ces institutions ont abouti au *Consensus de Washington*[4] qui s'appuyait sur des réformes de stabilisation macroéconomique, libéralisation et privatisation. Si un consensus existait quant à la nécessité des réformes, il y avait néanmoins un débat sur la manière de les mettre en place. Deux points de vue ont alors émergés: *la thérapie de choc* et *le gradualisme*. La thérapie de choc consistait à entreprendre toutes les réformes à un rythme accéléré et de façon simultanée. En revanche, le gradualisme recommandait une mise en place des réformes non toutes simultanément comme le prônait la thérapie de choc, mais par étapes, afin de prendre en compte l'héritage du passé et ne pas conduire à l'effondrement de l'économie plutôt qu'à sa restructuration (Andreff, 2007). Dans la pratique, les programmes mis en place étaient souvent un mélange de ces deux types de stratégies. Plus tard l'orientation des politiques économiques a été portée vers la dimension institutionnelle et les changements structurels (*le consensus post-Washington*).

Dans ce contexte de transformation, l'héritage du communisme ne permettait pas de dégager les flux financiers pour mener les changements nécessaires afin de bâtir la structure de l'économie de marché. En plus des flux d'investissement directs étrangers (IDE) ou d'autres flux financiers privés dont ces économies ont pu bénéficier, l'aide représentait une source importante de financement. L'aide reçue était donc principalement destinée à soutenir la mise en place de reformes vouées à libéraliser, privatiser et stabiliser, ainsi qu'à la création de nouvelles institutions et réglementations. De plus, les déséquilibres survenus tout au long du processus de transformation, tel que le déclin de la production et la hausse de l'inflation, la dépréciation des monnaies domestiques, des déficits budgétaires impor-

[4]Les mesures du *Consensus de Washington* étaient les suivantes: (1) discipline budgétaire; (2) réorientation des dépenses publiques vers les activités à haut rendement et vers une meilleure répartition des revenus; (3) réforme fiscale; (4) libéralisation des taux d'intérêt; (5) taux de change compétitif; (6) libéralisation du commerce; (7) libéralisation des investissements étrangers entrants; (8) privatisation; (9) déréregulation; (10) protection des droits de propriété.

tants et la détérioration des conditions sociales, nécessitaient également des programmes de stabilisation et d'ajustement structurel. Plusieurs acteurs se sont ainsi impliqués dans la transformation, l'assistance fournie à ces pays étant caractérisée par une grande diversité de bailleurs bilatéraux et multilatéraux. L'aide bilatérale émanait principalement des donneurs membres du Comité d'Aide au Développement (CAD) de l'Organisation de Coopération et le Développement Economiques (OCDE), alors que l'aide multilatérale provenait de l'Union Européenne (UE), et des organisations internationales telles que la Banque Mondiale, le FMI, la Banque Européenne d'Investissement (BEI) ou encore la Banque Européenne pour la Reconstruction et le Développement (BERD), cette dernière ayant été spécialement créée en 1991 pour soutenir la transition.

Il convient de signaler que l'aide a été assez inégalement répartie. Les PECO ont pu bénéficier, dans le contexte de l'élargissement de l'UE, de flux plus importants par rapport à la CEI, notamment en matière d'aide multilatérale. En effet le processus de réunification par l'intégration des PECO dans l'UE nécessitait une solidarité de la part des membres de l'UE qui s'est reflétée dans l'assistance fournie. Cette aide était perçue comme un mécanisme efficace permettant d'acquérir les capacités nécessaires pour satisfaire les critères économiques et politiques qui découlent du statut de membre de l'UE en devenir. L'aide à la préadhésion a été fournie par le biais de plusieurs instruments. Le tout premier instrument était le programme PHARE d'assistance aux reformes et à la transition en Pologne et Hongrie. Si à l'origine il concernait uniquement ces deux pays, il a été étendu plus tard à l'ensemble des PECO pour y soutenir la restructuration économique et les préparer pour l'adhésion à l'UE. Par la suite, à partir des années 2000, le programme PHARE a été complété par d'autres programmes: ISPA - l'instrument structurel de préadhésion relatif à l'environnement et aux transports et SAPARD - l'instrument agricole de préadhésion pour le développement rural et la reprise de *l'acquis communautaire* dans l'agriculture[5]. Pour la CEI, l'aide de l'UE a été délivrée dans le programme TACIS, visant à favoriser la transition vers l'économie de marché et renforcer la démocratie et l'État de droit.

La perspective d'intégration dans l'UE et du soutien prévu à cette fin ont eu beaucoup d'effet sur la transformation institutionnelle des PECO. La nécessité pour les PECO d'harmoniser leurs institutions avec celles des membres de l'UE, i.e. l'adoption de *l'acquis communautaire* a soutenu encore plus l'orientation de leurs politiques économiques dans sa dimension institutionnelle. C'est cette préparation qui a été déterminante dans la transformation institutionnelle des PECO, alors que, dans le processus de transformation de la CEI ce facteur institutionnel constituait un élément manquant. Cela explique dans

[5]Pour la période 2007-2013 ces trois instruments ont été remplacé par l'IAP (instrument d'aide de préadhésion) dont bénéficient les pays candidats des Balkans occidentaux et la Turquie. Cette aide est fournie sur la base des progrès réalisés par les pays bénéficiaires et de leurs besoins

une certaine mesure le retard accumulé par ces pays dans leur chemin vers l'économie de marché.

En revenant à la perspective historique de l'aide, il convient de noter qu'à partir de milieu des années 1990, l'objectif de lutte contre la pauvreté et les inégalités devenait à nouveau l'un des objectifs-clé du processus d'allocation de l'aide publique au développement. L'adoption en 2000 par les Nations Unis des *Objectifs du Millénaire pour le développement* est venue soutenir davantage le but ultime de l'aide, à savoir la réduction de la pauvreté dans les pays en développement. Le tout premier objectif du Millénaire est notamment la réduction à moitié de la population en dessous du seuil de pauvreté[6], à l'horizon de l'an 2015. Les autres objectifs concernent l'établissement d'un niveau d'éducation primaire universel dans tous les pays, où encore, la réduction du taux de mortalité infantile et maternelle, ainsi qu'une meilleure accessibilité aux soins médicaux. Bien que l'aide se soit tournée vers la pauvreté dans sa multidimensionalité, la conditionnalité continuait à dominer le débat sur sor efficacité. Des modèles d'allocation optimale de l'aide qui confère une place centrale à l'objectif de réduction de la pauvreté et qui prennent également en compte la qualité des politiques et institutions ont été proposés dans des travaux empiriques (Collier et Dollar, 1999a, 1999b, 2001, 2002).

La présentation de l'aide dans sa perspective historique a mis en évidence la manière dont les objectifs de l'aide (croissance, stabilisation économique, lutte contre la pauvreté, etc.) se sont successivement modifiés à travers le temps. Elle nous a permis également d'identifier l'importance de la question de conditionnalité dans le débat actuel lié à la problématique de l'aide. Ainsi, nous arrivons à en dégager le champ d'analyse principal exploré à travers cette thèse, à savoir les effets et les déterminants de l'allocation de l'aide. Nous nous interrogeons sur, d'une part, l'efficacité de l'aide qui s'est souvent vue freinée à la fois, par le détournement de ses objectifs suite à une mauvaise gestion dans les pays bénéficiaires et par le manque de consensus politique de la part de donneurs, et, sur, d'autre part, les objectifs de l'aide internationale qui n'ont pas toujours été homogènes.

Le but de cette thèse est d'analyser l'aide internationale dans le cadre de la reconstruction des PECO et de la CEI. Ce sujet complexe est analysé sous trois angles différents, chacun correspondant à un chapitre. Les principales questions de recherche soulevées à travers cette thèse sont les suivantes:

- La qualité des politiques économiques, l'avancement des réformes et les conditions initiales sont-ils des facteurs conditionnant l'efficacité de l'aide en termes de croissance ?

[6]La pauvreté, telle qu'elle est comprise dans les *Objectifs du Millénaire pour le développement*, se réfère à la pauvreté monétaire. Ainsi, est considéré pauvre, toute personne qui doit vivre avec moins d'un dollar par jour.

- L'allocation de l'aide répond-t-elle aux intérêts des donneurs ou aux besoins et performances des récipiendaires ? La gouvernance occupe-t-elle une place importante dans les décisions d'allocation d'aide?
- Y-a-t-il une cohérence des politiques au service du développement en matière d'aide et migration ? L'aide et la migration sont-elles des substituts ou des compléments ?

## Aide, Politiques et Institutions

La première analyse s'inscrit dans l'étude des facteurs déterminants de la relation aide-croissance économique. L'impact de l'aide sur la croissance des économies bénéficiaires représente l'un des thèmes majeurs et fortement débattus dans la littérature autant théorique qu'empirique sur les questions de développement. Notons que trois grands courants de pensée se dégagent des études empiriques: (i) l'aide n'a aucun impact sur la croissance et peut même la freiner (Mosley et al. 1987, 1992; Boone, 1995); (ii) l'aide a généralement un impact positif sur la croissance, mais avec des rendements décroissants (Durbarry et al. 1998; Dalgaard et Hansen, 2000; Hansen et Tarp, 2000, 2001; Lensink et White, 2001; Dalgaard et al. 2004); (iii) la relation entre l'aide et la croissance est conditionnelle ; parmi les facteurs susceptibles d'influencer l'effet de l'aide sur la croissance, la qualité de politiques macroéconomiques est le plus souvent retenue (Hadjimichael et al., 1995; Durbarry et al., 1998; Hansen et Tarp, 1999; Burnside et Dolla, 2000). Selon le concept de conditionnalité, l'aide peut atteindre son objectif seulement si les économies récipiendaires ont mis en place des bonnes politiques économiques. Ce concept prône donc une allocation de l'aide en faveur des pays avec des politiques saines. Mais la conditionnalité ne concerne pas uniquement les politiques économiques; d'autres facteurs ont été identifiés, tels que la vulnérabilité aux chocs externes, les conflits, l'instabilité socio-politique (Chauvet et Guillaumont 1999, 2001) et les situations de post-conflit (Collier et Hoeffler, 2002).

Bien que l'analyse porte sur des pays dépourvus d'histoire longue en tant que récipiendaires d'aide, les données disponibles sont suffisantes pour étudier la question. L'expérience de ces pays permet d'élargir l'horizon de la connaissance sur les questions liées à l'efficacité de l'aide.

Le contexte historique nous place dans une situation où le retournement de l'Ouest européen vers l'Est a changé dans une mesure significative les flux d'aide internationale. Nous avons donc assisté, dans la première moitié des années 1990, à une réorientation des flux d'aide vers les PECO et des ex-républiques Soviétiques. Notre premier chapitre a justement pour vocation d'identifier la contribution de l'aide aux efforts de restructuration et développement de ces pays. Bien que notre analyse se concentre sur tous les pays de

l'ancien bloc communiste, nous perdons pas de vue, que cette région est caractérisée par une forte hétérogéneité, notamment entre les PECO et les ex-républiques Soviétiques. En dépit du fait que l'objectif principal d'allocation de l'aide ait été le même (besoins de restructuration des économies planifiées en vue d'une convergence vers le niveau de développement des économies occidentales), il n'en été pas de même avec les motivations des bailleurs de fonds. Ainsi, les pays pour lesquels l'intégration dans l'UE avait été envisagée, ont bénéficié de montants d'aide plus élevés et d'une assistance technique plus importante, ce qui leur a permis un avancement plus rapide.

Le point de départ de notre analyse est représenté par le débat autour de la question de conditionnalité lancée par Burnside et Dollar (2000) qui prônait une allocation d'aide qui prendrait en compte la qualité de politiques économiques (i.e. inflation, balance budgétaire et ouverture commerciale) menées dans les pays bénéficiaires d'aide. Dans le même esprit, nous estimons l'impact de l'aide sur le taux de croissance tout en prenant en compte la qualité des politiques macroéconomiques, et l'avancement des réformes structurelles et institutionnelles. Une question collatérale surgit: les conditions initiales (au début de la transition) ont-elles favorisé l'impact de l'aide en termes de croissance? De plus, est-ce que l'impact des conditions intiales sur la croissance est stable dans le temps, ou bien il diminue avec le temps?

Afin de trouver une validation empirique de nos hypothèses, nous procédons à l'estimation d'une équation de croissance (voir équation 2.8 p. 48, Chapitre 1). Lorsqu'il s'agit d'une analyse en données de panel dynamique, plusieurs problèmes économétriques nécessitent d'être résolus afin de ne pas obtenir des résultats biaisés. Parmi eux, nous devons d'emblée traiter le problème d'endogénéité des déterminants de la croissance (il peut y avoir une causalité inverse entre la variable d'aide et la croissance économique, ou bien entre les variables de politique économique et des institutions et la croissance). De plus, nous devons faire attention à la présence des facteurs non-observés spécifiques aux pays, facteurs qui se trouvent incorporés dans le terme d'erreurs (e.g. la possible corrélation entre le terme d'erreurs et les variables d'aide, de politique économique et d'institutions). Pour prendre en compte ces deux aspects, la méthode d'estimation la plus appropriée, confirmée aussi par la littérature, est la Méthode des Moments Généralisés. Cette technique utilise des instruments internes qui sont définis à partir des valeurs retardées des variables explicatives endogènes. Cette méthode permet aussi de prendre en compte l'hétéroscédasticité où l'autocorrélation des résidus.

Les données utilisées proviennent d'une base de données, construite à partir de données macroéconomiques harmonisées, telles que la base de données du Commité d'Aide au Développement (OCDE) pour les flux d'aide; la base de données de la BERD pour

les indicateurs de réformes, *Transition Indicators*; et la base de données de la Banque Mondiale, *World Development Indicators*, pour les autres variables. L'échantillon qui fait l'objet de l'analyse est formé de 25 pays en transition[7]. La période d'analyse est comprise entre 1990 et 2004. En 2005 la liste des pays bénéficiaires, "Part II" (pays en transition) a été abolie, puisqu'elle incluait des pays qui sont devenus membres de l'UE au 1er Janvier 2005. Les données sur les flux d'aide de CAD (OCDE) ne sont plus recueillies pour ces pays à partir de 2005.

Les résultats de notre analyse se placent dans le contexte du débat concernant les effets de l'aide sur la croissance économique, débat fondé sur le concept de conditionnalité identifiés dans les travaux de Burnside et Dollar (2000). En plus de la conditionnalité des politiques économiques, sont pris en compte d'autres facteurs, tels que l'avancement des réformes structurelles et institutionnelles, ainsi que les conditions initiales au début de la transition.

Notre étude s'articule au tour de trois hypothèses : (1) l'aide a un impact positif sur la croissance et cet impact positif est conditionné par la présence des politiques macroéconomique efficaces, mais également par la qualité des réformes structurelles et des institutions ; (2) les conditions initiales affectent le développement économique de pays et la manière dont l'aide soutient la croissance économique ; (3) l'aide a un impact positif sur la croissance, mais avec des rendements marginaux décroissants (l'impact positif de l'aide en termes de croissance devient plus faible à partir d'un certain seuil). Afin de tester ces hypothèses nous construisons plusieurs indicateurs. *Policy* - l'indicateur construit à partir de la méthode de Burnside et Dollar (2000), et défini comme la somme des trois indicateurs macroéconomiques, à savoir le taux d'inflation, le balance budgétaire (en % du PIB) et l'ouverture commerciale (taux d'ouverture commerciale ajusté)[8] pondérés par leur impact sur la croissance (les coefficients de pondération sont obtenus à partir d'une équation de croissance, voir le Tableau 2.7 page 69). Deux autres indicateurs, *Structural Policy Reforms* et *Institutional Reforms* sont construits à partir de *Transition Indicators*[9] de la BERD, avec la méthode d'Analyse en Composante Principale. Ces deux indicateurs mesurent l'avancement des réformes vers une économie de marché et donne ainsi une idée de la qualité des institutions.

[7]Les pays de l'Europe Centrale et Orientale: Albanie, Bulgarie, Croatie, République Tchèque, Estonie, Hongrie, Lettonie, Lituanie, Macédoine, Pologne, Roumanie, Slovaquie, Slovénie et les ex-Républiques Soviétique: Arménie, Azerbaïdjan, Biélorussie, Géorgie, Kazakhstan, Kirghizstan, Moldavie, Ouzbékistan, Russie, Tadjikistan, Turkménistan, Ukraine.

[8] La politique d'ouverture est définie comme la part de l'ouverture observée qui n'est pas expliquée par des facteurs structurels. Il s'agit donc de taux d'ouverture observé purgé de tous les facteurs indépendants de la politique, en régressant le taux d'ouverture commerciale observé sur plusieurs facteurs structurels. Plus de détails sont fournit dans l'Annexe du Chapitre 2.

[9]Voir l'encadré dans l'Annexe du Chapitre 2, page 77.

Par la suite, afin de mesurer l'impact de l'aide sur la croissance conditionné par la qualité des politiques macroéconomiques et des institutions, des termes interactifs sont construits : l'aide croisée avec les politiques ($Aid * Policy$), avec le réformes structurelles ($Aid * SPR$) et avec les institutions ($Aid * IR$). Enfin, pour contrôler l'influence des conditions initiales sur l'impact de l'aide en termes de croissance, l'aide est croisée avec l'indicateur de conditions initiales de Falcetti et al. (2005)[10]. Finalement, l'indicateur de conditions initiales est croisé avec une variable *temps* mesurée par le nombre d'années depuis le début de la transition (14 ans pour les PECO et 12 ans pour les CEI[11]) pour vérifier si l'impact des conditions initiales diminue dans le temps, avec l'avancement de la transition; et si c'est le cas, nous vérifions également si celle-là affecte l'éfficacité de l'aide en matière de croissnace.

Ainsi nos résultats montrent l'impact de l'aide sur la croissance dans les pays en transition n'est pas influencé par la qualité des politiques macroéconomiques ou par la qualité des réformes structurelles et institutionnelles mises en place. Nous résultats s'inscrivent ainsi dans la littérature qui ne confirme pas la conditionnalité de l'aide (Hansen and Tarp, 2000; Clemens et al., 2004; Dalgaard et al., 2004). Bien qu'ayant des effets positifs sur la croissance, la qualité des politiques macroéconomiques et des réformes, en revanche, ne semblent pas avoir renforcé l'efficacité de l'aide. L'analyse de l'impact de l'aide en fonction de différences entre les pays bénéficiaires, mesurés par les conditions initiales au début du processus de transformation, met en évidence une corrélation négative entre l'aide et les conditions initiales. Rappelons qu'une valeur élevée (positive) de l'indicateur de conditions initiales ($IC$) traduit des mauvaises conditions intiales. Cela nous amène à en conclure que l'efficacité de l'aide a été plus forte dans les économies avec des conditions initiales mauvaises. Néanmoins, lorsque nous contrôlons pour l'intensité de l'impact des conditions initiales, il ressort qu'elle diminue dans le temps. Plus nous nous éloignons du début de la transition, moins les conditions initiales affectent la croissance, et également l'impact de l'aide en termes de croissance.

## Les déterminants de l'allocation de l'aide

L'anlyse proposée dans le troisième chapitre de la thèse s'inscrit dans l'étude des critères d'allocation de l'aide. Plus précisément, nous analysons si les intérêts particuliers de pays donneurs conditionnent la destination de l'aide prévalant sur les besoins et les

[10]Cet indicateur de conditions initiales est également construit avec la méthode d'Analyse en Composante Principale.

[11]En effet nous supposons que la transition a commencé dans les années 1990 pour les PECO et 1992 pour les CEI.

performances de pays bénéficiaires. En outre, une place importante est accordée dans notre analyse à la qualité de la gouvernance des économies en transition qui tout au long du processus de transition ont été confrontées à la corruption, à des cadres juridiques inadéquates, à des climats d'affaires instables.

Motivée par le débat sur l'efficacité de l'aide sur la croissance lancé par Burnside and Dollar (2000), la question de la "bonne gouvernance" est devenue une préoccupation pour les bailleurs de fonds. Parce que la bonne gouvernance permet la création d'un climat stable et propice à l'activité économique et à la mise en place de politiques économiques efficaces destinées à soutenir le développement économique, elle est considéré comme un signal de la bonne gestion de l'aide. Par contre, les défaillances de la gouvernance, dont la corruption, sont perçues comme pouvant nuire à l'efficacité de l'aide sur la croissance.

La première partie du chapitre propose une revue de la littérature empirique qui tente d'analyser les déterminants de l'allocation de l'aide. Si le débat autour des critères d'allocation de l'aide portait initialement uniquement sur la question d'identifier si l'allocation de l'aide répondait plutôt aux besoins des bénéficiaires ou aux intérêts spécifiques des donneurs (commerciaux, stratégies, politiques), plus tard, les performances économiques des récipiendaires ont été introduites dans le débat. A présent, un large consensus existe sur les motifs justifiant l'allocation de l'aide: (i) les intérêts spécifiques des donneurs (Maizels and Nissanke, 1984; Frey and Schneider, 1986; Gounder, 1994, 1999); (ii) les besoins des bénéficiaires et (iii) les performances des bénéficiaires (Trumbull et Wall, 1994; Apodaca et Stohl, 1999; Svensson, 1999; Alesina et Dollar, 2000; Alesina et Weder, 2002; Kaufmann and Kraay, 2002; Neumayer 2003). Cependant, les études empiriques identifient de différences en ce qui concerne les motivations et les critères d'allocation de différents donneurs. Par exemple, les pays Nordiques ou les Etats Unis accordent plus d'importance, dans leurs décisions d'allocation d'aide, aux besoins et aux performances des pays receveurs (e.g. la pauvreté, l'ouverture) que la France ou le Japon (Alesina et Dollar, 2000; Alesina et Weder, 2002; Berthlémy et Tichit, 2004).

L'objet de cette analyse reste le même que dans le *Chapitre 2*, les 25 pays en transition qui ont fait l'objet de l'analyse de l'efficacité de l'aide; par contre l'horizon temporel change; la période d'analyse est 1996-2004, contrainte par la disponibilité des indicateurs de gouvernance (Kaufmann et al., 2005). La variable dépendante dans cette analyse est le montant d'aide alloué par habitant. L'aide est mesurée comme les engagements[12], et les données proviennent de la base de données du Comité d'Aide au Développement (CAD-OCDE). Pour l'allocation bilatérale les donneurs retenus sont les 22 membres du CAD-

[12]Nous suivons le consensus dans la littérature qui préfère les engagements aux versements d'aide dans une analyse sur les critères d'allocation de l'aide; les engagements reflètent mieux la décision d'allocation des donneurs.

OCDE, tandis que pour l'analyse multilatérale sont considérés les flux d'aide en provenance de la Commission Européenne et de la BERD (les deux bailleurs multilatéraux les plus importants pour la région).

Afin de trouver une réponse empirique à la question précédemment posée, à savoir la place qu'occupent les intérêts des donneurs (commerciaux, politiques, stratégiques), les besoins et mérites (en particulier la gouvernance) des bénéficiaires, quant à l'attribution de l'aide nous utilisons le modèle déterministe d'allocation de l'aide introduit par Dudley and Montmarquette (1976) et étendu plu tard par Trumbull and Wall (1994). Il s'agit d'un modèle basé sur un modèle microéconomique de maximisation de l'utilité qui explique l'allocation bilatérale de l'aide dans une approche en deux étapes: (1) la phase de sélection des bénéficiaires qui correspond à la décision des donneurs d'allouer ou pas l'aide et (2) la phase d'allocation de l'aide qui correspond à une décision concernant le montant d'aide à allouer aux bénéficiaires choisis dans la phase de sélection.

Une première extension que nous faisions à ce modèle consiste à ajouter des variables qui mesurent la qualité de la gouvernance (les indicateurs de Kaufmann et al. (2005), Banque Mondiale). Une deuxième extension est l'introduction, des effets spécifiques donneurs, en plus des effets spécifiques receveurs. En effet, une hypothèse importante dans le modèle de Trumbull and Wall (1994) est que les donneurs accordent, dans leurs décisions d'allocation d'aide, la même importance à chaque pays bénéficiaire de l'aide. Nous considérons cette hypothèse trop stricte, puisque l'importance des bénéficiaires aux yeux de bailleurs de fonds peut être déterminée par les liens historiques, culturels, politiques, stratégiques ou géographiques. Il est vrai que cet aspect peut être contrôlé dans une certaine mesure par l'introduction des variables muettes pour la langue commune, les liens coloniaux, etc. Mais de tels facteurs sont absents dans notre échantillon, puisqu'il s'agit de pays qui n'ont pas vraiment de tels liens. Néanmoins il existe certainement d'autres facteurs (géographiques, politiques) qui doivent être contrôlés et qui ne sont pas pris en compte par les variables explicatives. Pour ces raisons, nous considérons qu'il est approprié d'estimer notre modèle en panel avec des effets fixes donneurs, receveurs et temporels.

Mais, la nature censurée de notre variable expliquée, les flux d'aide bilatéraux (dans le modèle d'allocation bilatérale), nécessite une estimation par une méthode qui permet de contrôler pour le biais de sélection (Neumayer, 2003; Berthélemy et Tichit, 2004; Berthélemy, 2006). La méthode de Heckman nous parait appropriée. Le seul problème est que cette méthode ne permet pas d'introduire des effets fixes dans l'équation de sélection qui est estimée par un Probit (celle-ci induirait le "incidental parameters problem"[13]. Suivant Berthélemy (2006) nous ignorons dans un premier temps le biais potentiel de sélec-

[13]Voir (Greene, 2004)

tion provenant du fait que les critères de sélection pourraient être différents des critères d'allocation de l'aide.

Notre analyse va se focaliser donc seulement sur l'étape d'allocation de l'aide. Ainsi, la première étape de notre analyse consiste à estimer une équation d'allocation de l'aide bilatérale (Voir l'équation 3.5 page 93) à la fois avec la méthode des effets fixes en panel, mais aussi avec la méthode de Heckman, puisque dans notre échantillon le coefficient de corrélation entre les terms d'erreurs des deux équations est de 0.35. La deuxième étape consiste à prendre en compte la nature dynamique de l'allocation de l'aide. Nous faisons ainsi l'hypothèse que l'allocation présente de l'aide dépend de l'allocation passée (la variable expliquée retardée se retrouve parmi les variables explicatives). La méthode d'estimation retenue comme la plus appropriée pour ce type d'analyse est la Méthode de Moments Généralisés. La dernière étape de l'analyse bilatérale se focalise sur les déterminants de l'allocation de l'aide de principaux bailleurs: les Etats Unis, l'Allemagne, le Japon, la France et le Royaume Uni. Pour cette analyse, la variable dépendente n'est pas censurée (ces bailleurs de fonds allouent l'aide à tous les receveurs dans notre échantillon) en conséquence nous appliquons la méthode des effets fixes en panel, avec des effets fixes spécifiques receveurs et des effets temporelles.

La deuxième partie de l'analyse empirique concerne l'allocation de l'aide multilatérale. Pour cette analyse nous considérons uniquement les flux agrégés puisque, comme nous le montrons dans le section 3.3.1, la Commission Européenne et la BERD, les deux bailleurs de fond multilatéraux les plus importants pour les pays de la région, fournissent ensemble en moyenne environ 80-90% de l'aide multilatérale totale; une analyse désagrégée n'a alors pas vraiment d'intérêt. La méthode d'estimation est toujours la méthode des effets fixes en panel, avec des effets fixes receveurs et temporels (la variable dépendante n'est pas censurée, le problème de la sélection des pays bénéficiaires ne se pose pas ici).

Nos résultats suggèrent qu'à la fois les besoins des bénéficiaires et les intérêts de donneurs guident l'allocation bilatérale de l'aide. Il semble que le niveau de développement (mesuré par le PIB par habitant) détermine l'allocation de l'aide. Les besoins sociaux (mesurés ici par le taux de scolarisation dans le secondaire) n'apparaissent pas à influencer l'allocation de l'aide. Mais ce résultat devrait être considéré avec précaution puisqu'il peut être une conséquence de la qualité faible de données (à cause de données manquantes). Quant à la qualité de la gouvernance (mesurée ici les indicateurs de Kaufmann et al., 2005) elle semble aussi influencer l'allocation bilatérale de l'aide[14]. Il ressort ainsi que les bailleurs de fonds récompensent la qualité de la gouvernance, perçue comme une mesure

[14]Des résultats similaires sont obtenus dans l'analyse conjointe de la relation aide-migration qui fait l'objet du *Chapitre 4*.

de la bonne gestion de l'aide. L'analyse bilatérale nous a permis aussi de tester la relation de substitution/complémentarité entre l'allocation d'un donneur en particulier et celle des autres donneurs bilatéraux/multilatéraux. En accord avec les résultats de Berthélemy (2006), il semble qu'un donneur fournit moins d'aide à un certain bénéficiaire si celui-ci reçoit de l'aide de la part des autres donneurs (il y a donc une relation de substitution entre les donneurs bilatéraux). Néanmoins, une relation de complémentarité apparait entre l'allocation bilatérale et multilatérale: un donneur alloue plus d'aide à un certain récipiendaire si celui-ci reçoit de l'aide de la part des bailleurs multilatéraux.

L'analyse de l'allocation multilatérale révèle peu de différences entre les modèles d'allocation bilatérale et multilatérale; la qualité de la gouvernance apparait également comme critère important d'allocation de l'aide pour les donneurs multilatéraux. Bien que par sa nature, l'aide multilatérale soit orientée plus vers les pays receveurs (guidée par les besoins), une question collatérale pourrait être de se demander si l'aide de la part de l'UE (Commission Européenne) dont les PECO ont bénéficié (plus que les CEI), ne répondrait pas également aux intérêts des donneurs, étant donnée que l'objectif ultime de cette aide était l'intégration des bénéficiaires dans l'UE. En absence de cette intégration les PECO serait-ils privilégiés?

## Aide et Migration: substituts ou compléments?

La problématique de l'aide internationale autour de deux axes importantes - l'efficacité et l'allocation de l'aide, nous a amené à comprendre que, bien que l'aide soit un outil important de la politique de développement, elle ne peut pas à elle seule faire des miracles. D'autres mesures prises par les gouvernements des pays développées vis-à-vis des pays en développement peuvent avoir un impact sur la croissance et le développement, et peuvent renforcer l'impact de l'aide. Nous étudions donc dans le dernier chapitre de cette thèse la problématique de la cohérence des politiques au service du développement. Le débat autour de la cohérence des politiques au service du développement implémentées vis-à-vis des pays en développement a émergé récemment dans les pays de l'OCDE. La problématique de la cohérence est en effet apparue suite à l'amplification des interdépendances[15] entre les économies, conséquence de la globalisation.

La nature de la relation entre migration, investissement, commerce et aide constitue une préoccupation pour les économistes, notamment en raison de son importance pour

[15]Rappelons à titre d'exemple que les pays développés de l'OCDE dépendent des pays en développement pour leurs exportations et leur consommation de pétrole ; en même temps, les pays en développement sont liés aux pays développés pour leurs échanges, et particulièrement pour leurs importations de produits de base.

la conception des politiques économiques. Le débat autour de cette relation intéresse notamment les décideurs de politiques économiques puisqu'il vise une implémentation de façon coordonnée des politiques de développement en matière d'aide, de migration, de commerce et d'investissement. Par ailleurs, la cohérence des politiques s'inscrit dans une relation de réciprocité. Les pays développés doivent veiller à ce que leurs politiques n'aient pas d'effets préjudiciables sur les pays pauvres. Et les pays en développement sont tenus à améliorer leur capacité de tirer avantage des politiques économiques des pays développés qui leur sont favorables. En mettant en place de manière coordonnée ces politiques de façon à ce que les objectifs poursuivis et les instruments utilisés pour leur implémentation soient compatibles, l'efficacité de ces politiques augmente et de meilleurs retombées sont obtenues pour les pays en développement[16].

Pour analyser la manière dont les interactions entre les politiques se constituent, selon l'effet des politiques relativement à un objectif donné, la question de substitution/complémentarité des politiques a été ainsi soulevée. A titre d'exemple, prenons le cas d'une politique migratoire et d'une politique d'aide, considérées complémentaires. Une politique migratoire permissive vis-à-vis des pays en développement qui a un effet stimulant sur les entrées de transferts de fonds de ces pays en développement peut être accompagnée d'une politique d'aide qui vise à augmenter et en même temps à cibler les flux d'aide dans les pays d'origine des migrants. Ces deux politiques sont considérées complémentaires, car l'aide facilite une répartition plus équitable des bénéfices de la migration, augmentant ainsi l'effet positif dégagé grâce à la politique migratoire (Dayton-Johnson et Xenogiani, 2006). Il est donc important d'identifier la nature de la relation entre les politiques afin de mieux analyser leurs synergies et arbitrages, et mieux atteindre l'objectif commun, celui de promouvoir la croissance dans les pays en développement.

Plusieurs aspects du débat concernant la cohérence des politiques au service du développement ont été précédemment explorés dans la littérature. La substitution/complémentarité entre le commerce et les mouvements des facteurs (travail, capital ou d'autres facteurs de production) représente un thème récurrent dans la littérature économique internationale depuis l'oeuvre fondatrice de Mundell (1957). Se basant sur le modèle de Heckscher-Ohlin, Mundell montre qu'il y a substitution entre les mouvements de travailleurs et le commerce; plus précisément il trouve que (i) une augmentation des barrières commerciales provoque une baisse des échanges commerciaux et une augmentation des migrations et (ii) une augmentation des barrières migratoires détermine la réduction des flux migratoires et l'augmentation des flux commerciaux. Cependant, ce thème a été souvent revisité[17] avec

[16]Pour plus de détails concernant les interactions entre les quatre politiques au service du développement le lecteur peut se rapporter au tableau 4.1 page 125).

[17]Voir Schiff (2006) pour une synthèse de développements récents dans cette littérature.

de nouveaux résultats, proposant d'éventuelles complémentarités entre les flux de travail et de commerce en particulier (Markusen, 1993).

L'analyse proposée à travers ce dernier chapitre s'inscrit dans le débat sur la cohérence des politiques au service du développement, mais elle s'articule autour d'un aspect moins exploré, à savoir la relation de substitution/complémentarité entre l'aide et la migration. Le choix d'analyser conjointement la migration et l'aide repose sur plusieurs éléments. Premièrement, après avoir exploré les questions liées à l'efficacité et l'allocation de l'aide il nous a paru intéressant d'identifier dans quelle mesure les objectifs de la politique d'aide interagissent avec ceux d'autres politiques. Pourquoi a-t-on choisi la migration ? Parce que la migration est devenu un des aspects importants du processus de globalisation avec de multiples implications à la fois pour les pays d'origine des migrants et pour les pays d'accueil (O'Rourke and Williamson, 1999; Hatton and Williamson, 2002). En effet, la libéralisation des mouvements de travailleurs à travers le processus de globalisation, bien que bénéfique dans une certaine mesure, a aussi eu des conséquences négatives, telle que l'immigration non-désirée, suscitant ainsi des oppositions dans les pays développés. Des barrières à l'entrée ont été créées afin d'empêcher le flux de migrants non souhaités. Cependant, malgré des politiques de migration assez restrictives instaurées par les pays développées la part des immigrants dans la population totale des pays développés a augmenté avec le temps (elle a doublé pendant la période 1970-2000).

Les politiques migratoires visant à stopper l'immigration présentent en effet deux points faibles. Dans un premier temps, elles stimulent l'immigration illégale qui dans des nombreux pays est coûteuse, difficile à prévenir et peut parfois même déterminer des tensions sociales et politiques. Dans un second temps, il peut y avoir une contradiction entre les instruments de politiques migratoires et ceux des autres politiques avec des conséquences négatives pour les pays bénéficiaires. Pour illustrer la nécessité de concevoir des politiques optimales, en l'occurrence d'aide et de migration, dont les effets devraient être positifs pour les pays bénéficiaires, prenons l'exemple des pays d"Europe Centrale et Orientale qui tout au long de processus de transition vers l'économie de marché ont connu de nombreuses restructurations. La destruction d'emploi a été le principal problème auquel ont été confrontées les populations de ces pays. L'explosion du chômage dans ces pays a été un des facteurs de l'émigration vers les pays occidentaux, plus proches géographiquement. Il aurait été incohérent d'assister les pays de l'Europe Centrale et Orientale dans leur développement afin des leurs permettre d'intégrer progressivement l'Union Européenne, et en même temps d'empêcher l'immigration des travailleurs en provenance de ces mêmes pays par la mise en place de politiques sévères d'immigration.

L'intérêt que nous portons à l'étude de la relation aide-migration se justifie aussi par le souhait de contribuer à la littérature empirique sur la cohérence des politiques au service

du développement en analysant un aspect des moins explorés. A notre connaissance, peu d'études empiriques ont soulevé cette question. Une contribution importante à cette littérature est faite par Faini and Venturini (1993) qui, dans une étude sur la Grèce, le Portugal, l'Espagne et la Turquie, montrent que la croissance ne réduit pas forcement l'incitation à migrer (sous l'hypothèse que l'aide est favorable à la croissance). Ce résultat contre-intuitif est expliqué par l'approche dite de "hump-shaped"[18] qui suggère que, pour des niveaux très bas du revenu par tête (dans les pays se trouvant dans la phase de début du développement), la croissance se traduit par davantage de migration puisqu'elle relâche la contrainte financière de migrants et allège les coûts de migration. Lorsque le revenu dépasse un certain seuil, la migration est susceptible de diminuer. Les migrants potentiels sont ainsi moins incités à partir car ils trouvent plus d'opportunités de travail dans leur pays d'origine.

La question pertinente que nous soulevons à travers ce chapitre est de clarifier dans quelle mesure l'attribution de l'aide aux pays en développement et en transition a un impact sur les flux migratoires. En suivant la littérature précédente, nous considérons l'impact de l'aide totale sur la migration, mais parallèlement, nous étudions aussi l'impact de l'aide bilatérale.

Dans un premier temps nous analysons l'incidence de l'aide totale, en tant que composante de la dépense nationale brute, sur la migration. Puisqu'il n y a pas de consensus concernant l'impact de l'aide sur la croissance dans les pays en développement[19] dans cette analyse nous faisons l'hypothèse que l'aide influence la migration non à travers la croissance, mais à travers la dépense nationale brute. Nous supposons donc que l'aide contribue au financement de cette dépense ce qui induit une augmentation des salaires dans l'économie récipiendaire. Un niveau plus élevé des salaires intensifie par la suite la migration. Nous considérons cette relation entre l'aide totale et la migration comme un effet "push".

Dans un deuxième temps, nous testons un effet positif de l'aide bilatérale sur la migration. Nous considérons cet effet comme un effet "d'attraction". Il illustre l'idée que plus un pays reçoit de l'aide bilatérale plus la population de ce pays est attirée à migrer vers le pays donneur. Les contacts bilatéraux qui s'établissent entre les pays donneur et bénéficiaire de l'aide intensifient l'information disponible et réduisent les coûts de transactions relatifs à la migration. Il peut s'agir des liens/contacts qui se créent entre les autorités nationales et les experts des pays donneurs lors de visites visant la mise en place de politiques d'aide.

[18] Voir aussi Hatton et Williamson (1998) et Vogler et Rotte (2000).

[19] Voir Doucouliagos et Paldam (2008) pour une synthèse récente de la littérature sur l'aide et la croissance.

Cet effet d'attraction peut être aussi associé au financement de bourses pour les étudiants étrangers ou encore à l'aide pour les réfugiées politiques[20].

Dans notre analyse, en plus de l'impact potentiel de l'aide sur la migration, nous prenons en compte l'impact potentiel de la migration sur l'aide. Nous suivons ainsi Lahiri et Raimondos-Møller (2000) qui trouvent que les activités de lobby menées par les migrants peuvent avoir une incidence sur la répartition géographique de l'aide à travers un mécanisme de réseaux.

Parce que nous analysons en même temps l'impact de l'aide sur la migration et l'impact de la migration sur l'aide nous sommes confrontés à un problème de simultanéité. Afin de le prendre en compte, nous proposons un modèle à deux équations simultanées qui explique à la fois la migration et l'aide. Les deux équations sont conjointement estimées (Voir les équations 4.2 et 4.3, page 148-147), les paramètres de chaque équation étant estimés en prenant en compte l'information fournie par l'autre équation du système. Les équations contiennent également des variables exogènes qui permettent d'identifier correctement les deux équations. Nous considérons aussi la possibilité qu'il y a des variables non-observés susceptibles de co-déterminer l'aide et la migration, ce qui en termes économétriques se traduit par une corrélation entre les termes d'erreur de deux équations.

L'estimation de ces deux équations soulève un problème économétrique, à savoir la nature censurée des variables expliquées ; elles peuvent être soit positives soit nulles, mais jamais négatives. Estimer les deux équations avec toutes les observations pourrait conduire à des biais d'estimation. La littérature sur l'allocation de l'aide propose une solution pour corriger ce problème qui est d'estimer les équations uniquement en prenant en compte les observations positives. Cela permet aussi la spécification des équations sous forme logarithmique, ce qui facilite l'interprétation des paramètres qui sont des élasticités. Un deuxième biais peut apparaître; il s'agit de biais de sélection qui provient du fait que la sélection d'un pays comme bénéficiaire d'aide (ou destination des migrants) peut dépendre d'autres facteurs que ceux qui déterminent le montant d'aide alloué (ou le nombre de migrants). La solution usuelle lorsqu'il n'existe pas une variable de sélection qui pourrait expliquer la sélection du bénéficiaire, mais pas le montant d'aide alloué, est de considérer que ce biais est secondaire. Nous suivons ainsi Berthélemy (2005) qui dans une étude sur l'allocation de l'aide sur un échantillon beaucoup plus large, trouve une corrélation faible entre la sélection des bénéficiaires et l'allocation de l'aide, et suggère que le biais de sélection peut être ignoré. La méthode d'estimation que nous utilisons, qui nous permet à la fois de corriger le biais de simultanéité et de prendre en compte la corrélation des résidus est la méthode de triples moindres carrés.

[20]En France par exemple, ces deux composantes représentent 25% du total de l'aide publique au développement déboursée au cours de dernières années.

Les données utilisées dans cette étude proviennent d'une base de données de la Banque Mondiale récemment mise à jour par le Centre de Recherche sur la Migration, la Globalisation et la Pauvreté. Il s'agit d'une base de données des stocks de migrants par pays d'origine et destination[21]. Bien que la base contienne des observations pour 226 pays (une matrice 226×226), nous utilisons les observations concernant uniquement 187 pays en développement et en transition (bénéficiaires d'aide et origines des migrants) et 22 pays donneurs d'aide, membres du Comité d'Aide au Développement (OCDE) (et pays d'accueil des migrants). Un avantage de cette base de données est que les stocks de migrants sont renseignés par niveau d'éducation, ce qui nous permet de distinguer dans notre analyse les migrations qualifiées et non qualifiées et de comparer leurs déterminants. Il y a néanmoins deux principales contraintes: la base n'offre qu'une seule observation dans le temps, pour l'année 2000, et elle fournit des données de stocks et non de flux. Puisque nous sommes intéressés par l'impact des flux d'aide sur la migration, l'idéal serait d'utiliser aussi des flux de migrants et non des stocks. Afin de corriger la disparité provenant du fait que l'aide est mesurée en flux et la migration en stock, nous utilisons des flux d'aide agrégés sur deux périodes différentes, cinq et dix ans (les résultats des estimations étant assez similaires). Les données d'aide proviennent de la base du Comité d'Aide au Développement (OCDE) et sont mesurés comme des engagements d'aide.

Nous proposons une analyse en deux étapes. Dans un premier temps il s'agit de mener une analyse agrégée sur les flux totaux de migration "Sud-Nord" et d'aide "Nord-Sud". Par la suite, nous poursuivrons notre analyse au niveau désagrégé en distinguant les migrants qualifiés et non-qualifiés.

L'analyse agrégée fait ressortir que l'aide et la migration sont des substituts pour un niveau du PIB par habitant supérieur à environ US$7348 (en PPA prix constants 2000). Pour les pays qui disposent d'un niveau du PIB supérieur à ce seuil, augmenter l'aide réduirait la pression migratoire. Lorsqu'elle est implémentée dans des pays pauvres, avec un niveau de PIB inferieur à ce seuil, la combinaison d'une politique généreuse d'aide et d'une politique de migration restrictive n'est pas cohérente.

En prenant en compte la double causalité de la relation aide-migration nous identifions plusieurs éléments. L'analyse confirme l'hypothèse d'un impact important de la migration sur l'allocation d'aide, suggéré par le modèle de Lahiri et Raimondos-Møller (2000). En ce qui concerne la causalité inverse, celle de l'impact de l'aide sur la migration, deux composantes sont identifiés: (i) la causalité de l'aide bilatérale vers la migration qui reflète l'effet "d'attraction" lié à la réduction des coûts de transaction; (ii) la causalité de l'aide totale vers la migration qui est liée à l'allégement de la contrainte budgétaire.

[21] Voir Parsons et al. (2007) pour une description détaillée de la base de données.

Lorsque nous faisons la distinction entre les migrants selon le niveau d'éducation il en résulte que: (i) les politiques de migration récentes favorisent la migration qualifiée; (ii) les migrants non-qualifiés sont plus attirés vers les pays qui offrent des aide sociales importantes, alors que les migrants qualifiés migrent vers les pays qui offrent plus d'opportunités et des salaires plus élevés; (iii) la complémentarité entre le commerce et la migration est plus forte pour les migrants qualifiés, ce qui explique la compétitivité des pays riches qui produisent et exportent des biens nécessitant une importante main d'oeuvre qualifiée; ce résultat est en ligne avec le modèle de Markusen (1983) qui repose sur la supériorité technologique des pays riches.

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Après avoir présenté les principaux résultats de notre analyse empirique, nous souhaitons jetter les bases de quelques réflexions sur des futurs défis sur la problèmatique de l'aide.

Malgré les controverses sur la capacité de l'aide à stimuler la croissance, nous pensons que l'aide est un instrument utile de la politique de développement. L'expérience des économies en transition qui ont réussi leur transformation a démontré que l'aide est un outil adapté pour répondre aux enjeux du développement. L'assistance financière et technique fournie par les organisations internationales (la Banque Mondiale, le FMI, la Commission Européenne, la BERD) a joué un rôle important dans la restructuration, et par la suite, dans le développement économique de ces pays.

Nous pensons que les limites de l'aide ne doivent pas forcément être cherchées dans les stratégies d'allocation des bailleurs de fonds ou encore dans l'insuffisance des volumes d'aide, mais plutôt dans les caractéristiques structurelles des pays et/ou dans leur capacité à gérer l'aide reçue en l'utilisant de manière efficace. Il s'avère donc que la redistribution efficace de l'aide conjuguée à la volonté de mener cette action soient les clefs du succès.

En effet très souvent la gestion efficace de l'aide se heurte à la corruption, très présente dans le processus de transition. Des pays de la CEI, comme l'Ouzbékistan, le Turkménistan, le Kirghizstan, l'Azerbaïdjan, le Tadjikistan occupent des places en tête de liste des pays les plus corrompus au monde (selon Corruption Perceptions Index, Transparency International, 2008). De plus, la mauvaise gouvernance constitue un autre élément qui influence le bon fonctionnement des programmes d'aide et qui peut détourner l'aide de ses objectifs premiers. Les bailleurs de fonds doivent se préoccuper de la manière dont l'aide est utilisée: ils ne peuvent apporter leur assistance que s'ils sont convaincus que l'utilisation qui en est faite ainsi que sa gestion sont adaptées. Une solution envisageable serait donc de débourser l'aide par l'intermédiaire des organisations non-gouvernamentales (ONG), dans la mesure où les ONG sont efficaces, contournant ainsi les gouvernements.

Réformer les économies et atteindre une croissance rapide et auto-entretenue sont des étapes difficiles de la transition, dont les résultats ont varié selon les pays. Accompagnés dans la plupart des cas de déséquilibres, les conséquences positives des réformes n'ont toujours pas été ressenties. De plus, elles ont engendré des coûts sociaux même dans les pays qui étaient parvenus à atteindre un niveau stable de croissance et de bien-être (e.g. Hongrie, Pologne, République tchèque). Les inégalités excessives, les différences entre les régions, la pauvreté et l'exclusion sociale sont des problèmes qui doivent toujours être repensés. A notre avis, beaucoup reste à faire pour résoudre ces questions sociales. Dans des secteurs tels que la santé et l'éducation (en particulier dans las régions rurales) il y a toujours un besoin accrue d'aide. Nous soulignons l'importance de renforcer l'allocation de l'aide au niveau sectoriel, en mettant davantage de ressources vers ces secteurs à la disposition des pouvoirs publics (lorsqu'il y ait la conviction d'une utilisation efficace de l'aide) ou comme précédemment souligné, à la disposition des ONG.

Au-delà de secteurs considérés, comme la santé et l'éducation, plus de soutien devrait être apporté à l'activité d'investissement des entreprises. Il est envisageable que le manque à gagner de l'Etat dû à la réduction d'impôts sur les sociétés pourrait être, à juste titre, comblé par l'aide; cette politique de gestion de l'aide pourrait rendre l'investissement privé plus attractif. Surtout dans le contexte de la crise actuelle, soutenir l'investissement et tout particulièrement des PME, représenterait une piste d'aménagement de l'aide permettant ainsi de soutenir la croissance à long terme et l'emploi (les pays de la région sont confrontés avec des taux de chômage inquiétants) et stimuler le développement économique.

Il convient de rappeller que la région est caractérisée par une forte hétérogénéité, avec de différences importantes entres les pays en termes de revenu par tête. Cette hétérogénéité se traduit en effet par des priorités différentes selon les pays bénéficiaires d'aide. Il est donc important de cibler les politiques d'aide en fonctions des besoins de chacun.

Enfin, nous souhaitons renforcer l'idée que l'aide n'est pas le seul et unique instrument approprié à atteindre les objectifs de développement en termes de croissance et de réduction de la pauvreté. D'autres politiques, telles que les politiques migratoires ou commerciales sont au moins aussi efficaces, sinon plus. Les résultats d'analyse conjointe de l'aide et de la migration nous permettent de souligner l'importance de la cohérence des politiques des donneurs au service du développement. En vérifiant empiriquement que l'aide et la migration sont des substituts uniquement dans des économies dont le niveau du revenu par habitant dépasse un certain seuil (7300 dollars, en PPA prix constants 2000), nous confirmons la nécessité de s'interroger sur les effets potentiellement contradictoires de ces politiques.

# General Overview

Achieving development and making poverty history are themes which have received a lot of attention in the academic literature and in policy circles in the Western world. Since development cannot be achieved without self-sustained growth, a particular interest has been devoted in the economic analysis to growth and its determinants. Trade, investment, and increasing returns to knowledge are commonly identified as growth drivers. In addition to these factors, foreign aid, has been seen as an important instrument of the development policies implemented by Western nations vis-à-vis poor nations, specifically as a tool for promoting economic growth and fighting against poverty and inequalities.

However, the earlier focus of development assistance (in the 1950s), was not the developing world, but the reconstruction of Western economies destroyed by the World War II. This has changed over time, as the rhetoric of aid has increasingly shifted towards the challenges of development. Reducing poverty through combating inequalities and the satisfaction of *basic needs* became a development objective by the 1970s. In recent years, the emerging consensus that economic development should be synonymous with improvements in living standards of population, was reflected in the shift of the development goals towards a multidimensional concept of poverty (monetary poverty, poor health, illiteracy, social exclusion). This was given concrete expression in the *Millennium Development Goals (MDGs)*, adopted in 2000 by the United Nations at Millennium Summit[22].

The common belief that aid, as a source of additional finance for recipient countries (that lack domestic savings and have limited or no access to international private capital markets), helps to fill financing gaps, increases the investment which in turn enhances economic growth, largely dominated the international development discourse. Aid advocates

[22]The MDGs are drawn from the actions and targets contained in the Millennium Declaration that was adopted by 189 nations and signed by 147 heads of state and governments during the United Nations Millennium Summit in September 2000. These goals to be achieved by 2015, underscore (1) eradication of extreme poverty and hunger; (2) achievement of universal primary education; (3) promotion of gender inequality and empowerment of women; (4) reduction of child mortality; (5) improvement of maternal health; (6) combating HIV/AIDS, malaria, and other diseases; (7) ensuring environmental sustainability; and (8) development of global partnership.

(Sachs, Stiglitz, Stern) pointed out to success stories, where aid has contributed to poverty reduction and improved growth in countries like Botswana, Indonesia, Korea, Tanzania and Mozambique (Radelet, 2006). Success stories support the point of view that, whenever aid is part of a coherent development strategy, which implies a close cooperation between developed and developing countries, and whenever it is deployed in an effective way, aid does make a lasting difference to development. This coherent strategy requires that besides aid policy, developed countries set up development policies with regard to trade, investment, and migration, that are consistent with development goals, and that ensure transfers of resources from the developed to the developing world, instead of the other way around. At the same time, it requires developing countries to multiply their efforts to improve governance quality, and provide a more stable and secure business environment.

But, experience has shown that foreign aid did not make miracles. Countries in Africa (e.g. Chad, the Democratic Republic of the Congo[23], Haiti, Papua New Guinea, Somalia) and in South Asia are often given as examples of aid ineffectiveness (Radelet, 2006). Critics (Friedman, Bauer, Easterly, Ditchter) argued that aid has been counterproductive and has sometimes even harmed recipient economies by enlarging government bureaucracies, and by perpetuating bad governments and enriching elites. Moreover, it has been argued that if aid has not always reached its objectives, it might be because it has not always been targeted at the poor, and has instead been oriented towards donors' self-interests; ranging from political support of friendly developing nations (especially those considered geographically strategic) to support for trade partners or ex-colonies.

One argument which is often brought up in favor of aid failures is the insufficient aid resources, in terms of volume, deployed by donors. A solution identified to overcome aid failures is the *scaling up* of aid. Recently, in the context of MDGs, donors have committed to scale up aid by providing around 0.7 percent of their gross national product (GNP) to developing countries, and about 0.15 to 0.20 percent to the least developed countries, so as to meet the target level fixed for official development assistance (ODA)[24]. Although not all donors have yet reached the fixed targets, some of them have significantly increased their commitments for development assistance. Furthermore, at the *Gleneagles G8* and *UN Millennium summits* in 2005, donors renewed their commitment to increase aid. The pledges made at these summits, combined with other commitments, implied lifting aid from $80 billion in 2004 to $130 billion by 2010 (2004 constant prices).

Despite these commitments, there is no doubt by now that all financial flows to developing countries, including ODA, are set to be negatively affected by the current crisis.

[23]Chad and Democratic Republic of Congo have had zero and negative per capita growth, respectively, over 1950-2001, period over which they benefited from financial support (Easterly, 2006).

[24]See Figure 1 in the Appendix of this chapter.

At the *Follow-up International Conference on Financing for Development* to review the implementation of the *Monterrey Consensus* in Doha in December 2008, it was made clear that only a few countries were still on track to meet their stated commitments. However, even if donors maintain their aid contributions, with the falling of their GNP, the absolute volume of aid will also fall. Following the *Doha Declaration on Finance for Development*, most donors renewed their commitments to maintain, and, where possible, increase their aid contributions. The current crisis has revealed that assistance is more crucial than ever, with aid the only option left for many nations which have seen drastic decreases in private financing such as foreign direct investments (FDI), portfolio investments, trade credits and remittances (Naudé, 2009) .

The scaling up of ODA has provided prospects for a better future for many developing countries and raised challenges for policy-makers in donor and recipient countries, as well as for international financial organizations. However, the success of scaling up aid transfers depends on how these policy challenges are addressed, given that past experiences with aid allocation have not always delivered the expected results (Gupta et al., 2005; Heller, 2005). Furthermore, increasing aid by itself is not enough, and should not be at the core of the development debate (Cornia, 2005). The fundamental question that dominates the current debate is "how to make aid effective in achieving its development objectives?" In the context of the adoption of MDGs, the question is rather about "how to make aid effective in reaching the MDGs?".

While for a long time aid mostly concerned the developing countries, twenty years ago, after the fall of the Berlin Wall, which brought several important changes in the geopolitical reality of the world, a reorientation of aid flows towards Central and Eastern European countries (CEECs) and the Commonwealth of Independent States (CIS) took place. The success of *Marshall Plan* in the reconstruction of developed economies destroyed by the World War II, led the international community to the belief that a *Marshall Plan for transition economies* might be the appropriate instrument to successfully complete their transformation from centrally planned system to market economy. This required reforms designed to liberalize, privatize and stabilize (*Washington Consensus*), as well as establishing new institutions and regulations appropriate for a market economy (*post-Washington Consensus*). But the transformation was most of the time accompanied by imbalances including the collapse of production; the increase in inflation; the depreciation of the national currency; large fiscal deficits; and the worsening of the social conditions.

The reforms designed to transform the economic systems and handle the imbalances proved to be costly; weak growth, together with low revenue inherited from communist times, stopped these economies from releasing enough funds to set up all the necessary

changes. The need for external financing became rapidly apparent. Besides FDI and other private financial flows, aid was considered as an important source of financing, provided to support macroeconomic stabilization and structural reforms, in order for these countries to achieve self-sustained grow and converge to the level of development of the West. The stabilization and structural adjustment programs were mainly supported by international organizations, most often the International Monetary Fund (IMF), the World Bank, the European Union (EU), and the European Bank for Reconstruction and Development (EBRD), especially created to support transition. Bilateral donors, members of the Development Assistance Committee (DAC) of the Organization for Economic Cooperation and Development (OECD) have also made contributions to the reform programs in these countries.

Despite the common aim of creating a market economy, and the similarities in the adopted programmes, the approaches to stabilization, privatization and restructuring that these economies followed, varied from country to country, and so did the effects of these approaches. Overall, the region has grown relatively fast, even faster than anticipated. But, on average, a clear divide appears between, on one hand, the more advanced countries - i.e. the new members of the EU and South Eastern European countries (SEE) - and on the other hand, the CIS countries. For some of these countries (e.g. the Czech Republic, Hungary, Poland, Slovenia, and the Slovak Republic), the transition has so far brought great achievements and unprecedented success, while for others (i.e. most CIS countries), a lot of disappointment has ensued from excessive income disparities and poverty. In these countries growth was often strangled by high inflation, black markets, corruption, and inefficient public services.

How did the front runners succeed in achieving high growth rates? And why did the less fortunate fail? The development of the financial and banking sector, trade openness and investments are some of the factors which led to growth in these countries. Moreover, institutional capacity and sound macroeconomic policy are pointed out as important prerequisites for successful performance in transition economies. It is clear by now, after twenty years of reforms, that all these economies undertook changes. The effects of these transformations however, were disparate. Several factors are held responsible for these different results. First, the transition did not start at the same time - the end of 1989 and beginning of 1990 for CEECs, and later for the CIS countries - the end of 1991 and beginning of 1992.

Second, the initial situation varied a lot among these countries; this had a major influence on their output paths, and explained, to a certain extent, the differences that continue to exist nowadays in the region. Some economies resemble market economies

more and more, while others are still lagging behind in their transformation process. The distortions inherited from centrally planned economy which characterized the beginning of the transition process were more pronounced in former Soviet Union republics than in CEECs. They include over-industrialization and poor specialization of large size industrial enterprises; underdevelopment of the service sector; and perverted trade flows among the members of the Council for Mutual Economic Assistance (CMEA). As a consequence, economic recession occurred in the early years of transition; this was characterized by a sharp contraction in output, following the disruption of traditional trade (between CAEM members) and financial links, and the abandonment of the centrally planned lines of production (Havrylyshyn et al., 1998). Additionally, the rapid dismantling of old institutions before the creation of new market institutions, in particular in the former Soviet Union, was pointed out as a cause of poor output performance. The lack of means to enforce rules and regulations did not create a business climate conducive to growth.

Third, the reform strategies chosen to implement the market economy were also different. While a consensus emerged among economists with respect to transition tasks (e.g. macroeconomic stabilization, privatization, trade openness, banking and financial system restructuring, implementation of new institutions and regulatory framework), a debate occurred as to the most appropriate way to set up reforms. Two reform strategies were proposed: *shock therapy*[25] and *gradualism*[26]. Very costly in social terms, *shock therapy* was considered unbearable in the long run; while, less costly and long lasting, *gradualism* often led to excessive public expenses and budget deficits. In practice, most of the time, a mix of these two strategies was implemented.

In this context of on the one hand, policy debate on the effectiveness of aid, and on the other hand, attempts to understand the success and failures of transition, we want through this dissertation to identify the role of foreign aid in the transformation process of CEECs and CIS countries. Firstly, we will examine aid from both recipients' and donors' sides. From the recipients' side we will investigate the effectiveness of aid with regard to growth, while focusing on conditionality issues. From the donors' side, we will look at aid allocation patterns, while stressing the importance of the quality of governance in recipient economies. Secondly, we will place aid, in the context of the so-called *Policy Coherence for Development (PCD)*, in particular in its relation to migration. The PCD debate has emerged in OECD countries with regard to their foreign policies vis-à-vis developing and transition economies with respect to trade, investment and migration. It is supported by the view that aid policy is not the only development policy likely to contribute to

[25]This *shock therapy* consisted in setting up all reforms as soon and as fast as possible.

[26]Counter to *shock therapy*, *gradualism* recommended undertaking reforms considered as crucial first, consolidating them, and only afterwards implementing other reforms.

growth and poverty reduction in recipient countries. Other policies with respect to trade, investment and migration might positively impact growth and development, and moreover, reinforce the impact of aid. We have chosen to investigate the relationship between aid and migration since this is an aspect that has been explored less in the literature. There are reasons to believe that these two should be explored jointly. As a matter a fact, the first purpose of aid is to help in promoting economic and social development, and economic motivation represents one important driver of migration. Since aid might contribute to accelerating economic reforms in recipient countries, therefore improving welfare, this might impact the migration behavior of aid recipient countries.

For the first two analyses, the sample of recipients will consist of CEECs and CIS countries, while for the last analysis, since we only have one observation in time (for year 2000) we will keep the sample as large as possible and will include both developing and transition countries. In accordance with the types of data explored in this dissertation, several empirical methods will be used, including panel data analysis, generalized method of moments (*Chapter 2*), Heckman's method (*Chapter 3*) and three stage least squares (*Chapter 4*).

Most of the existing studies in aid literature analyze aid effectiveness and allocation in the case of developing countries. Little discussion has been made about transition economies. This is partly explained by the fact that these countries do not have a very long history of receiving aid; they were added to the list of aid recipients, only recently, after the collapse of the communist regime in 1989. Some of them changed their position from aid recipients to donors starting 2004, with their integration into the EU. However, we consider that their experience represents an opportunity to shed light on the ongoing debate about the role of aid in enhancing growth and welfare, and in promoting development.

In summary, this dissertation attempts to answer several research questions:

- Is there confirmed evidence that the positive impact of aid on growth is enhanced by the presence of sound macroeconomic policy in transition economies? Does the quality of a recipient's institutions matter for the returns to aid? Do initial conditions explain the different performances achieved so far among these countries? Did these conditions influence the effectiveness of aid?

- Is aid allocated according to the needs of recipient countries; or are aid allocation patterns oriented more towards donors' interests ? Is the quality of governance (considered as a signal that aid is being put into good use) a determinant of aid allocation patterns in transition economies? Do aid allocation patterns differ among donors?

- Do aid and migration influence and reinforce each other? Are they substitutes or complements? What are the channels through which aid affects migration?

The dissertation is organized in four chapters. *Chapter 1* is a preliminary chapter and introduces readers to some major issues aimed at creating a better understanding of the complex topic of foreign aid. It offers an overview of the evolution of aid over time, while providing some insight into changes in its role and objectives. *Chapter 1* also discusses some methodological issues related to definitions and measurements. Finally, this chapter presents the trends and geographical distribution of aid flows with a focus on transition economies.

*Chapter 2* empirically analyzes the relationship between foreign aid and economic growth in 25 transition economies over the period 1990-2004. Particular importance is given here to the effectiveness of aid, a central and recurring topic in aid literature which has been discussed and revisited with various findings depending on the employment of different empirical methodologies. The impact of aid has been evaluated either at macroeconomic or microeconomic level; in cross-country comparisons or individual country case studies; in qualitative and inter-disciplinary broad surveys, as well as quantitative econometric studies.

Here, we propose an empirical analysis which investigates the effectiveness of aid, while controlling for several factors, such as the quality of macroeconomic policy and institutions; progress achieved in reforming the economy; and the structural characteristics of recipient countries. The starting point for our analysis is the debate opened by the findings of Burnside and Dollar (2000) on the conditionality of aid with regard to growth. Much of this debate has focused on whether aid has a positive impact on growth independent of the quality of economic policy in recipient countries, or whether the effectiveness of aid depends on the quality of policy (Tarp, 2006). By introducing an interaction term of aid with an index of economic policy, whose coefficient appears to be positive and significant, Burnside and Dollar (2000) conclude that aid stimulates growth in countries with good macroeconomic policies. They recommend a selective pattern of aid allocation, in favor to countries that have adopted sound policies.

These findings have been a subject of research and debate among scholars and policymakers for the last ten years. They have provoked a lot of criticism and disagreement with regard to identifying the necessary and sufficient conditions needed for aid to positively contribute to growth. The main critique concerns the conditionality issue itself, with some expounding that this contradicts the very first development objective of aid, namely to help the poorest nations to grow. Another critique concerns the three components

of the economic policy index, i.e. inflation, budget balance and openness; these are not considered to be the most appropriate measures of macroeconomic policy (Berthélémy and Varoudakis, 1996; Lensink and White, 2000; Amprou and Chauvet, 2004). Finally, the econometric specification is not considered appropriate nor the results robust (Hansen and Tarp, 2000, 2001); the validity of the results is criticized as sensitive to the inclusion or omission of observations (Roodman, 2003; Easterly et al., 2003; Jensen and Paldam, 2003).

By using an advanced econometric technique, i.e. the Generalized Method of Moments (GMM), which allows us to obtain estimators that are consistent in the presence of both endogenous regressors and country specific effects, we refute the findings of Burnside and Dollar (2000). A sound policy environment, or the progress in implementing reforms and institutions indeed raise a country's growth, but they do not enhance the positive effects of aid with respect to growth. Furthermore, our results are in line with the literature on transition economies which assigns an important role to initial conditions in the process of macroeconomic adjustment and restructuring. These conditions also seem to play a role with regard to the effectiveness of aid, which is higher in countries with bad initial conditions. However, changes in the effect of initial conditions occur over time; as transition proceeds, the impact of these initial conditions seems to decrease.

*Chapter 3* empirically investigates the specific patterns of aid allocation, with a focus on the role of governance among the criteria of aid allocation; the analysis is carried out on the same 25 transition economies from *Chapter 2*, but over the period 1996-2004. The data span is not the same as in the previous analysis, because it is constrained by the availability of governance indicators (Kaufman et al.'s (2005) indicators). This analysis complements the previous (*Chapter 2*) by looking at foreign aid from the perspective of donor countries. The process of aid allocation has sometimes revealed certain limits with regard to the procedure of selection of recipients and the distribution of funds. Donors' real motivations for providing aid have often been questioned; it has been argued that aid is often provided according to donors' self-interests (e.g. commercial, political), and this might account for those times where aid has failed to achieve its development objectives. Over time, the allocation of aid has been justified by either purely altruist motivations, or by shared benefits of economic development in recipient countries, and further by political ideology, foreign policy and donors' commercial interests (Tarp, 2006).

Based on the existing aid allocation literature, in *Chapter 3*, we present a pattern of aid allocation that takes into account the main determinants identified by this literature: (i) *donor interests*; (ii) *recipient needs*, and (iii) *recipient performances*. Our results point out that, on average, bilateral donors do take into account the recipient needs. Moreover,

the quality of governance seems to be rewarded by donors, since they consider it as a signal of the way that aid will be put into use, and further of improving their allocation strategies. Overall, bilateral aid allocation patterns do not differ from multilateral ones which, as would be expected, take into consideration recipient needs and merits, but to a lesser extent.

While the first two analyses address the complex issues of aid effectiveness and allocation, in *Chapter 4* we empirically examine the relationship between aid and migration. This study investigates the complementarities that may exist between migration and foreign financial assistance, and it contributes to the debate on policy coherence for development. The determinants of migration and the determinants of aid allocation are jointly examined using a recent data set of bilateral migrations from the World Bank (origin-destination migrant stocks, by level of qualification, for the year 2000). Our sample is restricted to 187 aid recipient (migrant sending) countries, which are developing, emerging and transition economies and 22 aid donor (migrant receiving) countries, which are DAC members (OECD).

The main objective of this analysis is to clarify how aid affects migration, by testing the existence of two channels: (i) the effect of total aid (bilateral and multilateral) on migration, referred to as a *push effect*; (ii) the effect of bilateral aid on migration, referred to as an *attraction effect*. The relationship between aid and migration is studied in a simultaneous equation system of two equations - migration gravity equation and aid equation, estimated with the three-stage least squares method (3SLS). Our results illustrate that total aid stimulates migration by increasing expenditure financing and by that increasing wages in the home (aid recipient) country. Moreover, bilateral aid influences migration by enhancing information about labor market conditions in host country. Finally, it seems that aid and migration are substitutes above a threshold of about $7300 US per capita (PPP 2000 prices). For poor developing countries which fall below this threshold, increases in income per capita (as a consequence of efficient aid policy) initially stimulate rather than dampen emigration; for these countries there is a trade-off between aid and migration policies. With respect to the level of migrants' qualifications, it appears that skilled migrants are more sensitive to the *attraction effect* than unskilled migrants.

This dissertation adds to the literature on the subject in three ways:

- It analyzes a sample of countries that have not been explored to a great extent in the previous literature because of data availability, namely transition economies. It provides results with regard to aid effectiveness and allocation which might be compared with those for developing countries.

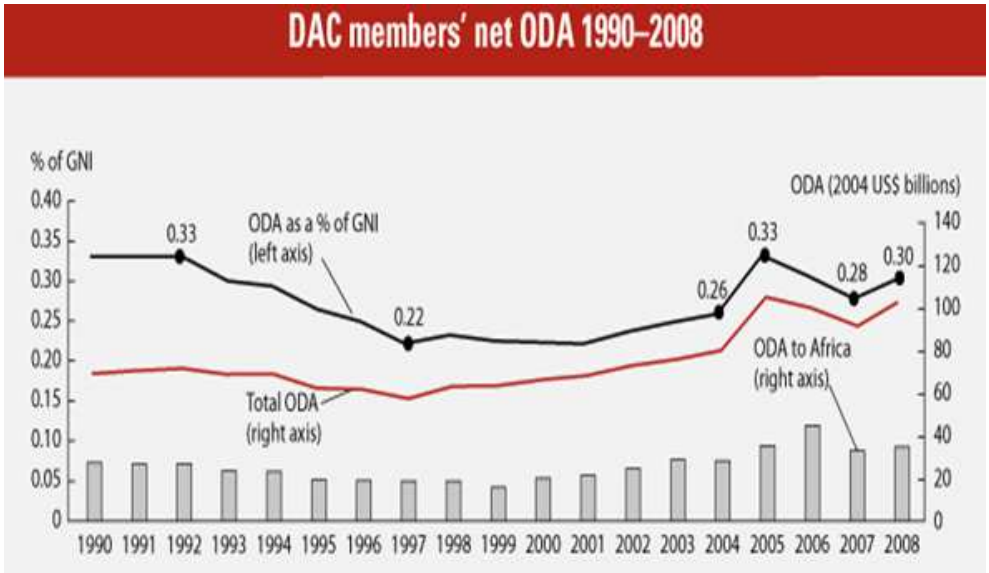
- It contributes to the policy coherence for development debate by analyzing an aspect that has been given less discussion in the literature, namely the substitutability/complementarity between aid and migration. It identifies two channels through which aid influences migration (the *push effect* and the *attraction effect*).

- From a policy recommendations perspective it proposes an aid allocation pattern that considers mainly recipient needs and merits (as measured by the quality of governance). Finally, it underlines the importance of a coherent implementation of these policies, and the necessity to deal with their potential shortcomings, so that these policies have beneficial implications for developing countries.

Following this brief introduction, lets dive into the core of the subject!

# Appendix of General Overview

Figure 1: Net ODA flows from DAC members, 1990-2007 and simulations to 2010.




*Source:* OECD-DAC (2008).
*Note:* 2008 data are preliminary.

# Chapter 1

# Preliminary Chapter

THis first chapter of the dissertation provides readers with a framework of the origins and evolution of foreign aid, and the motives of aid allocation. Moreover, it discusses the main methodological issues related to the definitions and measuring methods of foreign aid. Finally, it presents some stylized facts regarding trends and geographical distribution in aid flows, with a focus on transition economies.

## 1.1 Foreign Aid: The Story

The origins of foreign aid go back to the colonial period. At that time aid was granted to colonies in order to set up the required infrastructure that would allow them to finance their trade (importations). This aid was subject to the economic and political considerations related to the interests of the "Métropoles". This changed once the ex-colonial powers lost their financial and political influence both at a local (as the ex-colonies began to fight for their independence) and international level.

In its modern form, foreign aid emerged in the post World War II period. The *Marshall Plan* offered unprecedented US assistance[1] to Western European countries, targeted for post war reconstruction. Increased production and income in rich countries devastated by the war was a priority. The *Marshall Plan* was a success, showing the importance of relying on financial and technical assistance in order to undertake a rapid transformation of economies; it brought a lot of optimism with regard to the future effectiveness of foreign aid and lead to a shift in the focus of aid from developed to developing countries (Tarp,

[1]The 1950s were considered "a decade of US hegemony", since the US aid accounted for two third of total aid designed for the reconstruction of Europe (Hjertholm and White, 2000).

2006). An overview of the main developments and objectives of foreign aid is provided in Table 1.1, modified and amended from Hjertholm and White (2000).

Achieving growth was, in the 1950s, the macroeconomic priority of economic policy, and investment was largely accepted as an important growth driver. The *Harrod-Domar* growth model dominated the development paradigm of the 1950s; it identified aid as a source of capital which triggered growth through increased investment (by filling the *investment-savings gap*). The *two-gap model* (Chenery et Strout, 1966) which became dominant in the 1960s, added to the model of *Harrod-Domar* the *foreign exchange gap*; and the role of aid became that of fillings these two gaps.

The 1970s brought, in addition to the main objective of aid, i.e. enhancing growth, another development objective, namely poverty reduction which translated into the satisfaction of *basic human needs*. The concern of the impact of aid was being redefined in terms of rising living standards of the poorest populations in developing countries, by assuring equitable income distribution and equal employment opportunities. Major donor agencies, both bilateral and multilateral, were involved in projects financing education and health[2], agriculture and rural development, and projects providing technical assistance and direct assistance to benefit the poor (Brown, 1990).

The emergence of external debt crises and large deficits of balance of payments of developed countries, in the early 1980s, (the consequence of oil shocks, of increasing raw materials prices, and of the decline in global demand, which strongly affected the exportations of developing economies) shifted the focus of aid towards the role of economic policy, with an emphasis on macroeconomic stabilization. In this context, the development strategy focused on internal policy failures and the achievement of a macroeconomic equilibrium[3] which became a priority for subsequent development. Aid was seen as a support for managing external debt and encouraging the implementation of appropriate macroeconomic and structural adjustment policy through a conditionality mechanism[4] attached to program lending. However, the structural adjustment programmes generated high human costs and the cutting-down of assistance to sectors, such as health and education. Because of these considerations, they were the target of sharp criticism (Cornia et al., 1987; Grant, 1990). A characteristic of this period was the emergence of non-governmental organizations (NGOs), which became agents of aid delivery. More and more bilateral donors

[2]For example, *USAID's Office of Population* began in 1972 the Demographic and Health Surveys, a training for reproductive health (Thorbecke, 2000).

[3]This implied controlled inflation through restrictive monetary policy, budget surplus and financial liberalization. These policies were advocated by major donor agencies and the Bretton Woods institutions, i.e. the IMF and the World Bank.

[4]Conditionality describes the use of conditions attached to a loan, debt relief, bilateral or multilateral aid. Policy conditionality is most often associated with the IMF and the World Bank, but all donor countries use conditions to some extent.

agencies gave up their role in the implementation of foreign assistance projects and started to channel their resources through NGOs[5].

The end of the Cold War (the 1990s) came with several important changes in foreign aid industry. First, poverty reduction reappeared on the agenda of donor agencies[6], as a consequence of the rising criticism of the macroeconomic and structural adjustment programmes of the 1980s and early 1990s. Second, the quality of governance in recipient countries became an issue of serious concern for the donors. In this new emerging context, donors began to award or withdraw aid on the basis of an expected quality of governance[7]. The effectiveness of aid became the priority of the allocation process in this context. Burnside and Dollar (2000) findings that "aid works in a sound policy environment" are central to the ongoing debate with regard to the role of aid and its effectiveness [8]. The World Bank recognized the importance of their findings and the Report, "Assessing Aid" (1998) became a sort of "guidelines" for aid donor strategy.

In recent years, the role of aid in the eradication of poverty in all its dimensions (monetary poverty, poor health and education) has been reaffirmed. The new millennium started under the sign of a new partnership between developed and developing countries, with the United Nations' Millennium Assembly, in September 2000. This largest gathering of world leaders in mankind history adopted the Millennium Development Goals (MDGs). The *International Conference on Financing for Development* in Monterrey (2002), re-addressed the debate on the challenges of providing the financial means for economic progress and underlined the necessity for coherence among development policies: "For many countries [...], ODA is still the largest source of external financing and is critical to the achievement of the development goals and targets of the Millennium Declaration and other internationally agreed development goals." (United Nations, 2002: paragraph 39); "It is vital to build support to ODA, by increasing partnerships and cooperation between developed and developing countries in order to further improve the policies and the development

[5]In the UK, since 1996, the Department for International Development has worked with more than 120 NGOs. Likewise, *USAID* currently works with more than 3500 companies and 300 private voluntary organizations, while *EUROPEAID*, through the *European NGO Confederation for Relief and Development (CONCORD)*, presently works with 20 international networks and 22 national associations from the European Member States and the candidate countries, which accounts for 1600 European NGOs.

[6]The turning point for poverty alleviation reappearing on the agenda of donor agencies was the World Development Report (World Bank, 1990). It designed the *New Poverty Agenda*. Moreover, the DAC Report "Shaping the 21st Century: the Contribution of Development Co-operation" (OECD, 1996) represented a turning point in the emergence of a consensus concerning the objectives of development strategies and the new mission of foreign aid.

[7]During the Cold War period, donors did not give much consideration to the quality of governance, but rather supported any "friendly regime" (to the West).

[8]For other contributions to the aid effectiveness debate see also Hansen and Tarp (2000, 2001), Dalgaard and Hansen (2001), Lensink and White (2000), McGillivray and Morrissey (2000), and Guillaumont and Chauvet (2001).

strategies, both nationally and internationally, and to enhance aid effectiveness." (United Nations, 2002: paragraph 41).

Additionally, the concern about "good governance" continues to remain on the agenda of donors' criteria for aid allocation. Donors understand that macroeconomic policy is certainly important, but also the role of institutions in determining policy outcomes is essential. This led to the so-called "performance-based" allocation of aid. Donors need a way to reassure themselves that aid is put into good hands. Also, they hope that, by rewarding some recipients for good performance they will create better incentives for other countries (Klitgaard et al., 2005).

Currently the financial and economic crisis is raising a lot of concern regarding the capacity of donors to live up to their commitments. The crisis is expected to undermine donors' efforts which they have been urged by the MDGs to raise aid for poverty reduction, health, and education programs, to 0.7 percent of the their GNI by 2015. Reductions in aid budgets would be unwelcome, especially at just the moment when more aid is needed. Eventual cuts in aid would negatively affect poverty and unemployment in recipient countries which are very much dependent on international aid. Moreover, not only is official assistance expected to decrease, but also private capital flows (an additional source of finance in certain developing countries) is likely to be difficult to mobilize. Declines in remittances and trade flows are also expected to impact on developing economies (Naudé, 2009). It is therefore important to address the current crisis by increasing development aid in order to meet the financial needs of recipients. However, besides increasing the aid flows, finding new means of making aid more productive is another key that should challenge the current aid allocation. "Mobilizing and increasing the effective use of financial resources and achieving national and international economic conditions needed to fulfil internationally agreed development goals, including those contained in the Millennium Declaration, to eliminate poverty, improve social conditions and raise living standards, and protect our environment, will be our first step to ensuring that the twenty-first century becomes the century of development for all." (United Nations, Monterrey Report, 2002: paragraph 3).

Table 1.1: Main developments in foreign aid history.

| Decade | Dominant institutions | Donor ideology | Donor focus | Types of aid |
|---|---|---|---|---|
| 1940s | *Marshal Plan*, UN system[a] (including theWorld Bank) | Planning | Reconstruction after war | mainly programme aid |
| 1950s | USA, with Soviet Union gained importance from 1956 | Anti-communist, but with role for the state | Community Development Movement | Food aid and projects |
| 1960s | Bilateral programmes's institutions, regional development banks (including ADB, AfDB and IDB) | Support for state in productive sectors | Productive sectors (e.g. support to the green revolution) and infrastructure | Bilateral donors gave TA and budget support; multilateral donors supported projects |
| 1970s | Multilateral donors' expansion (the World Bank, the IMF and Arab-funded agencies) | Support for state in productive sectors and meeting basic needs | Poverty, taken as agriculture and basic needs (i.e. health and education) | Fall in food aid, start of import support |
| 1980s | *Washington Consensus* rise of NGOs from 1985 | Market-based adjustment (rolling back the state) | Macroeconomic reform and liberalization | Financial programme aid, debt relief |
| 1990s | Emergence of European institutions (EBRD); EC assistance through Phare and Tacis | Move back to the state (end of the decade) | Poverty, governance as support to economic and political transition to help achieve market economy | Move toward sector support (end of the decade) |
| 2000s | Bilateral aid agencies enlarge aid flows, expansion in private aid (remittances) | Move toward performance based aid allocation | MDGs, global health (HIV/AIDs), security and governance | Sector support with special focus on social sector |

*Source*: Reproduced from Hjertholm and White (2000), p.8, Table 2, with revisions and additions.

*Note*: [a]The development work of United Nations started with the United Nations Relief and Rehabilitation Agency (UNRRA), founded in 1943.

## 1.2 Foreign Aid: How is it Measured?

The standard definition of foreign aid, widely accepted in the development community, is the one proposed by the DAC[9] of the OECD. DAC introduced the concept of Official Development Assistance (ODA) or Official (OA) in the 1970s. According to this definition, ODA consists of official grants[10] and concessional loans[11] from bilateral or multilateral donors to emerging and developing countries[12] which aim to promote economic development and welfare (OECD, 2001). The distinction between ODA and OA concerns the type of recipient country. OA consists of aid flows that meet the eligibility conditions for inclusion in ODA, but whose recipients are countries in transition, mainly CEECs and CIS countries, and countries whose per capita income has been higher than the threshold of about $9000 fixed by the World Bank for "high income" countries for three consecutive years (e.g. Bahamas, Cyprus, Israel and Singapore).

In order for financial flows to be considered as ODA/OA, they should verified the following criteria: (i) the flows must to be provided by the official sector of the donor country; (ii) the flows must be designed to promote economic development and welfare in recipient countries; (iii) the flows must have a grant element of at least 25 percent (the present value of the loan must be at least 25 percent below the present value of a comparable loan at market interest rates[13]). ODA/OA also includes grants for *technical cooperation*[14]; it excludes aid for military purposes, political development programs, trade

[9]The Development Assistance Committee (OECD), deals with development co-operation matters, and is in charge of the management of foreign aid committed by rich developed countries to developing and transition countries.

[10]Grants cover the transfers, in money or in kind, for which no repayment is required. It includes grants for technical co-operation, grant-like flows, i.e., loans extended by governments or official agencies in the currencies of the donor countries but repayable in the recipients' currencies and the transfer of resources through sales of commodities for recipients' currencies, less local currency balances used by the donor for anything other than development purposes. It excludes any reparations and indemnification payments to private individuals, insurance and similar payments to residents of developing countries, and loans extended in and repayable in the recipients' currencies (DAC Glossary, OECD, 2007).

[11]Loans are transfers for which repayment is required. Concessional loans are loans with a certain concessionality level that reflects the benefit to the borrower compared to a loan at market rate. Non-concessional loans include loans that carry market or near-market terms and they are counted as part of official development finance.

[12]The potential recipient countries have to be registered on the DAC recipient list, that is updated every year. The list shows the developing countries and territories eligible to receive ODA/OA.

[13]DAC assumes that the market interest rates are 10 percent with no grace period. Accordingly, the grant element is zero for a loan carrying a 10 percent interest rate, 100 percent for an outright grant, and an interest rate somewhere in-between for other loans.

[14]"This is defined as activities whose primary purpose is to augment the level of knowledge, skills, technical know-how or productive aptitudes of the population of developing countries, i.e., increasing their stock of human intellectual capital, or their capacity for more effective use of their existing factor endowment. Accordingly, the figures relate mainly to activities involving the supply of human resources - teachers, volunteers, experts in various sectors; and action targeted on human resources - education, training, advice. (DAC Glossary, OECD, 2007).

credits debt forgiveness for military loans assistance, assistance from NGOs, other private organizations or bank loans.

ODA/OA might be *bilateral* or *multilateral*. It is considered *bilateral* when it is provided directly by a donor country (developed country) to any given aid recipient country (emerging and developing country). It is *multilateral* when it is provided by donors, but channeled via international organizations which are active in development, like development banks - the World Bank; the African Development Bank; the Asian Development Bank; the IMF; the United Nations agencies and regional groupings, such as the EU and Arab agencies.

ODA/OA can be measured as *commitments* or *disbursements*. *Commitments* are defined by the DAC as "a firm obligation, expressed in writing and backed by the necessary funds, undertaken by an official donor to provide specified assistance to a recipient country or a multilateral organization. Bilateral commitments are recorded in the full amount of expected transfer, irrespective of the time required for the completion of disbursements". *Disbursements* stand for "the release of funds, or the purchase of goods or services for a recipient; by extension, the amount thus spent. Disbursements record the actual international transfer of financial resources, or of goods or services valued at the cost to the donor.". (DAC Glossary, OCED 2007). Additionally, *disbursements* can be measured in *gross* or *net* terms. *Gross ODA disbursements* capture all disbursements from donors to recipients, while *net ODA disbursements* represent gross transfers after subtraction of amortizations (i.e. loan repayments). When analyzing aid flows the distinction between *commitments* or *disbursements* has to be considered with respect to the objective of the study. If the objective is to analyze aid effectiveness, *disbursements* are generally used since they represent the aid flows actually transferred to recipient countries and they depend only on the administrative capacity and willingness of recipients to receive and manage the money. While investigating the determinants of aid allocation, on the other hand, *commitments* are generally preferred, since they better reflect the decisions over which donors exercise full control (Dudley and Montmarquette, 1976; McGillivray and White, 1995).

An important aspect that should be taken into consideration when measuring aid flows, is whether one should look at aid flows measured (i) in volumes; (ii) as a share of GDP, or (iii) in per capita terms. The measurement in level is important, but it does not say much about the amount of aid flow with respect to the size of a country (in terms of population size). In fact, it has been observed that, while considering aid in volumes, big countries seem to receive more aid in absolute terms. On the contrary, considering aid per capita allows one to test whether small countries get more per capita foreign assistance than big

ones. Aid measured as a share of the GDP of a recipient displays the size of aid flows relative to the wealth of the recipient economy. Nevertheless, it can also show a distorted picture when the GDP of recipients is low or the amounts of aid flows are very large. In either case, the computed share of aid to GDP appears to be high.

Although the ODA/OA definition of DAC is the most commonly used in the literature, several researchers emphasize some weaknesses in using this approach to define and measure foreign aid. According to Chang et al. (1999), ODA does not precisely measure the exact value of foreign aid flows and that the evolution of net ODA over time, and across donors and recipients, provides a distorted picture of aid trends. They show that this distortion arises because the aid content is underestimated due to netting out; loans with low concessionality[15] are under-represented, while loans with high concessionality are over-represented; official technical assistance grants are included with their full value; using constant discount and interest rates (the rates are constant all along the life span of loans) instead of actual market rates (credit risks are not accounted for - the interest rate is always 10 percent whatever the real opportunity cost of donors, which depends on the currency risk, maturity and period of time).

To adjust these limits, they propose a new approach for measuring foreign aid flows, the so-called Effective Development Assistance (EDA). As reported by Chang et al. (1998), EDA is composed of the grants and grant shares of official loans (even those with a grant element of less than 25 percent), calculated on a basis of actual interest rates (market rates). Technical assistance flows are excluded from their definition. They show that over the last few years, conventional net ODA flows have overstated EDA flows by 25-30 percent[16]. However, some of their points are problematic and lead to the underestimation of the actual value of aid flows. In particular, the exclusion of official technical assistance grants from aid flows goes against some of initial rationales for foreign aid and, consequently, underestimates the actual value of aid flows received. According to Dalgaard and Hansen (2001), discussions of consistency and changes in aid flows are irrelevant. They note that there certainly is a difference between ODA and EDA[17], but that this difference is likely to be only a simple transformation[18].

[15]Loans with a grant element generally equal to zero, or less than 25 percent.

[16]They graphically represent net ODA and EDA flows for 1975-1995 period and note that the two graphs are parallel, with the graph of ODA higher by 25-30 percent, compared to the graph of EDA.

[17]They compare ODA and EDA flows as a ratio of GDP and they find a certain proportionality between the two of them, with ODA being slightly superior to EDA.

[18]This is demonstrated by a correlation coefficient of about 0.98 between the two measures (the correlation coefficient was computed with both Pearson's standard and Spearman's.)

## 1.3 Trends in Aid Flows

This section reviews trends in aid flows regarding aggregate volumes and geographical distribution by sources (donors) and destinations (recipients) with a focus on bilateral and multilateral aid in transition economies.

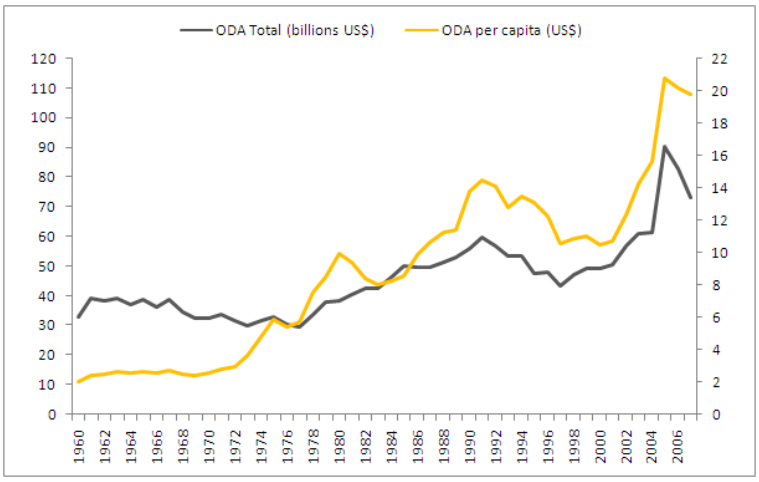
### Aggregate Aid Flows

Figure 1.1 presents the aggregate trends in net ODA given to developing countries for the period 1960 to 2007. Over the whole period, the total net ODA increased from only $32.6 billion to $72.9 billion (constant 2007 prices). The overall trend in total ODA flows is clearly upward. Aid increased almost every year between 1960 and 1992, with a peak in 1991, when the total net ODA in constant 2007 prices reached $59.8 billion. The decline between 1992 and 1997, from $59.8 billion to $43.2 billion (constant 2007 prices), was a consequence of the end of the Cold War, the weakening of the relationships between the former colonial powers and their ex-colonies, but also donors' concern about the credibility of governments in recipient countries, with regard to governance and corruption. Also, the "aid-fatigue" manifested by cuts in the aid budgets of most of the donors, a consequence of the increasing pressure on their national budgets (in the context of Maastricht criteria) explains the decline in aid volumes. Donors like Italy, Sweden and Finland added to the expense of their aid recipients, the large fiscal deficits they ran. However, donors with smaller budget deficits, like Norway, Japan and Ireland managed to increase their aid budgets in real terms (OECD-DAC, 1997, 2000). The adoption of MDGs (in 2000), and donors commitment to scale up aid translated in increasing aid flows that reached $90.3 billion in 2005 (constant 2007 prices). The same upward trend is observed in aid per capita flows; it increased from $2 to $19.8 over the period (1960-2007), whit a first peak in 1991, $14.5, and a second in 2005, $20.8.

The trends in the average ratio of net ODA flows to recipients' gross national income (GNI) are shown in Figure 1.2. The whole period average is about 1.4%. The overall trend is clearly downward over the entire period; the ratio decreased from 2% in 1960 to 0.9% in 2007, with its lowest value in 1997, 0.8%. These figures illustrate that, even if in terms of volumes or in per capita terms, aid might look important, it only represents a small share of recipients GNI.

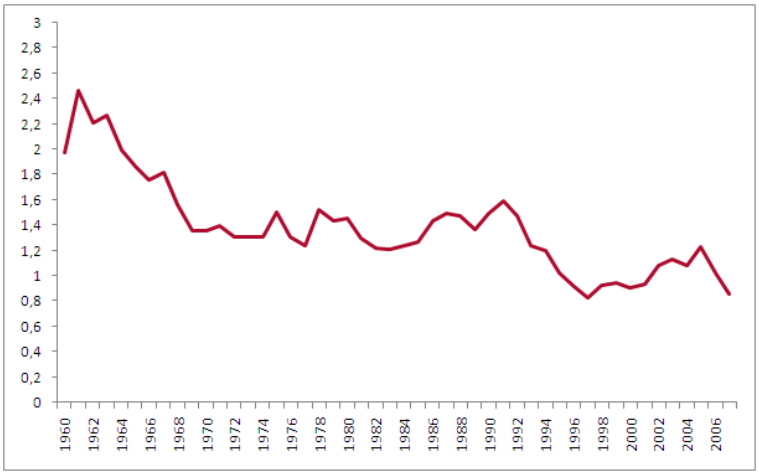
A comparison between multilateral and bilateral aid flows (Figure 1.3) shows that the former are almost two times lower than bilateral aid flows. However, the general trend in multilateral ODA flows is, on average, upward. The increase in the 1970s and 1980s is

Figure 1.1: Net ODA to developing countries, 1960-2007 (constant 2007 billion US$).




*Source*: OECD-DAC.

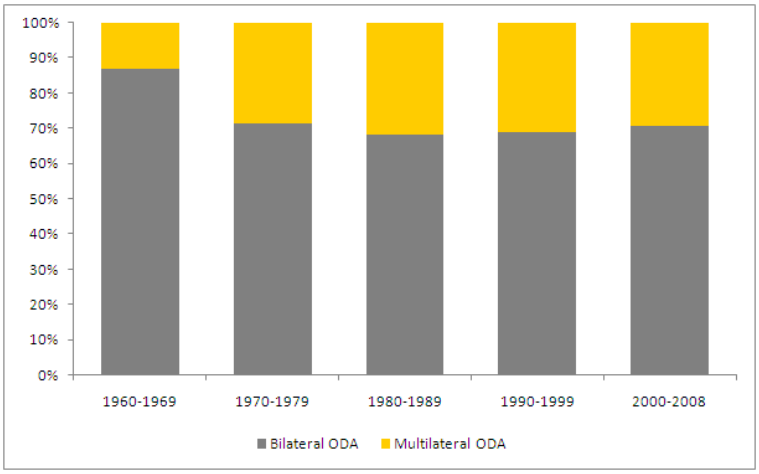
Figure 1.2: Net ODA to developing countries, 1960-2007, % of recipients' GNI.




*Source*: OECD-DAC.

partly explained by the reorientation of aid towards poverty alleviation[19]. The decision of the international institutions (i.e. the World Bank, the IMF) to financially support developing countries that were facing losses due to oil price shocks and debt crises also contributed to an increase in the share of multilateral assistance (White, 2003).

Figure 1.3: Share of multilateral/bilateral ODA, 1960-2007 (period averages, %).

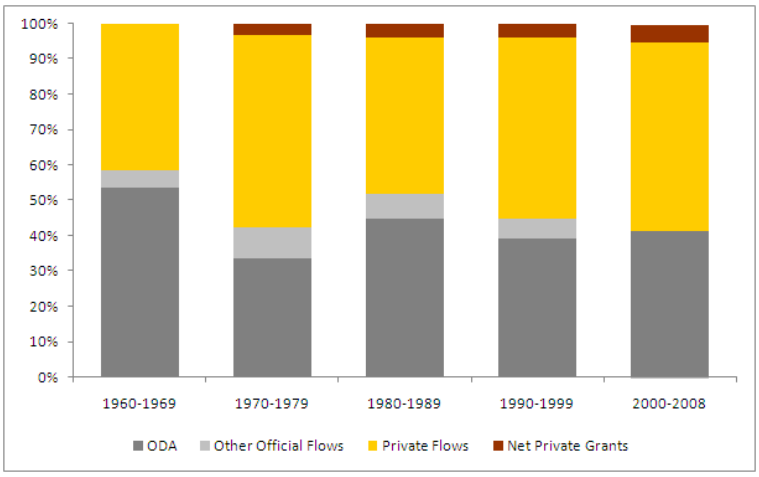



*Source*: Own calculation based on OECD-DAC database.

Besides ODA, recipients might benefit from other financial flows, in particular private flows. During 1960-1969, private flows represented about 45% of the total flows, official and private, to developing countries (Figure 1.4), which is relatively high compared to official flows. Private flows have experienced both phases of expansion (1975-1979; 1990-1997; 2004-2007) and decline (during the 1980s). The expansion of private flows was the consequence of increases in financial resources from oil producers (following the oil price shock in 1973), as well as of the high inflation rates and low returns to capital experienced by developed countries, which actually lead banks to look for new investment opportunities in developing countries (OECD-DAC, 2000). While at times the decrease in official aid flows was compensated by the expansion in private financial flows, there were occasions when both official and private aid flows expanded or declined simultaneously. For instance, in the 1970s, official aid flows increased, while private flows simultaneously experienced an expansion. During the 1980s, while official aid flows remained relatively stable, private flows declined. Moreover, the sharp decrease in official flows between 1990-1997 was compensated by a strong expansion of private flows.

[19]In practice, the size of poverty-focused concessional financing increased from 5 percent in the late 1960s to 30 percent in the early 1980s (Thorbecke, 2000).

Figure 1.4: Total Official and Private Flows, all donors (period averages, %), 1960-2008.

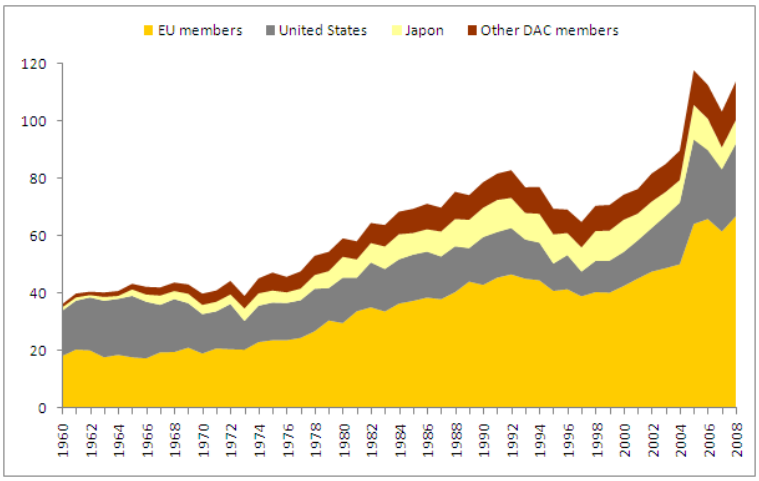



*Source*: Own calculation based on OECD-DAC database.

## Allocation by Donor

Figure 1.5 shows the allocation of bilateral ODA by donor. While net ODA flows from the United States have declined over time, relative to the total aid flows from DAC members, aggregate aid flows from EU members have been steadily increasing. However, in recent years, the United States is the world's largest aid donor in terms of volume. In 2008 according to preliminary data from OECD, the United States provided $25.4 billion (constant 2007 prices), followed by Germany ($13 billion), the United Kingdom ($12.2 billion), France ($10.2 billion), Japan ($18.3 billion) and the Netherlands ($6.5 billion).

Figure 1.5: Net ODA by donor (DAC members), 1960-2008 (constant 2007 billion US$).

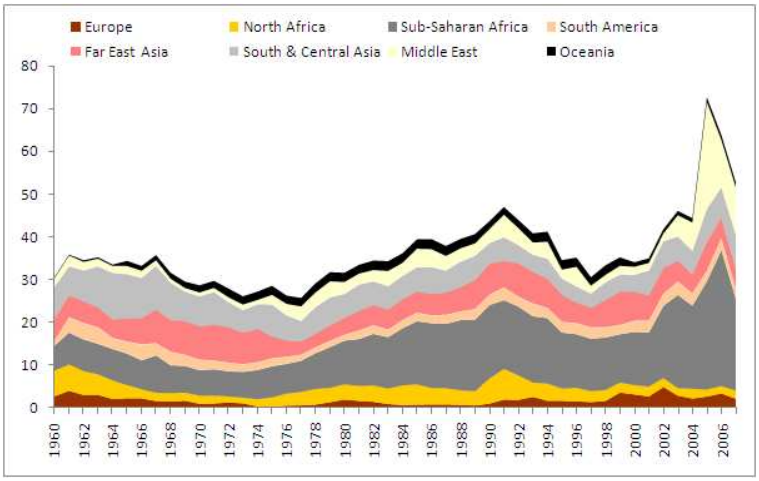



*Source*: Own calculation based on OECD-DAC database.

## Allocation by Recipient Region

Figure 1.6 gives the geographical allocation, by region, of net ODA disbursements. Sub-Saharan Africa has been one of the priority regions for the donors since the early 1970s, with about one third of total ODA going to countries in this region. Countries from South and Central Asia have seen their total aid flows decline since the 1970s. However, this region still receives a lot of attention from donors. One reason for the decline in the Asian-Pacific share of total aid was the successful development efforts of countries like the Republic of Korea, Malaysia, Singapore, and China.

Figure 1.6: Regional allocation of net ODA, 1960-2007 (constant 2007 billion US$).



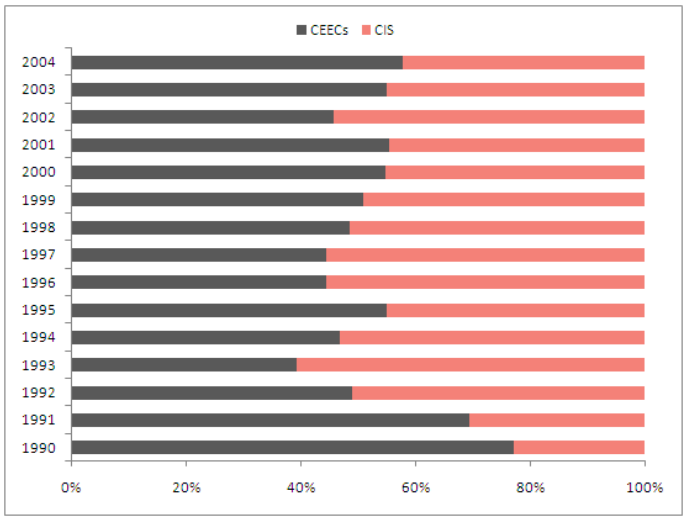

*Source*: Own calculation based on OECD-DAC database.

## Allocation in Eastern Europe

Since 1990, after the fall of the Berlin wall, changes in the international financial architecture have occurred, specifically with the addition of CEECs and CIS countries to the list of DAC recipients. While Sub-Saharan Africa and the Asian-Pacific regions remain important aid recipients, CEECs and CIS countries have also become favored destinations for aid. Analysts talked about a reorientation of aid flows from developing to transition economies.

Figure 1.7 shows the shares of net ODA disbursements from all donors to CEECs and CIS countries over the period 1990-2004. Note that, starting 2005, ten of the CEECs countries were removed from the DAC recipients list when they became members of the EU. Albania, Croatia and Macedonia are the only CEECs that are still receiving DAC support. Here we only present the evolution of aid flows for the period 1990-2004, period over which data on aid flows are available for all the countries in the region.

Figure 1.7: Net ODA/OA, All donors, 1990-2004 (constant 2007 million US$).

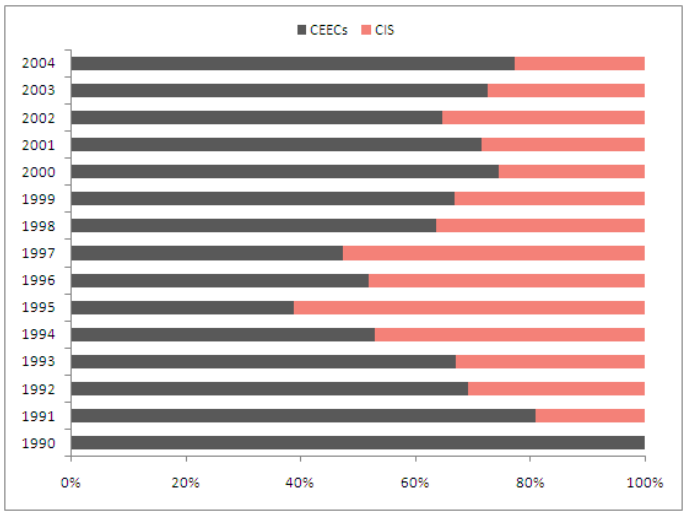



*Source*: Own calculation based on OECD-DAC database.

The volumes of net ODA fluctuated quite a lot; increase phases alternated with decline phases. The most spectacular increase was in the early years of transition. This substantial effort of donor countries to provide assistance to this region proves that the international community recognized the need for transition economies to restructure and to implement reforms during the transformation process from planned to market-based economy. The economic situation of these economies did not allow them at that time to cope with these challenges and provide all the financing required for the transformation. Aid given to these countries was mainly designed to support at first, the democratic development and then the process of implementing reforms aimed at changing and improving economic and social infrastructure. A lot of aid was given in the form of technical assistance. For example, the average share of technical co-operation received by CEECs countries, over the period 1990-2004, was about 22% of the total net ODA disbursements; for CIS countries this share was 36% (OECD, 2007).

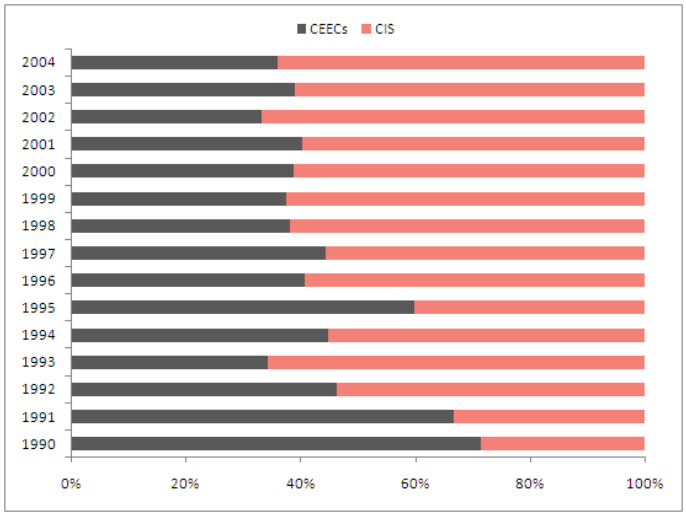
The support came mainly from international organizations (the EU, the IMF, the World Bank), but also bilateral donors (DAC members). Looking at the share of net ODA by group of countries - CEECs and CIS and type of donor - multilateral and DAC donors (Figures 1.8 and 1.9) - one could notice that aid has been quite unevenly distributed. Overall, CEECs enjoyed special treatment, particularly from multilateral donors. However, while at the beginning of transition, CEECs initially got almost tow times more financial assistance from multilateral donors, as transition advanced the multilateral assistance to CIS countries increased. Bilateral assistance in the region was more equitable, with CIS somehow better positioned.

Figure 1.8: Net ODA/OA, Multilateral donors, 1990-2004 (constant 2007 million US$).




*Source*: Own calculation based on OECD-DAC database.

Figure 1.9: Net ODA/OA, DAC donors, 1990-2004 (constant 2007 millions US$).

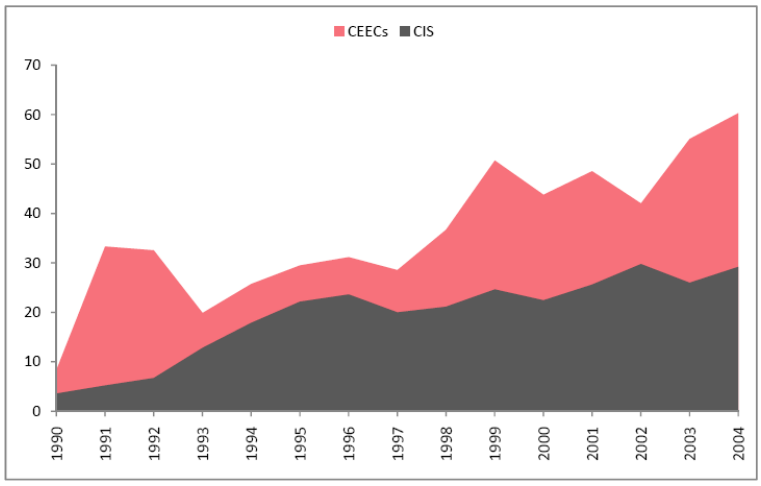



*Source*: Own calculation based on OECD-DAC database.

In terms of aid per capita[20] (Figure 1.10), the picture is similar, CEECs appear to have received overall more aid; in 2004 for example, CEECs got almost two times more aid (60.3 $US per capita) than CIS (29.22 $US per capita).

[20]Aid per capita includes both ODA and OA. It is calculated by dividing total aid by the midyear population estimate.

Figure 1.10: Aid per capita, average by region, 1990-2004 (current US$).




*Source*: Own calculation based on OECD-DAC database.

One argument brought up in favor of the important aid flows towards CEECs was the preparation of their integration within the EU. The aid from the EU, via the European Commission (EC), the largest multilateral source of finance and technical assistance to CEECs, was considered as an efficient mechanism that allowed CEECs to successfully complete their transformation by acquiring the capacities to satisfy economic and political criteria that follow from the statute of a future EU member. The EU pre-adhesion aid was provided through several instruments, namely: (i) *PHARE*[21], designed to support economic restructuring and prepare the adhesion; (ii) *ISPA*, relative to environment and transports; (iii) *SAPARD*, relative to agriculture and rural development. For the period 2007-2013 these three instruments have been replaced by a single one, *IAP* (instrument for pre-adhesion aid) which benefits to candidate countries, i.e. Balkan countries and Turkey. This aid has been provided conditional on the progress achieved and the needs of recipients. The EU aid to CIS countries has been provided through *TACIS*[22] programme, which aims to promote the transition to a market economy and to reinforce democracy and the rule of law.

[21] *PHARE* programme is the main pre-accession instrument of the European Union. It was set up in 1989 and started operations in January 1990, with the objective of achieving market economy based on free enterprize and private initiative for supported countries. It initially covered only Poland and Hungary. Later it was gradually extended; the candidate countries that have benefited from *PHARE* are Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia.

[22] *TACIS* programme was established in July 1991 to help the Soviet Union in its efforts to implement reforms. After the dissolution of USSR it supported the twelve CIS countries: Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine and Uzbekistan.

# Chapter 2

# Aid Effectiveness, Policies and Institutions

The debate about foreign aid and its effectiveness goes back decades. Whether foreign aid has effectively achieved its objectives so far is still an unanswered question that has been raised in both the academic and international aid community. Success stories support the role of aid in enhancing growth, while aid failures raise questions about it.

The core of the analysis of aid effectiveness in enhancing growth has became dominated by the debate about whether the positive impact of aid is conditioned by the quality of policy in recipient economies, or on the contrary, whether this impact is independent of the quality of policy (Tarp, 2006). If aid works only in sound policy environments, a selective allocation of aid in favor of good performers is appropriate. Otherwise, the scenario of a selective allocation of aid should be treated with concern. The starting point of this debate relies on the recent findings of Burnside and Dollar (2000). Their study highlights that in a sound policy environment characterized by low inflation, low budget deficits and trade openness, the impact of aid is greater than in a poor policy environment. According to them, if aid sometimes failed to achieve its goals in the past it was because the allocation criteria did not consider this aspect. The policy implication of their findings is that "making aid more systematically conditional on the quality of policies would likely increase its impact on developing country growth" (Burnside and Dollar, 2000, p. 864).

Questioning the effectiveness of aid is a topic that has most often been addressed in the case of developing countries; the evidence for transition economies is scarce. As a matter of fact, these countries do not have a long history as aid recipients. Aid started to be provided to them only after the collapse of communism being designed mainly to support reforms and restructuring of centrally planned economies in order for them to

achieve market economy. The purpose of this chapter is therefore to fill the gap, and to investigate the effectiveness of aid in transition economies - Central and Eastern European countries (CEECs) and Common Wealth of Independent States (CIS); in light of Burnside and Dollar's findings, the macroeconomic effect of aid on growth is analyzed by taking into account the policy environment.

In addition, we consider the effects of aid with respect to the institutional environment and the progress in implementing reforms. The transformation of centrally planned economies required, among others (stabilization, liberalization and privatization), new institutions and new regulations proper to market economies. Transition literature has payed a lot of attention to the institutional approach. Here we adopt this approach and we analyze whether the positive impact of institutions enhances aid's impact on growth.

Moreover, we consider the idea that structural characteristics of recipient countries, as measured by the conditions at the beginning of transition, affect the effectiveness of aid in promoting growth and development. In particular, this region is characterized by the high heterogeneity of its economies. They range from low income (most of the CIS) to more advanced economies (the new members of the EU). Ever since the beginning of transition process these economies displayed considerable differences in their level of development, macroeconomic imbalances, and degree of integration into the socialist trading system; also in geographical location and in natural resource endowments (De Melo et al., 1997b).

Even though the time-lapse since the transition started is relatively small (for CEECs, only fifteen years of experience in receiving aid), an analysis of the impact of aid in these economies might shed light on the effectiveness of aid in achieving its objectives. Some of these countries have recently become new EU members; they have been successful in reforming their economies and have taken advantage of the integration prospect. It is therefore interesting to find out whether aid has provided support through the complex process of transformation from planned to market economy undertaken by these economies.

The main focus of this chapter is on how the impact of aid on growth in transition economies varies with different indices that measure the quality of macroeconomic policy, the progress in implementing reforms (both structural and institutional) and the initial conditions. The starting point for our analysis is Burnside and Dollar (2000)[1] who stress the importance of aid conditionality. We will adapt their methodology to transition economies and make some additions regarding the conditionality of aid impact with respect to variables other than the macroeconomic policies. In order to empirically validate our hypotheses we will run the Generalized Method of Moments (GMM) which is the

[1]Burnside and Dollar's (2000) methodology and results are provided in section 2.2.1.

most appropriate estimation method that suits our data. We will carry out our empirical analysis on a sample of 25 transition economies over a fifteen-year period (1990-2004).

This chapter makes several contributions to the existing literature.

First, we have shown that the positive impact of aid on growth conditioned by the quality of macroeconomic policies is not significant. Aid appears to positively affect growth, but the presence of sound macroeconomic policies do not enhance this positive impact. Our results do not validate Burnside and Dollar's (2000) findings on aid conditionality; and they are in line with all the subsequent literature that rejects the role of economic policies in the effectiveness of aid with respect to growth.

Second, we have found that the quality of institutions and reforms do not play a significant role in enhancing the effect of aid on growth either. In transition economies, structural and institutional reforms indeed contribute to growth and economic development. However, their contribution to the positive impact of aid on growth is not noticeable.

Finally, we have shown that the starting point of transition economies, as measured by the initial conditions (see Falcetti et al., 2002) matters for the returns to aid. We have found evidence that aid is more effective in spurring growth in countries with bad initial conditions in terms of level of development, macroeconomic distortions, degree of integration into the socialist trading system, the extent of prior reforms, geographical location and natural resource endowments. However, the negative effect of initial conditions on growth appears to decrease over time, which further translates in less effect of aid on growth as transition proceeds.

The chapter is organized as follows. Section 1 presents an overview of the existing studies on the effectiveness of aid. Section 2 provides the conceptual framework of aid-growth relationship in transition economies. It establishes the research question and the subsequent hypotheses to test. Section 3 presents the methodology employed in foreign aid-growth studies. It focuses on the neoclassical growth model and the appropriate estimation technique when dealing with dynamic panel data. Section 4 gives a general overview of main data trends and measurements. Section 5 outlines the econometric estimation results and Section 6 concludes.

## 2.1 Overview of Studies on Aid Effectiveness

The role of foreign aid and its impact on economic growth has become a major and highly debated topic in both theoretical and empirical growth literature in the last

decades. In assessing the potential impact of aid two conceptually different approaches have emerged, for and against foreign aid allocation.

The "for" approaches contend that official foreign assistance is the only source of financing in many developing countries. Since these countries lack domestic savings and have limited or no access to international private capital markets, foreign aid is viewed as a source of additional finance. Its role is to help fill the financing gap in order to allow these countries to reach a sufficient investment level that would spur economic growth. Foreign assistance is valuable to developing countries, as it is "helps to jump-start the process of capital accumulation, economic growth, and raising household incomes" and if "is substantial enough, and lasts long enough, the capital stock rises sufficiently to lift households above subsistence" (Sachs, 2005, p. 246).

The approaches "against" aid allocation argue that committing foreign aid is simply a waste of money since its premises are wrong even if its objectives are worthwhile. By enlarging government bureaucracies and enriching the elite in poor countries, aid flows have already largely contributed (or will contribute) to the failure of development efforts in many developing countries (Freidman, 1958; Little and Clifford, 1965; Bauer, 1972). The high level of corruption, unaccountability and poor management of aid delivery mechanism in recipient countries are some of the factors that lead to aid failures (Easterly, 2003, 2006).

Based on these two approaches, the broad literature that has emerged has attempted to throw light on the impact of aid on development outcomes, as well as on the determinants of aid allocation[2]. Studies have been carried out both at macro and microeconomic levels, and relayed on either cross-country comparisons or single country case studies, while introducing various innovative methods and techniques for dealing with the estimation inherent in assessing development effectiveness. The first main analytical framework used in this literature is represented by *Harrod-Domar* growth model and *two-gap* model. Considering the capital-output ratio as a key determinant of growth, and assuming the existence of a savings gap that constraints investment and growth, these models emphasize the role of aid in financing investment and propose a causal link from aid to savings, investment, and growth.

### The Aid-Domestic Savings Relationship

Most of the studies that analyze the relationship between foreign aid and domestic savings find a negative correlation; aid and savings are considered substitutes. When income rises as a result of foreign assistance, part of the additional income goes to current consumption. Aid enhances consumption rather than investment; consequently, savings

[2]The literature on the determinants of aid allocation is detailed in Chapter 3, section 3.1.

increase by less than the value of aid flows (Rahman, 1968; Griffin, 1970; Chenery and Eckstein, 1970; Weisskopf, 1972; Snyder 1990; Reichel, 1995). Papanek (1972) explains this negative association between aid and savings, by a set of exogenous factors, such as political factors (civil wars) or climate, which are likely to cause both high aid inflows and low savings rates. Critics of aid-savings substitutability, such as White (1992a, 1992b) for example, argue that the results of these static analyses indicating a negative aid-savings correlation should be cautiously considered for two reasons. First, the potential feedback from higher income into future higher savings and higher growth is ignored in a static analysis. Second, foreign assistance is mostly directed to health and education sectors; these sectors, even if considered as consumer goods, help to develop human capital which, in the long run, affect future savings, investment and economic growth.

Other studies confirm this negative relation between aid and savings, but only for some aid recipient countries, indicating strong heterogeneity among recipients. By analyzing a sample of 39 Sub-Saharan African countries, Hadjimichael et al. (1995) initially find a negative relationship between foreign aid and domestic savings. But, when they control for differences in growth performance and for the degree of progress in macroeconomic and structural adjustment reforms, they note that the negative impact of foreign aid on domestic savings concerned only the countries with a negative per capita growth and chronic imbalances. However, in countries with positive growth rates and sustained effort in implementing reforms (macroeconomic and structural adjustment), aid seems to have stimulated domestic savings.

**The Aid-Investment Relationship**

The relationship between aid and investment has also received notable attention in such literature. Most studies support the hypothesis that foreign aid raises the level of investment in recipient countries (Lensink and Morrisey, 1999; Hansen and Tarp, 2000, 2001; Mavrotas, 2003). Levy (1987), using data on 39 least developed countries, concludes that much of the aid transferred to developing countries finances investment and that a one point increase in aid to income ratio leads to a 0.86 point increase in investment ratio[3]. Hansen and Tarp's (2000) survey of 7 studies (published between 1972 and 1998) provide a positive estimate for the impact of investment on aid (fifteen out of sixteen estimates support this hypothesis).

However, there are studies that report the existence of heterogeneity in the relationship between aid and investment across aid-recipient countries. For example, Easterly (1999)

[3]The estimated coefficient of 0.86 is found for total ODA including technical assistance. When estimates are run with aid net of technical assistance, the estimated coefficient is 0.96. These findings represent an argument in favor of the importance of aid disaggregation in evaluating the impact of aid on development outcomes.

finds that, out of 88 aid recipient countries analyzed over a thirty-year period (1965-1995), aid has a negative and significant impact on investment in 36 countries, a negative but insignificant impact in 17 countries, a positive and significant impact in 23 countries and a positive but insignificant impact in 12 countries. Nonetheless, the results should be considered with precaution since Easterly (1999) uses a simple ordinary least squares (OLS) model without allowing for potential sources of bias.

### The Aid-Growth Relationship

Later, when the focus shifted away from simplistic *Harrod-Domar* and *two-gap* models towards more sophisticated models based on neoclassical and other growth models, most of the academic and policy debate on aid effectiveness turned to the analysis of the relationship between aid and growth. This new approach has produced a broad, but contradictory strand of literature. As noted by Hansen and Tarp (2000), between 1970 and 2000, about 72 cross-country studies have tested the link between foreign aid and economic growth. And there is still no agreement among researchers on the growth effects of aid. While some authors argue that aid helped to promote growth and structural adjustment in a large number of less developed countries, others disagree. Several generations of these studies have been identified: (1) the first generation which analyze the link between aid, savings and growth; (2) the second which identifies that aid affects growth only under certain circumstances; (3) the third which illustrates the impact of aid on poverty reduction through economic growth.

### First Generation Studies

The studies on aid-savings-growth relationships consider capital accumulation as central and perceive aid simply as an exogenous net increment to the capital stock of the recipient country. The results of these studies point out either no effect or a negative effect of foreign aid in enhancing economic growth, or a positive effect, but with diminishing returns[4] (Radelet et al., 2004).

The most important contribution to the literature that finds no effect or a negative effect of foreign aid on growth comes from Mosley et al. (1987, 1992). They argue that the lack of impact found in both cross-section and time series analyses is caused by a possible leakage of aid into non-productive expenditure in the public sector and a possible transmission of a negative price effect into the private sector. Boone (1995) also adds an

[4]The concept of diminishing returns illustrates the idea of absorption capacity constraint, which reflects the limitations in the infrastructure of both human and physical capital.

important contribution explaining the possible failures of aid in promoting growth by the *Dutch disease* effect of aid[5], corruption, and rent seeking behavior.

In a recent study, Rajan and Subramanian (2005a) found no robust evidence of a positive/negative relationship between aid inflows and economic growth in recipient countries, with their conclusion holding across time periods and types of aid. This result is explained in another study (Rajan and Subramanian, 2005b) by the decline in competitiveness (as measured by the decline in the share of labor intensive and tradable industries) induced by the effect of an overvaluation of the real exchange rate caused by aid inflows.

Some studies suggest a positive influence of aid inflows on growth in recipient countries, though with diminishing returns (Durbarry et al., 1998; Dalgaard and Hansen, 2001; Hansen and Trap, 2000, 2001; Lensink and White, 2001, Dalgaard et al., 2004). One of the most important contributions is that of Hansen and Tarp (2000, 2001). By introducing quadratic aid, they allow for nonlinearities in the aid-growth relationship and find a positive and significant estimated coefficient of aid term, and a negative and significant coefficient of the quadratic aid term. They conclude that there is a positive relationship between aid and growth, but which diminishes as the volume of aid increases. Further discussion on the assumption of diminishing returns is proposed by Lensink and White (2001). They show that aid returns are not only diminishing, but, after a certain level, aid returns become negative. They find a threshold of 50 percent of the ratio of aid to gross national product (GNP) for negative marginal returns. They suggest scaling down this threshold since the average aid ratio received by most of aid recipient countries is below 50 percent of their GNP. Other studies find that this threshold is about 25 percent (Hadjimicheal et al., 1995; Hansen and Tarp, 2000).

**Second Generation Studies**

When the new growth theories and the debate on growth determinants factors like macroeconomic stabilization or structural characteristics emerged they were included in the analysis of aid effectiveness. Additionally, a variety of innovative techniques have been used in order to capture individual heterogeneity and to deal with the endogeneity of aid and policy variables in relation to growth (e.g. two stage least squares (2SLS), GMM)). Several macroeconomic indicators were used to measure the quality of macroeconomic policies are growth rate of government consumption or credit growth rate (Kormendi and Meguire, 1985), inflation rate and budget deficits (Fischer, 1993) or fiscal and budget policy (Easterly and Robelo, 1993). Four studies constitute the core of all empirical analyses;

[5]This stands for an appreciation of the real exchange rate due to an increase in aid. This increase might harm a country's long-term growth prospects, since the appreciation of the real exchange can slow the growth of a country's exports.

these are the studies by Hadjimichael et al. (1995), Durbarry et al. (1998), Hansen and Tarp (1999) and Burnside and Dollar (2000).

Hadjimichael et al. (1995) recognize the positive impact of aid on growth and argue that poor economic policies determine poor economic performance (e.g. Sub-Saharan Africa countries). Durbarry et al. (1998) find evidence that greater foreign aid inflows have a beneficial impact on growth and identify the existence of an optimal aid allocation in terms of growth. Hansen and Tarp's (1999) findings support the hypothesis of a positive and significant impact of aid on growth. Technically, their analysis is more advanced than any others sofar. They use an estimation technique for dynamic panel data models with country specific effects which takes into account any unobserved country-specific effects and the endogeneity of both aid and policies.

The most influential study to highlight the dependence of aid effectiveness on the policy environment is the one by Burnside and Dollar's (2000). By using an interaction term between aid and policy, they point out that foreign aid is effective in enhancing growth only in the presence of sound macroeconomic policies, namely controlled inflation, budget surplus and trade openness. According to their findings, aid works in "a good policy environment", but has little impact in "a poor policy environment". If foreign aid stimulates economic growth in countries with good policies, then foreign aid should be given selectively to countries that have adopted sound policies. Burnside and Dollar (2000) findings opened a new debate on foreign aid and its effectiveness and shaped the World Bank's assessment of aid in the late nineties. The credo that "money matters - in a good policy environment" (World Bank, 1998, p. 28) subsequently dominated the debate on aid effectiveness and allocation; Burnside and Dollar's (2000) findings became the officially proclaimed "guidelines" for the World Bank and individual donor countries, while influencing their aid giving strategies.

However, Burnside and Dollar (2000) are not the only one that used interaction terms to measure aid effectiveness; the late nineties abounded with such studies. For instance, Dollar and Easterly (1999) show that in a sound policy environment, foreign aid enhances private investment. Moreover, foreign aid given to a reforming government can lead to improvements in the environment for private investment, since it creates "...confidence in the reform program and eases infrastructure bottlenecks" (Dollar and Easterly, 1999, p. 572). By using a broader measure of the quality of macroeconomic policies, the Country Policy and Institutional Assessment (CPIA) index of the World Bank, Collier and Dollar (2002) confirm the results of Burnside and Dollar (2000). When considering the degree of democracy in recipient countries, Svensson's (1999) findings provide empirical support for the hypothesis that the positive effect of aid is greater in more democratic countries.

Nevertheless, Burnside and Dollar's (2000) findings have opened the way to strong criticism in the international aid community. They have been reviewed and discussed extensively in many other papers. The main critique concerns the conditionality issue in itself. The very first development objective of aid is to help the poorest nations to grow, and the conditionality of aid contradicts such an objective. "[...] it may well be that many of those countries where aid works the best are, at the same time, among those that need foreign assistance the least. In contrast, countries that are less fortunate in having good policies in place, may need help badly to help bring them on track." (Hansen and Tarp, 2000).

Other aspects of Burnside and Dollar's (2000) findings have been subject to criticism by subsequent research. First, an important argument against their findings concerns the policy variable. It has been argued that the three components of the economic policy index are not the most appropriate measures of macroeconomic policies. Lensink and White (2000), for example, suggest that the relation between inflation and growth is probably non-linear and consequently cannot be measured with a fixed index. Amprou and Chauvet (2004) emphasize that budgetary surplus is not automatically favorable to growth, while Berthélémy and Varoudakis (1996) demonstrate the limited impact of trade openness for economies with underdeveloped financial systems. Secondly, the econometric specification is not considered appropriate and nor results robust. Hansen and Tarp (2001) suggest that the basic Burnside-Dollar results is sensitive to data and model specification. They show that, by changing the number of observations and the model specification, the relationship between the aid-policy interaction term and growth might appear to be negative. Jensen and Paldam (2003) show that the regional dummies used by Burnside and Dollar (2000) to capture the cross-country differences make the results vulnerable to the omitted variables bias. Finally, the validity of results is sensitive to the inclusion or omission of data points; by adding one four-year period (1994-1997)[6], the aid-policy interaction term is no longer significant (Easterly et al., 2003; Jensen and Paldam, 2003; Roodman, 2007).

Other studies have continued the debate on aid effectiveness, suggesting that, there are some other factors, besides policy, that are likely to influence the effectiveness of aid and therefore have an impact on economic growth (Gunning, 2001). According to Guillaumont and Chauvet (2001), aid works positively in countries with difficult economic environments[7], characterized by unstable terms of trade (i.e. instability of exports revenues) and natural disasters (i.e. instability of the agricultural production). Dalgaard et al. (2004) show that aid's impact depends on climate-related factors.

[6]The sample in Burnside and Dollar (2000) study consists in six four-year periods, from 1970-1973 to 1990-1993.

[7]See also Collier and Dehn (2001).

**Third Generation Studies**

A third generation of studies focuses on aid effectiveness in reducing poverty. Collier and Dollar (1999a, 1999b, 2001, 2002) extend Burnside and Dollar's analysis on the impact of aid allocation on poverty reduction through economic growth. They suggest that aid should be disbursed depending at the same time on a recipient countries' poverty index (CPIA), quality of macroeconomic policies and institutional environment. This specific criteria for targeting aid is called a "poverty efficient allocation of aid". It implies that poor countries with good policy environments should be eligible for aid, while countries with low CPIA scores should not or should receive less aid.

Other studies focus on aid's impact on infant mortality. Hudson and Mosley (2001) show that aid positively affects infant mortality, but with diminishing returns. Moreover, the worse the economic policy environment, the higher the marginal contribution of aid to reducing infant mortality is.

## 2.2 Conceptual Framework

In this section we will briefly present, first, Burnside and Dollar's (2000) main findings. Then, we will address our research questions and formulate several hypotheses on the potential determinants of aid effectiveness.

### 2.2.1 Burnside and Dollar's Analysis

Burnside and Dollar (2000) focus on the impact of economic policy on aid effectiveness. By introducing an interaction term between aid and an economic policy indicator, in growth regressions, they note that, in a neoclassical growth model, the impact of aid on growth is greater in a "good policy environment". This is defined as a weighted combination of low inflation rate, low budget deficits (relative to GDP), and trade openness (as defined by Sachs and Warner (1995)). The policy is constructed as follows:

$$Policy = 1.28 + 6.85 Budget\ surplus - 1.40 Inflation + 2.16 Openness \tag{2.1}$$

Their findings rely on a panel of 56 countries and six four-year time periods, from 1970-73 to 1990-93. The coefficients of the three policy variables are obtained from a standard growth equation estimated with OLS method. By introducing aid (as share of GNP) and an interaction term between aid and the policy index in a standard growth regression[8],

[8]In addition to the central economic policy variables, some other structural, institutional and political variables are included as control variables: (i) the M2/GDP ratio, as a measure of financial depth; (ii)

they find a positive and statistically significant coefficient for the interaction term. Based on this result they conclude that aid works in countries with sound economic policies.

### 2.2.2 Hypotheses to Test

Our research questions consist of several hypotheses about the determinants of the impact of aid on growth in recipient economies. We are using Burnside and Dollar's (2000) methodology as a starting point for our analysis. In addition, we are considering the effects of aid on growth with regard to other factors, such as the quality of reforms (structural and institutional), and the initial conditions of recipient countries. The hypotheses are as follows:

**H1: The effect of aid on growth is dependent upon by the quality of policy, institutions and structural reforms.**

**H2: Initial conditions in recipient countries matter for the returns to aid.**

**H3: Aid has decreasing marginal returns.**

By testing **H1** we attempt to identify whether the impact of aid on growth in transition economies is subject to *ex-ante* selectivity, which relies on the quality of macroeconomic and institutional policy. In order to test **H1** we will construct three indexes that measure the quality of macroeconomic policy (*Policy*), the quality of institutions (*Institutional Reform, IR*) and of structural reforms (*Structural Policy Reform, SPR*). Furthermore we will interact each of these with aid ($Aid*Policy$, $Aid*SPR$, $Aid*IR$) to capture the marginal effect of aid on economic growth which is conditioned by the quality of macroeconomic policies, and structural and institutional reforms. This hypothesis is supported by the view that aid has a positive impact on economic growth and that this positive impact is stronger in countries with sound macroeconomic policies and reforms required to achieve a market economy.

For **H2** we will test whether structural specificities, as measured by the initial conditions do affect the returns from aid. We will follow Dalgaard, Hansen and Tarp (2004) who point out that the degree to which aid enhances growth depends on the structural characteristics of recipients (as measured by climate-related circumstances) Here we will use Falcetti et al.'s (2002) aggregate index of different measures of initial conditions[9] which is computed through a Factor Analysis method. The importance of considering the

sociolinguistic fractionalization; (iii) political assassinations; (iv) institutions' quality; (v) the initial level of per capita GDP, to capture the convergence effects.

[9]The different components included in the initial conditions indicator are presented in Section 2.4.4.

initial conditions when dealing with transition economies is supported by the literature (De Melo et al., 1997b; Berg et al., 1999; Fischer and Sahay, 2000; Falcetti et al., 2002) and is explained by the existence of considerable differences between these economies at the beginning of the transition process. In particular, some of them were more market economy oriented, whilst others had a longer history of communist regime. Differences were identified in relation to various aspects, such as level of development, macroeconomic distortions, the extent of prior reforms, the number of years spent under the communism regime, and natural resources wealth. Each of these factors played an important role in the subsequent transformation process undertaken by these economies. Our main objective here is to measure the marginal effect of aid on growth which is conditioned by the initial conditions of recipients. We will do this by estimating an interaction term between *Aid* and *Initial conditions* ($Aid * Initial\ conditions$).

The **H3** hypothesis of decreasing marginal returns has been largely tested in the literature and there is a consensus which supports it (Hadjimichael et al., 1995; Durbarry et al., 1998; Hansen and Tarp, 2000, 2001; Dalgaard and Hansen, 2001; Lensink and White, 2001; Collier and Dollar, 2001, 2002; Chauvet and Guillaumont, 2004). It is verified by a negative and significant coefficient of squared aid in growth regressions. There are two rationales behind this hypothesis: (i) the *absorption capacity* - the impact of aid on growth depends on the absorption capacity of recipient economies; large amounts of foreign aid are less productive (Rosenstein-Rodan, 1961; Adler, 1965; Chenery and Strout, 1966; Guillaumont, 1971a, 1971b); (ii) the *Dutch disease* effect of aid - large amounts of aid are likely to determine the appreciation of the real exchange rate via the decline in exportations, which is not favorable to economic growth. Critics of the hypothesis of diminishing returns, like Hansen and Tarp (2000, 2001), do not see any rationale behind introducing non-linearities (captured by squared aid or interaction terms between aid and policy variables) in growth regressions. According to them, these are in fact proxies of each other, and therefore, it is likely that squared aid captures the effect of aid-policy interaction terms, while the aid-policy term captures the impact of squared aid.

## 2.3 Methodology, Model and Estimation Technique

This section presents several methodological issues to take into consideration when modeling growth and aid in transition economies. It also describes the model usually employed to estimate aid-growth relationships and the empirical specification appropriate to dynamic panel data.

### 2.3.1 Methodological Issues

Most of the empirical research on growth determinants in transition economies rely on growth regression analysis. A consensus has emerged regarding the most significant determinants of growth in transition economies. We will take this consensus as a starting point for the empirical specifications. Note that these growth determinants are not exactly the same as the standard growth determinants which are used to explain growth in emerging economies.

There are two standard growth determinants that will not be considered in our analysis, namely human capital and investment. These growth determinants appear to have a crucial impact on growth only in the long-run. However, when analyzing growth in transition economies, with only 13-14 years of data available, as in our study, the focus shifts from the long-term to the short-term or, at best, to a medium-term (Radulescu and Barlow, 2002). We have however checked the impact of secondary school enrolment, as a proxy for human capital (Barro and Lee, 2000), but it does not have any explanatory power over growth in the short term; moreover its inclusion in regressions significantly reduces the number of countries in the sample (because of the lack of observations).

With regard to investments, in order for them to sustain growth recovery, they need a specifically market-friendly environment to be previously set up; and this usually takes longer. This explains why the studies that tested these conventional determinants did not find much impact on growth. Several papers find no significant explanatory power for investment, at least during the first 7-8 years of transition (Havrylyshyn et al., 1998; Wolf, 1999). The lack of effect is also explained by the fact that investment could impact growth simultaneously by direct and indirect channels, via macroeconomic stabilization and structural policy reform channels. This double effect could weaken the explanatory power of investments when considering macroeconomic stabilization and structural policy reforms' impact on growth. However, it is expected that these determinants acquire more explanatory power over growth as the transition proceeds and transition economies become fully market-oriented economies. We have tested this indicator and found no significant impact on growth; for the reasons mentioned above, we have decided to drop it from our regressions.

Another methodological issue that should be dealt with when estimating growth regressions is the potential endogeneity of a set of explanatory variables, such as foreign aid, economic policy and institutions (Berg et al., 1999; Falcetti et al., 2002; Merlevede, 2003).

The endogeneity of aid in growth regressions has been identified and largely discussed since Papanek (1972). Most of the recent studies on aid effectiveness have tested for biases

in their estimated parameters resulting from aid endogeneity. This comes from the fact that aid is not a simple money transfer, it rather depends on levels of income.

Furthermore, the recent debate about the impact of institutions on growth has added other variables to the list of endogenous regressors, such as policy and institution variables. A consensus has emerged about the endogeneity of policy. For instance, Easterly and Levine (1997) and Temple (1998) point out persistent correlations between macroeconomic policy indicators and country specific cultural, and socioeconomic characteristics in developing countries. Moreover, Heybey and Murell (1999) and Wolf (1999) allow for feedback from growth to structural policy reforms, in cross-country analytical frameworks, while Merlevede (2003) models growth and structural policy reforms jointly. However, several studies (De Melo et al., 1997b; Havrylyshyn et al., 1998; Radulescu and Barlow, 2002) still consider structural policy reforms as exogenous to growth.

As for the endogeneity of institutional development with respect to growth, this is less addressed in growth literature. Havrylyshyn et al. (1998) are among the first to empirically investigate the impact of a market-friendly institutional framework on growth in transition economies and to distinguish between structural policy reforms and institutional reforms. However, they do not take into account the potential endogeneity that can arise from better economic performance (i.e. higher GDP growth rates), increased efforts or resources allocated by transition governments for institution building (i.e. higher scores for institutional indicators).

In this analysis, we will take the consensus about the potential endogeneity of aid, policy and structural policy and institutional reforms as a starting point and treat all of these variables as endogenous.

### 2.3.2 Theoretical Model

The growth equation (2.2) estimated here is based on a neoclassical growth model (Mankiw, Romer and Weil, 1992; Barro, 1996), augmented by foreign aid (Burnside and Dollar, 2000). Foreign aid might have an important impact on growth in a poor country, since it acts as an income transfer. But, this impact depends on its use. If aid is invested, it will induce an increase in domestic output; consequently, its use will be effective. Conversely, if aid is consumed, no effect on domestic output is likely to be observed.

The aggregate production function in a neoclassical growth model is assumed to take the following form:

$$Y_t = AK_t^{\theta} \tag{2.2}$$

where $Y_t$ is the output at time $t$, $K_t$ the capital at time $t$, $A$ the level of technology and economic efficiency ($A > 0$), $\theta$ the elasticity of output with respect to capital ($0 < \theta < 1$).

Let $F_t$ be the foreign aid at time $t$. It is assumed to be an income transfer which is employed to increase investment. It is therefore considered as a part of $K_t$. In order to capture the impact of aid, a first-order approximation of the effect of aid on growth can be obtained by computing the first derivative of $Y_t$ with respect to $F_t$, as follows:

$$dY_t = \theta A K_t^{\theta-1} \frac{\delta K_t}{\delta F_t} dF_t \tag{2.3}$$

where $dY_t$ stands for the size of output increase generated by the injection of aid; $\delta K_t / \delta F_t$ stands for the fraction of an additional unit of invested aid, and $dF_t$ stands for the size of the aid injection. Therefore, we may write:

$$\theta A K_t^{\theta-1} = \frac{\delta Y_t}{\delta K_t} \tag{2.4}$$

where $\delta Y_t / \delta K_t$ represents the marginal product of capital ($MPK$). According to the neoclassical theory, production factors are rewarded at their marginal products. The $MPK$ can be written:

$$\frac{\delta Y_t}{\delta K_t} = r_t + \delta \tag{2.5}$$

where $r_t$ is the net rate of return to capital, and $\delta$ the capital depreciation rate. Rearranging the terms in (2.5), the increase in output induced by the injection of aid becomes:

$$dY_t = (r_t + \delta) \frac{\delta K_t}{\delta F_t} dF_t \tag{2.6}$$

$$\frac{dY_t}{Y_t} = (r_t + \delta) \frac{\delta K_t}{\delta F_t} \frac{dF_t}{Y_t} \tag{2.7}$$

Finally, the impact of aid on growth is given by the estimate of $(r_t + \delta)$ $(\delta K_t / \delta F_t)$ in the derivative equation of growth with respect to aid (2.7).

The empirical model consider the above findings, namely that aid has an effect on growth through the investment channel. We are testing Burnside and Dollar's (2000) hypothesis according to which, in a neoclassical growth model, both the incentive to invest aid and its subsequent productivity (as a capital transfer) are negatively affected by various policy distortions. The fewer the imbalances, the greater the impact of aid on growth. We are extending their analysis by testing the same hypothesis, while considering

that structural and institutional reform might also provoke some distortions which could influence the impact of aid with respect to growth.

### 2.3.3 Estimation Technique

The most common econometric specification when dealing with growth regressions that involve aid variable, is the following:

$$Y_{i,t} = \alpha_0 + \alpha_1 A_{i,t} + \alpha_2 Z_{i,t} + \varepsilon_{i,t} \tag{2.8}$$

where $Y_{i,t}$ is the real per capita GDP growth (US$ 2000 constant prices) for country $i$ and time period $t$; $A_{i,t}$ stands for the total (multilateral and bilateral) aid flows received by a country $i$ at time $t$, as a share of its GDP (%); $Z_{i,t}$ is a vector of growth determinants, and $\varepsilon_{i,t}$ is the error term.

The main explanatory variables designed by $Z_{i,t}$ are: the initial level of real per capita GDP (US$ 2000 constant prices) as a measure of conditional convergence effect; a set of indexes, i.e. macroeconomic policy ($Policy$), structural policy reform ($SPR$) and institutional reform ($IR$) as measures of the quality of macroeconomic environment, and of the progress achieved in implementing structural and institutional reform; the initial conditions ($IC$) indicator as a measure of the structural characteristics of a country at the beginning of the transition process; interaction terms, i.e. $Aid * Policy$, $Aid * SPR$, $Aid * IR$ and $Aid * IC$ that capture the marginal effect of aid on growth through macroeconomic policies, structural policy and institutional reform, and initial conditions; general government final consumption expenditure (% of GDP); and broad money M2 (% of GDP) as a measure of financial depth.

When dealing with growth estimations of this type (2.8) some econometric issues need to be discussed. First, as mentioned in the previous section, the endogeneity of growth determinants should be considered, i.e. a reverse causality between growth $Y_{i,t}$ and the aid variable $A_{i,t}$ or other variables, such as policy and institutions. Second, unobserved individual specific effects are part of the error term and might be the source of a potential correlation with regressors $A_{i,t}$ (Policy, Institutions) or $Y_{i,t}$. In other words, a correlation between the regressors $A_{i,t}$ (Policy, Institutions) or $Y_{i,t}$ and the error term, $\varepsilon_{i,t}$, might exist through the presence of unobserved individual specific effects. Not taking into account this possible correlation would lead to biased estimators.

In order to deal with endogenous regressors and unobserved country specific effects in the context of panel data models, the appropriate approach to employ is the dynamic panel estimator.

We consider the following framework for the growth equation:

$$Y_{i,t} - Y_{i,t-1} = \alpha Y_{i,t-1} + \beta X_{i,t} + \lambda_t + \varepsilon_{i,t} \tag{2.9}$$

where $Y_{i,t} - Y_{i,t-1}$ is the growth rate of real per capita GDP; $Y_{i,t-1}$ is the initial level of real per capita GDP; $X_{i,t}$ a set of growth determinants; $\lambda_t$ a time-specific effect, estimated as the coefficient of dummies for each time-period; $\varepsilon_{i,t}$ is the error term; $i$ stands for the recipient country and $t$ for the time-period. The error term $\varepsilon_{i,t}$ can be divided as follows:

$$\varepsilon_{i,t} = \mu_i + v_{i,t} \tag{2.10}$$

where $\mu_i$ is an unobserved country-specific effect (a time-invariant factor that allows us to seize the unobserved heterogeneity of the countries), and $v_{i,t}$ the error term . Replacing $\varepsilon_{i,t}$ (2.10) in (2.9), the growth equation becomes:

$$Y_{i,t} - Y_{i,t-1} = \alpha Y_{i,t-1} + \beta X_{i,t} + \mu_i + \lambda_t + v_{i,t} \tag{2.11}$$

This model formulation shows that the presence of country-specific effects in growth models leads to a correlation between the regressor $Y_{i,t-1}$ (lagged income variable) and the error term $\varepsilon_{i,t}$. To deal with this correlation, the classical method used in a static panel data model is the fixed-effects estimator. This estimator requires strict exogeneity of the explanatory variables with respect to the random error term. In our case, the fixed-effects estimator is inconsistent, since aid and other variables (Policy, Institutions) are supposed to be endogenous. Conversely, the dynamic panel estimator introduced by Anderson and Hsiao (1981) allows us to deal with this inconsistency. They suggest eliminating the individual specific effect by first-differentiating. The regression equation in first-differences has the following form:

$$Y_{i,t} - Y_{i,t-1} = \alpha(Y_{i,t-1} - Y_{i,t-2}) + \beta(X_{i,t} - X_{i,t-1}) + (\lambda_t - \lambda_{t-1}) + (v_{i,t} - v_{i,t-1}) \tag{2.12}$$

Proceeding this way we certainly eliminate the time-invariant specific effects, $\mu_i$. But we are left with the lagged dependent variable $Y_{i,t-1} - Y_{i,t-2}$, at the right-hand of the equation. The transformation by first-differences induces another source of bias, namely a correlation between the transformed error term $v_{i,t} - v_{i,t-1}$ and the endogenous dependent variable, $Y_{i,t} - Y_{i,t-1}$. To address both this correlation and the endogeneity problem, Anderson and Hsiao (1981) propose to instrument the variable in first-differences $Y_{i,t-1} - Y_{i,t-2}$ by either its lags in level $Y_{i,t-2}$ or in difference $Y_{i,t-2} - Y_{i,t-3}$. These two instruments are strongly correlated with the variable in first-differences $Y_{i,t-1} - Y_{i,t-2}$ and non-correlated with the transformed error term $v_{i,t} - v_{i,t-1}$ (if there is no auto-correlation of errors).

Arellano and Bond (1991) generalize the dynamic panel estimator of Anderson and Hsiao (1981) and propose employing the Generalized Method of Moments (GMM) estimator. This method of moments uses all the orthogonality conditions between the lagged dependent variable and the error term. All lagged dependent variables, starting with the second order, are valid instruments for endogenous regressors. For example, for a period T, the set of valid instruments are $X_{i,1}$, $X_{i,2}...X_{i,t-2}$[10]. All lagged variables, starting with the first order, are valid instruments for predetermined regressors[11].

The approach of Arellano and Bond (1991) is two-step. The residuals of the first-step estimation are supposed to be homoscedastic; if this assumption is confirmed, the first-step estimator is consistent. Conversely, the residuals of the second-step are supposed to be heteroscedastic. The coefficients of the first-step estimates do not differ much from that of the second-step, but the standard errors for the second-step estimates are smaller (sample bias). If the sample is small (T small), the first-step standard errors should be used.

Arellano and Bond's (1991) method assumes there is no auto-correlation in residuals. This is a very strong assumption which allows the use of lagged variables as instruments for endogenous variables. Only first-order auto-correlation is expected in first-differenced equations, but not higher-order correlation. As a matter of fact, higher-order correlation indicates that some lags of the dependent variable used as instruments are, in fact, endogenous. In order to test the over-identification restrictions (the validity of instruments), Sargan test is used for the model derived by Arellano and Bond (1991). The weakness of Arellano and Bond's (1991) estimator, so-called "difference GMM" is that it uses lagged levels of the variables which are often poor instruments for first differences. Another GMM estimator that deals with this problem is the one proposed by Blundell and Bond (1998), the so-called "system GMM". This adds moment conditions and thus increases the efficiency of estimations. Blundell and Bond (1998) suggest using lagged variables in difference as instruments for level equations and lagged variables in level as instruments for first-difference equations. This allows the introduction of more instruments and can improve the efficiency.

Here we will compute this system GMM estimator in a two-step procedure, which and yield more efficient and reliable results than the one-step system GMM provided that the standard errors of the former estimator are corrected for the finite sample bias by applying the Windmeijer (2005) finite-sample correction; without this correction the standard

[10] Only lags of order greater than 2 are valid instruments for $X_{i,t}$, because later values are correlated with $v_{i,t}$. This assumption implies the following set of orthogonality conditions: $E[X_{i,t-s}\Delta v_{i,t}] = 0$ for $t = 3...T$ and $s > 2$.

[11] Predetermined regressors (weakly exogenous regressors) are variables that might be affected by past realizations of the dependent variable (the past growth rates for example), but not by contemporaneous or future realizations of the error term.

errors in the two-step estimation tend to be significantly downward biased because of the large number of instruments. A important assumption for the validity of GMM is that the instruments are exogenous; this is tested by the Sargan/Hansen test (for the joint validity of instruments) and the Difference-in-Hansen test (for the validity of a subset of instruments). The GMM validity also depends on the assumption that the model is not subject to serial correlation in the error terms. A common feature of Arellano-Bond and Arellano-Bover/Blundell-Bond methodologies is the increased number of instruments, which according to Roodman (2008), in small samples, can cause problems, such as: the overfiting of endogenous variables, imprecise estimates of the optimal weighting matrix, and a weak Hansen test of instrument validity. In order to avoid the proliferation of instruments we collapse them[12] and limiting the lag depth.

## 2.4 Data

The data used in this chapter has been gathered and compiled mainly from the DAC-OECD database for aid disbursements, the European Bank for Reconstruction and Development (EBRD) database for *Transition Indicators*, and the World Bank datase, *World Development Indicators (WDI)* for all the other variables[13]. The panel consists of 25 transition countries[14]. The time span covers a fifteen-year period (1990-2004). It is constrained by the limited availability of aid data. "Part II (transition countries) of the Development Assistance Committee (DAC) list was abolished in 2005. The collection of data on Official Assistance (OA) and other resources flows to Part II countries ended with 2004 data." The new DAC list of Official Development Assistance (ODA) recipients "excludes countries that are members of G8, or the EU, or that have a date of admission to the EU. This means that as at 2005, it excludes the following countries: Russia, and Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovenia and Slovak Republic." (DAC List of ODA Recipients as at 1 January 2006, DAC, OECD).

[12]This means that only one instrument is used for each variable and lag distance, rather than one instrument for each time period, variable and lag distance. In small samples, this avoids the bias due to the increasing number of instruments towards the number of observations (Roodman, 2008).

[13]Details about sources and definitions of the data are provided in Table 3.9 in the Appendix of this Chapter.

[14]The countries included in the sample are the following: Albania, Armenia, Azerbaijan, Belarus, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Macedonia, Moldova, Poland, Romania, Russia, Slovakia, Slovenia, Tajikistan, Turkmenistan, Ukraine and Uzbekistan.

### 2.4.1 Foreign Aid: Measures and Trends

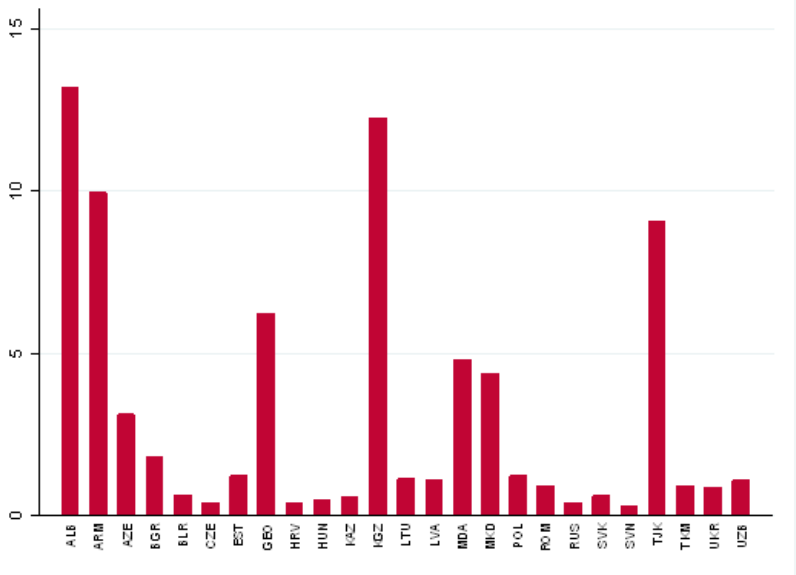
The aid flows used here are measured as disbursements. We will analyze disbursements and not commitments since disbursements are more appropriate in an analysis of the impact of aid in recipient countries. In fact, their effectiveness depends on factors over which donors have no control, like the willingness and administrative capacity of recipients to manage the amount of aid and to answer to the conditionalities of donors. We use DAC-OECD definition according to which disbursements refer to ODA, respectively OA as the sum of "net disbursements of loans and grants" from 22 official donors, members of DAC and international organizations, i.e. the EBRD, the European Commission (EC), the IMF and the World Bank. It therefore includes bilateral and multilateral aid disbursements[15]. The aid variable used in growth regressions is the ratio of aid disbursements (current prices, million US$) over the GDP (current prices, million US$) of recipient countries.

Table 2.1 shows the evolution of aid over GDP (%) by recipient, over the analyzed period. The average shares of total aid to GDP, by recipient, are presented in Figure 2.1. The main ODA recipients are Albania (13.18%) and some CIS countries: Kyrgyzstan (12.25%), Armenia (9.95%), and Tajikistan (9.05%). The stylized facts seem to indicate that the ten new members of the EU, which are considered the most advanced economies in the region, were not among the countries that received the most aid. It seems that in transition countries aid has been provided according to the level of development rather than to the quality of policy and institutions.

Looking at the shares of multilateral and bilateral aid to GDP (Figure 2.2), among the main recipients, Albania received more bilateral aid, while Kyrgyzstan, Armenia and Tajikistan, more multilateral aid. Most of the CEECs, except Poland, were supported most, as expected, by multilateral agencies.

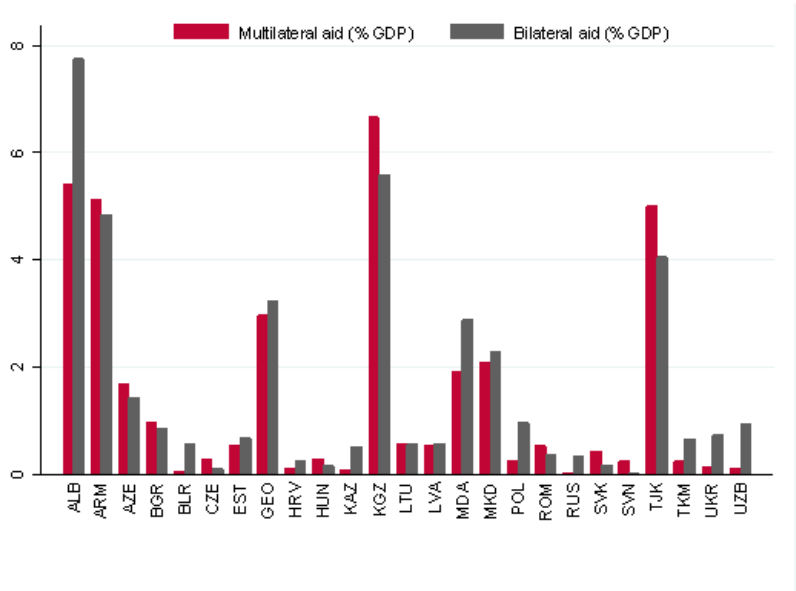
[15]Note that no distinction is made between the types of aid. We agree that an analysis on the impact of disaggregated aid flows on growth would be more appropriate, since different categories of aid flows might not influence growth in the same way and uniformly. However, because of a lack of available data, in particular for the ten new EU members, such an analysis could not be carried out.

Figure 2.1: Total ODA over GDP (%) by recipient, 1990-2004.




*Source*: Own calculation based on OECD-DAC database.

Figure 2.2: Multilateral and bilateral ODA over GDP (%) by recipient, 1990-2004.




*Source*: Own calculation based on OECD-DAC database.

Table 2.1: Aid over GDP (%).

| | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***CEECs*** | | | | | | | | | | | | | | |
| **Albania** | 29.1 | 56.9 | 24.0 | 8.2 | 7.4 | 7.5 | 7.5 | 9.8 | 14.2 | 8.6 | 6.6 | 6.9 | 6.2 | 4.1 |
| **Bulgaria** | 2.9 | 1.4 | 1.1 | 1.6 | 0.9 | 1.8 | 2.1 | 1.9 | 2.1 | 2.5 | 2.5 | 2.1 | 2.1 | 2.5 |
| **Croatia** | na | 0.0 | na | 0.8 | 0.3 | 0.7 | 0.2 | 0.2 | 0.2 | 0.4 | 0.6 | 0.6 | 0.4 | 0.3 |
| **Czech Republic** | 0.9 | 0.4 | 0.3 | 0.4 | 0.3 | 0.2 | 0.2 | 0.7 | 0.5 | 0.8 | 0.5 | 0.2 | 0.3 | 0.3 |
| **Estonia** | 0.3 | 2.6 | 1.1 | 1.1 | 1.3 | 1.3 | 1.3 | 1.6 | 1.5 | 1.1 | 1.1 | 0.7 | 0.9 | 1.2 |
| **Hungary** | 1.9 | 0.6 | 0.4 | 0.5 | -0.5 | 0.4 | 0.4 | 0.5 | 0.5 | 0.5 | 0.8 | 0.2 | 0.3 | 0.3 |
| **Latvia** | 0.1 | 1.7 | 0.7 | 1.0 | 1.2 | 1.3 | 1.3 | 1.5 | 1.4 | 1.2 | 1.3 | 0.8 | 1.0 | 1.2 |
| **Lithuania** | 0.1 | 1.1 | 0.8 | 1.0 | 2.4 | 1.1 | 1.0 | 1.2 | 1.2 | 0.9 | 1.1 | 0.9 | 2.0 | 1.1 |
| **Macedonia** | na | na | 0.1 | 3.1 | 1.8 | 2.4 | 2.6 | 2.9 | 7.5 | 7.0 | 7.2 | 7.3 | 5.7 | 4.7 |
| **Poland** | 3.3 | 1.7 | 1.2 | 1.8 | 2.7 | 0.7 | 0.5 | 0.5 | 0.7 | 0.8 | 0.5 | 0.4 | 0.6 | 0.6 |
| **Romania** | 1.1 | 0.9 | 0.6 | 0.5 | 0.8 | 0.7 | 0.6 | 0.9 | 1.1 | 1.2 | 1.6 | 0.9 | 1.0 | 1.2 |
| **Slovak Republic** | 1.1 | 0.5 | 0.4 | 0.5 | 0.5 | 0.5 | 0.3 | 0.7 | 1.6 | 0.6 | 0.8 | 0.6 | 0.5 | 0.6 |
| **Slovenia** | na | na | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.2 | 0.1 | 0.3 | 0.6 | 0.2 | 0.2 | 0.2 |
| ***average*** | 4.1 | 6.2 | 2.6 | 1.6 | 1.5 | 1.5 | 1.4 | 1.7 | 2.5 | 2.0 | 1.9 | 1.7 | 1.6 | 1.4 |
| ***CIS*** | | | | | | | | | | | | | | |
| **Armenia** | 0.1 | 1.8 | 9.1 | 14.5 | 14.8 | 18.3 | 10.1 | 10.3 | 11.3 | 11.3 | 9.4 | 12.3 | 8.9 | 7.1 |
| **Azerbaijan** | 0.0 | 0.7 | 2.1 | 4.5 | 3.9 | 3.0 | 4.6 | 2.7 | 3.7 | 2.6 | 4.1 | 5.6 | 4.1 | 2.0 |
| **Belarus** | 1.0 | 1.6 | 1.1 | 0.8 | 1.6 | 0.5 | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 |
| **Georgia** | 0.0 | 0.6 | 4.3 | 7.0 | 7.8 | 10.0 | 6.9 | 5.8 | 8.7 | 5.5 | 9.3 | 9.2 | 5.7 | 6.1 |
| **Kazakhstan** | 0.4 | 0.1 | 0.1 | 0.3 | 0.3 | 0.6 | 0.6 | 1.0 | 1.0 | 1.0 | 0.7 | 0.8 | 0.9 | 0.6 |
| **Kyrghyz Republic** | na | 1.0 | 5.5 | 10.3 | 17.1 | 12.6 | 13.6 | 14.6 | 22.7 | 15.7 | 12.4 | 11.6 | 10.4 | 11.8 |
| **Moldova** | na | 0.4 | 1.2 | 3.2 | 3.8 | 2.1 | 3.4 | 2.4 | 9.2 | 9.5 | 8.3 | 8.5 | 6.0 | 4.6 |
| **Russia** | 0.1 | 0.4 | 0.6 | 0.5 | 0.4 | 0.3 | 0.2 | 0.4 | 1.0 | 0.6 | 0.4 | 0.4 | 0.3 | 0.2 |
| **Tajikistan** | na | 0.6 | 1.6 | 4.9 | 5.3 | 9.8 | 9.3 | 12.2 | 11.3 | 12.6 | 15.3 | 13.6 | 9.5 | 11.7 |
| **Turkmenistan** | na | 0.3 | 1.0 | 1.0 | 1.1 | 1.0 | 0.5 | 0.9 | 1.0 | 1.1 | 2.0 | 0.9 | 0.5 | 0.5 |
| **Ukraine** | 0.5 | 0.8 | 0.5 | 0.6 | 0.7 | 0.9 | 0.5 | 1.1 | 1.8 | 1.7 | 1.4 | 1.1 | 0.6 | 0.6 |
| **Uzbekistan** | na | 0.5 | 0.5 | 0.2 | 0.6 | 0.6 | 0.9 | 1.1 | 0.9 | 1.3 | 1.3 | 2.0 | 1.9 | 2.0 |
| ***average*** | 0.3 | 0.7 | 2.3 | 4.0 | 4.8 | 5.0 | 4.3 | 4.4 | 6.1 | 5.3 | 5.4 | 5.5 | 4.1 | 4.0 |

*Source*: Own calculation based on DAC-OECD.

### 2.4.2 GDP Growth Rates: Measures and Trends

The measure of economic growth that we are using in this analysis is the annual growth rate of real GDP. This is computed based on the annual real GDP (PPP constant 2000 international US$) from the WDI database of the World Bank. Although this is the most common measure in growth literature, it should be treated with caution when analyzing transition economies. In fact, statistical measurement remains poor, especially for the early years of transition. In many cases, in particular when dealing with the emerging private sector, which, to a great extent operates in the informal economy, statistics appear to be inaccurate (Falcetti et al., 2002).

Looking at the trend of growth rates (Figures 2.6, 2.7 and 2.8 in the Appendix) one can notice that during the initial phase of transformation, all transition economies experienced negative growth rates. These were lower than most economists expected. The U-shape pattern of GDP during the first years of transition (1990-1996) is observed for almost all the countries in our sample. This decline in the growth rates has often been explained by the collapse of trade among the former members of the Council for Mutual Economic Assistance (CMEA); the deterioration of the demand for domestic goods; the increase in imports; the decline in the output of state-owned firms and lack of institutions.

When comparing the growth rates of real per capita GDP (Table 2.2) we observe important differences between Central Europe and the Baltics, and the CIS. While by the 1995, only half of the countries in our sample were already enjoying positive growth rates (CEECs, Armenia and Georgia), by 2000, we could count all of them. Albania, Bulgaria, Croatia and Romania, experienced a burst of growth in the early years of transition and a reversal in later years - return to negative growth rates in 1997 for Albania; 1996 and 1997 for Bulgaria; 1999 for Croatia; 1997, 1998 and 1999 for Romania - followed by prospects of positive growth. All CIS countries, except for Armenia and Georgia, displayed negative growth rates until 1996. Kazakhstan, Russia and Ukraine managed to stop the decline in output only in 1999, while Moldova only in 2000. These differences in the level of development at the beginning of transition have had consequences on the subsequent development of these countries and have been perpetuated during all the transformation processes, so much that they still exist nowadays. Even in the most advanced countries (except maybe for Armenia, Estonia, Poland and Slovenia) gorwths rates have not been high enough to allow these countries to catch-up with even any of the low income Western European countries[16].

[16]Fischer, Sahay and Vegh (1996) estimate that with an annual growth rate of real per capita GDP about 4.75%, it would take about 20-25 years for the most advanced (the Czech Republic and Estonia) to catch up with the average OECD level, and 35-45 years for the others.

Table 2.2: Growth rate of per capita real GDP.

| | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***CEECs*** | | | | | | | | | | | | | | |
| **Albania** | -27.5 | -6.4 | 11.1 | 11.0 | 10.3 | 10.1 | -9.6 | 13.2 | 10.3 | 7.3 | 6.8 | 2.5 | 5.2 | 5.3 |
| **Bulgaria** | -7.5 | -6.3 | -0.7 | 2.3 | 3.3 | -8.9 | -5.1 | 4.7 | 2.9 | 7.3 | 6.1 | 5.4 | 5.6 | 7.2 |
| **Croatia** | -16.4 | -10.9 | -11.4 | 5.7 | 6.3 | 10.1 | 4.9 | 4.1 | -2.0 | 4.0 | 5.9 | 5.5 | 5.4 | 3.8 |
| **Czech Republic** | -11.1 | -0.6 | -0.1 | 2.2 | 6.0 | 4.2 | -0.6 | -0.7 | 1.5 | 3.7 | 3.0 | 2.1 | 3.6 | 4.2 |
| **Estonia** | -7.5 | -19.7 | -3.3 | 0.4 | 6.4 | 5.9 | 12.4 | 5.5 | 1.1 | 8.3 | 8.1 | 8.4 | 7.5 | 8.9 |
| **Hungary** | -11.9 | -3.0 | -0.5 | 3.1 | 1.6 | 1.5 | 4.8 | 5.1 | 4.5 | 5.5 | 4.3 | 4.6 | 4.4 | 5.1 |
| **Latvia** | -12.3 | -31.3 | -3.3 | 3.7 | 0.4 | 4.8 | 10.1 | 6.6 | 5.6 | 7.7 | 8.6 | 7.4 | 7.8 | 9.3 |
| **Lithuania** | -5.8 | -21.2 | -15.8 | -9.1 | 4.0 | 5.5 | 7.8 | 8.0 | -1.0 | 4.9 | 7.2 | 7.3 | 10.8 | 7.9 |
| **Macedonia** | -6.8 | -7.1 | -7.9 | -2.2 | -1.6 | 0.7 | 0.9 | 2.9 | 3.9 | 4.1 | -4.8 | 0.6 | 2.6 | 3.9 |
| **Poland** | -7.3 | 2.3 | 3.5 | 5.0 | 6.9 | 6.2 | 7.0 | 4.9 | 4.5 | 4.7 | 1.7 | 1.5 | 3.9 | 5.4 |
| **Romania** | -12.8 | -7.3 | 1.7 | 4.1 | 7.4 | 4.3 | -5.9 | -4.6 | -1.0 | 2.2 | 7.2 | 6.7 | 5.5 | 8.7 |
| **Slovak Republic** | -14.6 | -7.1 | -4.0 | 5.8 | 5.5 | 7.8 | 5.5 | 3.5 | 0.2 | 0.8 | 3.4 | 4.1 | 4.1 | 5.4 |
| **Slovenia** | -9.1 | -5.2 | 4.4 | 4.2 | 3.6 | 3.7 | 5.1 | 4.0 | 5.3 | 3.9 | 2.5 | 3.3 | 2.6 | 4.4 |
| ***average*** | -11.6 | -9.5 | -2.0 | 2.8 | 4.6 | 4.3 | 2.9 | 4.4 | 2.7 | 5.0 | 4.6 | 4.6 | 5.3 | 6.1 |
| ***CIS*** | | | | | | | | | | | | | | |
| **Armenia** | -10.9 | -40.8 | -6.7 | 7.9 | 9.1 | 7.5 | 4.5 | 8.1 | 3.9 | 6.7 | 10.2 | 13.7 | 14.5 | 10.9 |
| **Azerbaijan** | -2.2 | -23.8 | -24.3 | -20.8 | -12.8 | 0.3 | 4.8 | 9.0 | 6.5 | 10.2 | 9.1 | 9.8 | 10.4 | 9.2 |
| **Belarus** | -1.2 | -9.8 | -7.8 | -11.6 | -10.1 | 3.1 | 11.9 | 8.9 | 3.8 | 6.1 | 5.1 | 5.5 | 7.6 | 12.0 |
| **Georgia** | -20.4 | -44.1 | -27.9 | -8.6 | 4.5 | 13.0 | 12.0 | 4.3 | 4.0 | 3.0 | 6.0 | 6.7 | 12.3 | 6.9 |
| **Kazakhstan** | -11.9 | -5.2 | -8.6 | -11.3 | -6.6 | 2.0 | 3.3 | -0.2 | 3.7 | 10.1 | 13.7 | 9.8 | 8.9 | 8.8 |
| **Kyrghyz Republic** | -9.3 | -14.9 | -15.4 | -20.0 | -6.5 | 5.5 | 8.3 | 0.6 | 2.2 | 4.4 | 4.5 | -0.8 | 6.1 | 5.9 |
| **Moldova** | -16.3 | -29.2 | -1.2 | -30.7 | -0.9 | -4.5 | 2.6 | -5.4 | -2.2 | 3.5 | 7.6 | 9.3 | 8.1 | 8.8 |
| **Russia** | -5.3 | -14.6 | -8.6 | -12.5 | -4.0 | -3.3 | 1.7 | -5.0 | 6.8 | 10.0 | 5.3 | 5.2 | 7.8 | 7.8 |
| **Tajikistan** | -9.1 | -30.3 | -17.7 | -22.4 | -13.6 | -17.9 | 0.3 | 3.9 | 2.4 | 7.0 | 8.9 | 7.9 | 8.9 | 9.3 |
| **Turkmenistan** | -7.4 | -8.0 | -12.5 | -19.4 | -9.2 | -8.4 | -12.6 | 5.6 | 15.1 | 17.1 | 16.5 | 15.2 | 13.2 | n.a. |
| **Ukraine** | -8.6 | -10.0 | -14.3 | -22.6 | -11.5 | -9.2 | -2.1 | -1.0 | 0.7 | 7.0 | 10.3 | 6.3 | 10.3 | 13.0 |
| **Uzbekistan** | -2.6 | -13.3 | -4.5 | -7.0 | -2.7 | -0.2 | 3.2 | 2.6 | 2.8 | 2.7 | 2.9 | 2.7 | 3.0 | 6.5 |
| ***average*** | -8.7 | -20.3 | -12.5 | -14.9 | -5.4 | -1.0 | 3.2 | 2.6 | 4.1 | 7.3 | 7.6 | 6.9 | 8.9 | 9.0 |

*Source*: Own calculation based on World Development Indicators, World Bank.

### 2.4.3 Reform Measurements

A consensus has emerged in policy and academic circles about a necessity of setting up reforms required for the market economy system. A distinction is often made between the initial phase - the "liberalizing" reforms phase, and the second phase - the "institution-building" reforms phase. The initial phase includes the liberalization of price and trade, and small scale privatization. The second phase includes enterprize restructuring, large scale privatization, competition policy, financial institutions development and infrastructure reforms; these are more difficult to implement because they focus on the development of market-based structures and institutions (EBRD Transition Report, 2003).

But, the starting point of reforms was not the same for all transition economies, CEECs and the Baltics, as well as Albania, Macedonia and some CIS countries (Kyrgyzstan and Moldova) liberalized domestic prices very early in their transition and sustained these reforms. They also liberalized trade and access to foreign exchange, but freed their domestic markets less progressively. These early and sustained "liberalizers" have maintained markets and trade free from government administration for more than two-thirds of the period since the transition began (EBRD Transition Report, 2000). The picture is different for SEE and CIS countries. Bulgaria and Russia attempted to liberalize both domestic and external markets relatively early in their transition, but did not succeed and temporarily moved backwards on these reforms. Russia managed to regain its level of price liberalization of 1997 only by the end of 1999, after the abolition of most of the temporary restrictions on domestic flows of goods and services introduced after the crisis of August 1998. Foreign trade and access to foreign exchange have also been substantially freed from restrictions; still, this progress has been partially counterbalanced because of the reintroduction of some quotas on oil exports.

From a qualitative viewpoint it is difficult to assess the changes in institutions. The EBRD developed a set of measures, called *Transition Indicators*. Grouped in eight categories, these indicators aim at assessing the progress made in achieving a market economy in some major fields: small and large scale privatization, governance and enterprize restructuring, price liberalization, trade and foreign exchange system, competition policy, bank reform and interest rate liberalization, securities markets, and non-bank financial institutions. The measurement scale for these indicators ranges from 1 to 4+, where 1 represents little or no change from a rigid centrally planned economy and 4+ the standards of an industrialized market economy. The explicative notes for these indicators are presented in Box 1 in the Appendix of this Chapter.

A lot of studies that analyze the impact of structural and institutional reforms on growth use these indicators (De Melo et al., 1997b; Havrylyshyn et al., 1998; Havrylyshyn

and van Rooden, 2003)[17]. Typically, these indicators have been used as an aggregated index computed as a simple average of the eight measures (Havrylyshyn et al., 1998, Radulescu and Barlow, 2002). The studies argue that a simple average better explains growth since: (i) none of the subcomponents, taken by themselves, has a stronger explanatory power than the average; (ii) the interpretation of any individual coefficient is not as meaningful, since these indicators exert their effect jointly; consequently, including them individually in regressions might bias the estimation coefficients (the omitted variables bias), while using them simultaneously in the same regression induces multicolinearity which makes the estimation difficult. However, the studies that have employed these indicators one by one, argue that this allows to identify those that best explain growth performance in transition (Raiser et al., 2001; Falcetti et al., 2002; Merlevede et al., 2003).

Some of the recent studies distinguish between two groups of reforms (1) reflects more structural policy reforms and includes: small and large scale privatization, price liberalization, and trade and foreign exchange system liberalization. The structural policy dimensions predominantly require the abandon of the state control; (2) reveals more institutional reforms and considers: governance and enterprize restructuring, competition policy, banking reform and interest rate liberalization and securities markets and non-bank financial institutions liberalization. The institutional dimensions need new rules which must be credibly enforced by the state (Raiser et al., 2001).

However, none of the studies that used them like an aggregate index, tested whether it is appropriate to assign equal weights to all eight indicators. To our knowledge, the only study that has done that is the one by Fidrmuc and Tichit (2004). In order to deal with this issue, they construct a composite index of all the eight EBRD Transition Indicators, by using the Factor Analysis method.

Here we adopt the approach that distinguish between structural policy reforms and institutional reforms. We are making the assumption that both types of reforms have a positive impact on growth. In order to measure their impact, we will follow Fidrmuc and Tichit (2004) and we will compute two composite indexes by using the Factor Analysis method.

[17]De Melo et al. (1997b) build a structural policy reform index called "liberalization index" by compiling three EBRD Transition Indicators: liberalization of domestic prices and abolition of state trading monopolies (lpc), liberalization of foreign trade regimes (lfex), and privatization of small scale and large scale enterprizes and banking reform (pbr). Their methodology allows one to compile this index for every following year after their calculations, by assigning them specific weights. The original liberalization index created by De Melo et al. (1997b) was constructed as a weighted index as follows: $LI_{i,t} = 0.3 * lpc_{i,t} + 0.3 * lfex_{i,t} + 0.4 * pbr_{i,t}$

### Structural Policy Reforms Index

The *Structural Policy Reforms* ($SPR$) is computed based on the following four EBRD indicators: small and large scale privatization, price liberalization, trade and foreign exchange system liberalization. The $SPR$ is used to measure the growth-impact of structural reforms, and to assess whether aid is more effective in recipient economies where structural reforms are successfully implemented. This marginal effect of aid is captured by the coefficient of interaction term $Aid*SPR$. In order to compute the $SPR$ index with the Factor Analysis Method we need to verify first the correlations between the four EBRD indicators. Table 2.3 presents the correlation coefficients between the country averages of the indicators over the period 1990-2004. As expected, there is a high degree of dependency between the four indicators, with all correlation coefficients positive and above 0.71. In particular, small scale privatization is the most correlated with trade and foreign exchange system liberalization, and large scale privatization, respectively with correlation coefficients of 0.85 and 0.84, respectively. It results that these these reforms constitute a package of reforms that have been implemented simultaneously. They mutually reinforce and exert a joint impact on growth.

Table 2.3: Common variation between EBRD Structural Policy Reform Indicators.

| | **Small scale privatization** | **Large scale privatization** | **Price liberalization** | **Trade and foreign exchange system liberalization** |
|---|---|---|---|---|
| **Small scale privatization** | 1.00 | | | |
| **Large scale privatization** | 0.85 | 1.00 | | |
| **Price liberalization** | 0.79 | 0.71 | 1.00 | |
| **Trade and foreign exchange system liberalization** | 0.86 | 0.81 | 0.82 | 1.00 |

*Source:* Own calculation based on EBRD Transition Indicators.

### Institutional Reform Index

The unequal performances among countries has raised over time, questions about the role of institutions with regard to growth and development outcomes[18]. North and Thomas (1973) made one of the most important contributions by pointing out that the fundamental explanation of countries' different growth rates lies in the differences in their institutions. Sharing the same viewpoint, Olson (1996) summarizes the conceptual basis

[18] *"Why are some countries much poorer than others?"* (Olson, 1996; Acemoglu et al., 2004) or *"Why isn't the whole world as rich as the United States and Switzerland?"* (Parente and Prescott, 2002).

for the role of institutions, such as property rights, the rule of law and corruption[19]; Clague et al. (1997) investigate the extent to which differences in property rights and contract enforcement mechanisms are crucial in explaining the progress and prosperity of some countries compared to others.

In the case of transition economies, the institutional approach has received a lot of attention in theoretical papers (Kornai, 2000; Popov, 2000; Roland, 2000). But, mainly because of data limitations, the empirical research has added only minor contributions regarding the role of institutional building in driving growth (Knack and Keefer, 1995; Olson et al., 2000). The experience of transition economies in reforming their institutions "...has very much reinforced the institutional perspective in economics and a shift in emphasis in economic thinking from the analysis of markets and price theory to that of contracting and to the legal, social, and political environment of contracting. Transition has forced economists to think about institutions not as static, but in a dynamic way: how momentum for reform is created and how institutions can evolve, and how momentum can be lost and one can get stuck in inefficient institutions."[20] (Roland, 2002, p.). The assumption of intuition building as a major factor of achieving positive and sustained growth emphasized in theoretical studies has been shared by international organizations - the EBRD, the IMF the World Bank. They have provided support for this view by increasing the resources for gathering data and compiling indicators that quantify the progress achieved in the institutional development.

In this analysis, we will compute a composite index of $Institutional\ Reforms$ ($IR$) by aggregating four EBRD indicators: governance and enterprize restructuring, competition policy, banking reform and interest rate liberalization, and securities markets and non-bank financial institutions[21]. As for the $SPR$ index, the same Factor Analysis method is used to construct the $IR$ index. This index is a measure of the extent to which institutional reforms can directly explain growth. Moreover, when this is interacted with the aid variable ($Aid * IR$) it captures the role of institutions in enhancing the impact of aid on growth. Table 2.4 shows the correlation coefficients between the country averages of the four transition indicators over the period 1990-2004. The expected positive correlations between the indicators is confirmed; all correlation coefficients are above 0.76. In particular, enterprize restructuring correlates most with banking reform (a 0.92 correlation

[19]Olson (1996) explains that many countries are poor because they waste a lot of resources. Moreover, there is a negative relationship between this waste and institutional bases of property rights and the rule of law. The weaker the institutional bases, the higher the waste and the degree of corruption.

[20]This is in line with North (1990) and Acemoglu et al.'s (2004) viewpoints concerning the two potential sets of institutions that can emerge and perpetuate themselves, i.e. efficient and inefficient institutions (the waste of human and natural resources).

[21]EBRD has also compiled for transition economies another two indicators - overall legal effectiveness and overall legal extensiveness. Because their availability is only from 1997 for most of transition economies we cannot use them in our regressions.

coefficient) and with securities markets and non-bank financial institutions (a 0.81 correlation coefficient). Competition policy generally correlates less to the other three indexes. The high correlations point out the importance of treating these measures jointly.

Table 2.4: Common variation between EBRD Institutional Reform Indicators.

| | **Governance enterprize restructuring** | **Competition policy** | **Banking reform interest rate liberalization** | **Securities markets non-bank financial institutions** |
|---|---|---|---|---|
| **Governance enterprize restructuring** | 1.00 | | | |
| **Competition policy** | 0.80 | 1.00 | | |
| **Banking reform interest rate liberalization** | 0.92 | 0.76 | 1.00 | |
| **Securities markets non-bank financial institutions** | 0.81 | 0.80 | 0.80 | 1.00 |

*Source*: Own calculation based on EBRD Transition Indicators.

### Computing $SPR$ and $IR$ with Factor Analysis

Factor Analysis is a method generally used to transform data; it allows a system of highly correlated variables to be reduced into a smaller number of dimensions, whose correlation is minimized. The technique produces a linear combination of variables, as such, it maximizes the joint variance of its components. The scores obtained may be used in the regression analysis instead of the original variables without much loss of information. There are several factor models which differ in significant respects. The one which is most often applied is the so-called *Common Factor Analysis* or *Principal Component Analysis*. This is concerned with identifying the patterns of common variations in a set of variables; variations unique to a variable are ignored. In contrast, the *Component Factor Analysis* is concerned with patterning all the variation in a set of variables, whether common or unique.

In this analysis we will try to find two good aggregate indicators of the degree of progress in implementing structural and institutional reforms ($SPR$ and $IR$ indexes). However, these indicators are unobserved; we only observe individual measures of the progress in reform implementation (the EBRD indicators). We will use the *Component Factor Analysis* which allows us to determine the degree of unique variation for each indicator. Thus, we will investigate whether all EBRD indicators measure the same phenomenon, i.e. the creation of a market economy, or if they reflect independent information contained in some of the indicators. This method reduces the dimensionality of the structural policy and institutional reform indicators and deals with the multicollinearity problem; it permits us to use all structural and institutional reforms information in order to measure

their joint impact on economic growth without being exposed to the collinearity problem. Computing weighted-average aggregated indexes assures about applying the appropriate weights for the components of the indexes.

The algebraic model involved in a *Component Factor Analysis* estimation is the following equation system:

$$\begin{cases} Y_1 = \alpha_{1,1}F_1 + \alpha_{1,2}F_2 + ... + \alpha_{1,m}F_m + \varepsilon_1 \\ Y_2 = \alpha_{2,1}F_1 + \alpha_{2,2}F_2 + ... + \alpha_{2,m}F_m + \varepsilon_2 \\ Y_3 = \alpha_{3,1}F_1 + \alpha_{3,2}F_2 + ... + \alpha_{3,m}F_m + \varepsilon_3 \\ ... \\ Y_n = \alpha_{n,1}F_1 + \alpha_{n,2}F_2 + ... + \alpha_{n,m}F_m + \varepsilon_n \end{cases}$$

where: $Y_k$, with $k = 1, 2, ...n$, are the observed variables (the EBRD indicatorse); $\alpha_{k,l}$ with $l = 1, 2, ...m$ are the loadings; $F_l$ are the factors and $\varepsilon_k$ is the variation of Y which is independent of the factors $F_l$.

Note that F stands for a function of variables[22] and not for a variable. Each loading for each factor, $\alpha_{1,1}$, $\alpha_{1,2}$, ..., $\alpha_{n,m}$ measures how much that specific function (F) is related to the observed variables (Y). Some of the F functions might be common to several variables. In such cases they are called group factors. The choice of the number of factors (dimensions on which the input variables are projected) rests on the criteria of the associated eigenvalue. If this is larger than 0.5, the associated factor is retained as the principal component. This means that the first principal component explains more than 50 percent of the variance of all of the observed variables.

Tables 2.5 and 2.6 report the results of the estimation - the components of the $SPR$ and $IR$ indexes and the weight of each component in the composite indexes. The eigenvalue criteria indicates that the first factor should only be taken into consideration. In fact, for the two indexes the eigenvalue for the first factor is higher than 0.5 (3.42 for the $SPR$ and 3.44 for the $IR$), while for the other three factors it is below 0.5.

The first column gives the factor loadings, i.e. the correlation coefficients between each EBRD indicator and the factor. Note that all of the indicators are positively and strongly related to the factor. This indicates that the factor stands for the same phenomenon, i.e. the progress towards market economy, for all EBRD measures. The second column shows the percentage of each indicator's variation explained by the common factor which

[22]When Factor Analysis is applied to the known data on the observed variables, Y, several unknown F functions are defined (the factors).

Table 2.5: Factor Analysis - EBRD Structural Policy Reform Indicators.

| | Factor 1 | Communality | Uniqueness | Weights |
|---|---|---|---|---|
| **Small scale privatization** | 0.9491 | 90.08 | 9.92 | 0.27703 |
| **Large scale privatization** | 0.9105 | 82.91 | 17.09 | 0.26577 |
| **Price liberalization** | 0.8969 | 80.44 | 19.56 | 0.26179 |
| **Trade and foreign exchange system liberalization** | 0.9443 | 89.17 | 10.83 | 0.27563 |
| ***% of total variation*** | | *85.65* | *14.35* | |

*Source*: Own calculation based on EBRD Transition Indicators.

Table 2.6: Factor Analysis - EBRD Institutional Reform Indicators.

| | Factor 1 | Communality | Uniqueness | Weights |
|---|---|---|---|---|
| **Governance and enterprize restructuring** | 0.9521 | 90.65 | 9.35 | 0.27604 |
| **Competition policy** | 0.9019 | 81.34 | 18.66 | 0.26148 |
| **Banking reform and interest rate liberalization** | 0.9391 | 88.20 | 11.80 | 0.27728 |
| **Securities markets non-bank institutions** | 0.9205 | 84.73 | 15.27 | 0.26687 |
| ***% of total variation*** | | *86.23* | *13.77* | |

*Source*: Own calculation based on EBRD Transition Indicators.

is retained. The communality for each variable is computed by multiplying the square of the loading by 100. All indicators display very high shares of common variation: about 86% of the total variation on average for the components of both the $SPR$ and the $IR$ index. The third column shows the uniqueness of each variable (the percentage of the total variation that is autonomous[23]). The percentages of uniqueness smaller than 50% suggest that the observed variables are strongly correlated among themselves. The most independent indicator included in the $SPR$ index is price liberalization (the uniqueness value is about 20%); for the $IR$ index, the most independent appears to be competition policy (about 19% of uniqueness). In the last column we find the weights for each indicator in the aggregate indexes (the scoring coefficients). The weights are quite close, with the highest assigned to small scale privatization (0.27703) and banking reform and interest rate liberalization (0.27728).

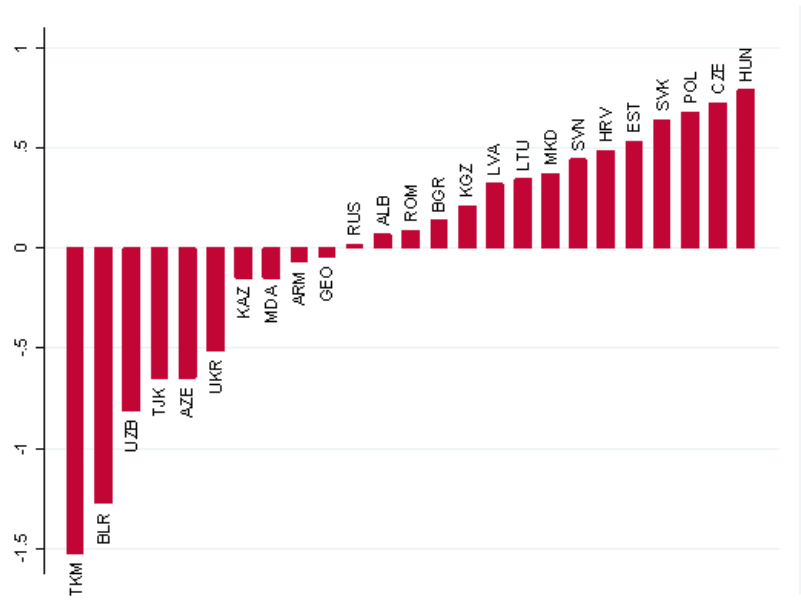
By multiplying the values of indicators for each country each year by their weights, we compute the composite indexes that capture the progress towards a market economy through both structural policy and institutional reforms. The values of the $SPR$ index range from -2.04 for most countries at the beginning of transition process, to +1.15 for the Czech Republic starting with 1997, for Estonia starting with 2000, for Hungary starting with 1997 and for Slovak Republic starting with 2002. The $IR$ index takes values from -1.37 for most countries at the start of transition, to +2.28 for Hungary in 2004. The values of the $SPR$ index are higher than those of the $IR$ index; this points out that, as

[23]The sum of the second and third columns must equal 100 for each row.

expected, more progress has been assessed in structural policy reform. Indeed, these types of reform have been implemented more easily and quickly.

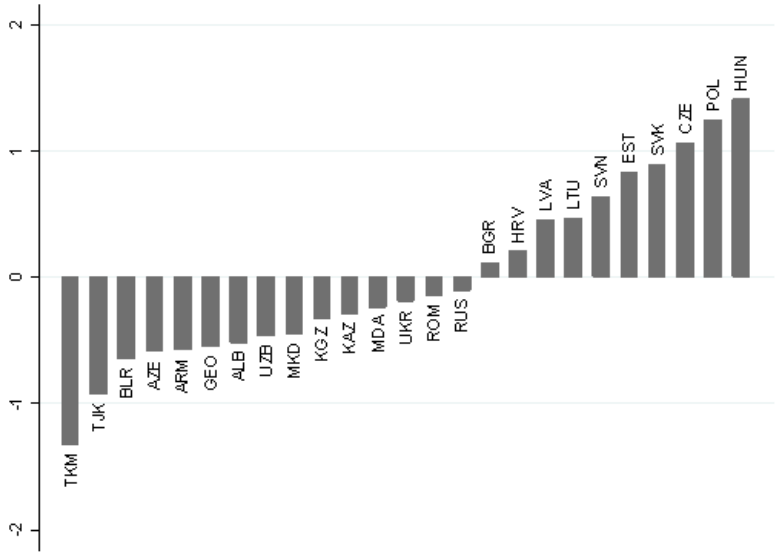
Figure 2.3 shows the average level of the $SPR$ index for each country over the analyzed period (1990-2004). CIS countries progressed more slowly in the liberalization of their economies. Almost all of these countries have a negative average index, with Turkmenistan far behind all the others, followed by Belarus and Uzbekistan. This is not surprising given that from the very beginning of transition these countries displayed lower values for the $SPR$. CEECs countries report positive average values of this indicator, with the Czech Republic, Hungary, the Slovak Republic and Poland among the front runners. The heterogenous economic performance of countries in this region (as noted in Section 2.4.2 when discussing the trends in GDP growth rates) could be explained by the fact that the factors governing growth are indeed sensitive to progress in implementing structural reforms. Higher degrees of structural policy reforms are likely to positively affect growth (De Melo et al., 1997b; Berg et al., 1999; Havrylyshyn et al., 1998). So, we expect the $SPR$ index to have a positive overall impact on growth. The picture is quite similar for the $IR$ index (Figure 2.4); CIS countries present, on average, negative scores. Note that some of the countries that performed relatively well in terms of structural policy reform, like Romania, Macedonia and Albania, register negative scores in terms of institutional reform.

Figure 2.3: SPR aggregate index - country average over 1990-2004.




*Source*: Own calculation based on *EBRD Transition Indicators*.

Figure 2.4: IR aggregate index - country average over 1990-2004.




*Source*: Own calculation based on *EBRD Transition Indicators*.

### 2.4.4 Initial Conditions

On the eve of the collapse of communism, significant differences among countries in the region were noticed with respect to the initial level of development, macroeconomic imbalances, dependency of trade on the socialist trading system, state capacity, and also distance from the EU and natural resources endowment (De Melo et al., 1997b). The level of per capita income in CEECs and the Baltics was higher than those in the CIS countries. However, some of the CIS (Belarus, Kazakhstan, Russia, Turkmenistan, and Ukraine) were better endowed with natural resources than the other countries in the region (Fischer and Sahay, 2000).

The impact of initial conditions on growth was investigated by several researchers - De Melo et al. (1997b), Berg et al. (1999), Jaros (2001), Fischer and Sahay (2000), De Melo et al., 2001). They showed that a country's starting point is likely to have a strong effect on its subsequent development, at least in the short-term. But, as transition proceeds, the explanatory power of initial conditions weakens. However, even today, a positive correlation between a good starting point and the overall growth in transition is considerable[24], suggesting that significant indirect effects of initial conditions on growth still emerge, probably through the structural policy reforms channel (De Melo et al., 1997b; Falcetti et al., 2002; Merlevede, 2003).

[24]See EBRD Transition Report (2004).

In this analysis, we adopt the approach of Falcetti et al. (2002), which follows the approach of De Melo et al. (1997b). In order to measure the impact of initial conditions on growth, they compute a "distortions" index, called *Initial Conditions* ($IC$). This includes several variables that characterize the situation at the start of transition. The list of variables included in the index, as well as the country scores are illustrated in Tables 2.12 and 2.13 in the Appendix of the Chapter. The index is computed using the Factor Analysis method[25].

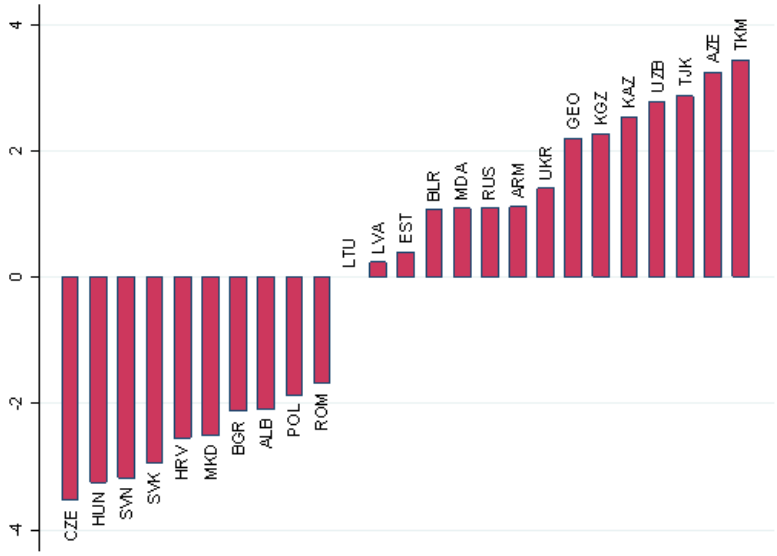
Figure 2.5 shows the trend of countries' scores. Initial conditions deteriorate with initial macroeconomic distortions, time spent under central planning, distance to EU, trade dependence on the CMEA and natural resource wealth. It is negatively associated with initial per capita GDP, degree of over-industrialization and state capacity. CEECs countries have globally high negative scores, standing for favorable initial conditions. The front runners are the Czech Republic (-3.53), Hungary (-3.25), Slovenia (-3.18) and Slovak Republic (-2.95). On the other hand, most of the CIS display high scores in the index, which indicate "bad" starting positions. Turkmenistan (+3.43) and Azerbaijan (+3.24) had the worst initial conditions (macroeconomic distortions, a lower level of development).

We will follow the literature which consider the impact of initial conditions on growth by introducing in growth regressions the $IC$ indicator. Furthermore, we will examine the role of initial conditions in the effectiveness of aid with respect to growth. We wonder whether a more favorable starting position allows a country to take better advantage of foreign assistance received; or whether on the contrary, the impact of aid on growth is stronger in the countries with bad initial conditions. This will be shown through the estimated coefficient of the interaction term $Aid * IC$ in growth regressions.

Additionally, in the light of the findings of De Melo et al. (1997b), Falcetti et al. (2002) and Merlevede (2003) which consider the assumption that the initial conditions play the same role throughout the whole transition period is inaccurate, we will control for the changing effects of initial conditions on growth, by estimating the $IC$ indicator when interacted with a time trend ($IC * Time$). The time trend is measured as the number of years since transition started (14 years for CEECs and 12 years for CIS countries). Finally,

[25]The number of principal components used in the model is determined according to standard eigenvalue criteria. Falcetti et al. (2002) retain only the first principal component (where the corresponding eigenvalue is higher than 0.5). The variables included in Falcetti et al.'s (2002) initial conditions index are largely the same as those used by De Melo et al. (1997b). However, there is a difference in relation to the countries included in the sample. While De Melo et al. (1997b) include countries like China, Mongolia and Vietnam, Falcetti et al. (2002) do not. With the new sample including only CEECs and CIS countries, in Falcetti et al. (2002), the first principal component explains around 50 percent of the total variance over all conditions, and the second 17 percent, whereas in De Melo et al. (1997b), the first factor accounted for 39 percent of the variance and the second for 28 percent.

Figure 2.5: IC country scores




*Source*: Falcetti et al. (2002).

we will test whether this changing impact on growth of initial conditions, further affects aid's impact on growth (by estimating $Aid * IC * Time$).

## 2.5 Estimation Results

This section outlines the results of the econometric estimations. First, we will compute the *Policy* index. Next, we will test the effectiveness of aid on growth conditional on the quality of policy and structural and institutional reform, as well as initial conditions. Finally, we will examine the diminishing returns to aid.

### 2.5.1 Policy Index

Most economists agree about the initial decline in output, and the burst of inflation and fiscal deficits soon after the beginning of transition process. Since transition involved fundamental transformation in the economic system, it was expected that disequilibriums occur; moreover they were expected to last several years. The appropriate solution, largely agreed on as the best way to help countries to cope with this situation and achieve positive growth rates, was the implementation of macroeconomic stabilization programmes. The common belief was that, once macroeconomic stability was established, economies would

begin to grow rapidly. This stability would further allow the implementation of a new institutional framework.

Two common ways to capture the effectiveness of macroeconomic stabilization measures are inflation rate and size of budget balance (relative to GDP). Most empirical studies find that lower inflation rates and smaller budget deficits are associated with economic recovery and higher growth rates, whilst high inflation rates appear to be particularly damaging[26] (Fischer, Sahay and Vegh, 1996; Loungani and Sheets, 1997; Berg et al., 1999; Radulescu and Barlow, 2002; Falcetti et al., 2002; Fischer and Sahay, 2000).

In this analysis, we measure inflation rate with the GDP deflator (%), which captures the changes in the prices of all new, final goods and services domestically produced in an economy. We expect this to have a negative impact on growth. Budget balance is defined as the sum of current and capital revenues including grants, less the sum of current and capital expenditure and government lending minus repayments; it is measured as a percentage of GDP and is expected to be positively correlated with growth.

Trade openness has been largely identified as a growth driver. Different measures have been used to examine the effects of trade openness on economic growth. The most common measure is the sum of exports and imports over GDP, which is generally positively correlated with growth[27]. However, it has often been criticized and categorized as partial and ambiguous. Some critics have argued that the nominator quantifies a production, while the denominator an added value (Rodriguez and Rodrik, 2001). It has also been argued openness is not only explained by a country's commercial policy; other factors, such as level of development, size, resources and geographic position of a country also have an influence.

An alternative measure is proposed by Guillaumont (1994, 2001b); Combes et al. (2000); Chauvet and Guillaumont (2004). This is computed as the difference between the observed and the adjusted values of trade openness. It is measured by the residual of the regression of the observed trade openness variable estimated on a set of structural factors. In this way, the trade openness measure is adjusted by all the factors that do not depend on commercial policy. If this residual is positive, i.e. the commercial flows observed are greater than the anticipated ones, the economy is considered to be open. The greater the value of the openness indicator, the more open an economy is.

Here, in order to compute the aggregate *Policy Index*, unlike Burnside and Dollar (2000) who use the Sachs and Warner (1995) dummy variable, we prefer to follow Chauvet

[26] According to Loungani and Sheets (1997), a country with 500 percent inflation over one year sees its GDP decreasing of about 2 percent the following year and 4 percent in the long-term.

[27] See Harrison (1996) for a review of the studies using this measure of trade openness.

and Guillaumont (2004) and measure trade openness through the residual of the regression of the observed openness on structural factors. The empirical framework for the estimation of observed trade openness is provided in the Appendix of this Chapter.

Following Burnside and Dollar (2000), we compute *Policy Index* as the sum of inflation, budget balance and trade openness, all weighted by their respective impact on growth. This aggregated indicator captures the joint impact on economic growth of the three measures of macroeconomic policy. Using a single aggregate measure facilitates a uni-dimensional comparison across countries' macroeconomic policy quality. The *Policy* index is constructed as follows:

$$P_{i,t} = c + \beta_1 I_{i,t} + \beta_2 B_{i,t} + \beta_3 O_{i,t} \tag{2.13}$$

where $I_{i,t}$ is the inflation rate (GDP deflator, %) of the recipient country $i$ at time $t$; $B_{i,t}$ is the budget balance (% of GDP) of the recipient country $i$ at time $t$; $O_{i,t}$ is the adjusted trade openness variable of the recipient country $i$ at time $t$; $c$ is the constant term. $\beta_1$, $\beta_2$, $\beta_3$ are the coefficients of the three macroeconomic variables estimated from the following benchmark growth equation:

$$Y_{i,t} = \beta_1 I_{i,t} + \beta_2 B_{i,t} + \beta_3 O_{i,t} + \beta_4 Z_{i,t} + \mu_i + \lambda_t + v_{i,t} \tag{2.14}$$

where $Y_{i,t}$ is the real per capita GDP growth of the recipient country $i$ in period $t$; $I_{i,t}$ is the inflation rate (GDP deflator, %) of the recipient country $i$ in period $t$; $B_{i,t}$ is the budget balance (% of GDP) of the recipient country $i$ in period $t$; $O_{i,t}$ is the adjusted trade openness variable of the recipient country $i$ in period $t$; $Z_{i,t}$ is a set of growth determinants (ratio of broad money over GDP that reflects the development of the financial system, the general government final consumption expenditure (% of GDP); $\mu_i$ is a country-fixed effect, $\lambda_t$ a time-fixed effect and $v_{i,t}$ the error term.

Estimations results are provided in Table 2.7. Note that in general our model performs well and is consistent with empirical growth literature. It appears that macroeconomic policies do play a role in growth processes within transition economies. Two of the policy variables, which are of particular interest in our model, are significant, at 5% and are correctly signed: negative effect of inflation rate on growth and positive effect of budget balance. Lower inflation rates and higher budget surpluses are conducive to growth. However, trade openness appears to be negatively associated with growth[28]. The countries in our sample generally display high degrees of openness (e.g. on average, over the analyzed

[28]We have also estimated the same equation while replacing the adjusted trade openness indicator, by the observed trade openness. We have found the same negative impact of this indicator on growth.

Table 2.7: Benchmark growth equation.

| | (1) SYS-GMM | (2) SYS-GMM |
|---|---|---|
| Initial per capita GDP | 0.020 | 0.072** |
| | (0.026) | (0.029) |
| M2/GDP (lagged) | -0.007 | -0.024 |
| | (0.019) | (0.030) |
| Government consumption | -0.040 | -0.044 |
| | (0.048) | (0.056) |
| Inflation | -0.026** | |
| | (0.038) | |
| Budget balance | 0.479** | |
| | (0.138) | |
| Openness | -0.098** | |
| | (0.038) | |
| Policy index | | 0.911*** |
| | | (0.134) |
| Constant | -1.80** | -0.376 |
| | (0.727) | (0.241) |
| AR1 | 0.033 | 0.029 |
| AR2 | 0.865 | 0.579 |
| Hansen test(2nd step) (p-value) | 0.337 | 0.328 |
| Difference-in-Hansen test | | |
| All system GMM instruments (p-value) | 0.609 | 0.664 |
| Countries | 25 | 25 |
| Instruments | 23 | 15 |
| Observations | 293 | 293 |

*Notes*: Two-step System GMM with the Windmeijer (2005) correction. The dependent variable is real per capita GDP growth. Endogenous variables are inflation, budget balance, trade openness, financial depth (M2/GDP), government consumption expenditure and policy. Second and third lags for collapsed instruments are used. Time dummies not reported. Standard errors in parentheses. *,**,*** significant at 10%, 5%, 1% level.

period Estonia 150%, the Slovak Republic 126% Azerbaijan 121%, Slovenia 118%, Tadjikistan 114%). However, most of these countries are generally net importers, rather than net exporters; the commercial balance deficits, which are relatively high (several exceptions, like Kazakhstan, Russia, Turkmenistan, Ukraine and Uzbekistan, which actually are oil and gas exporters) are not conductive to growth. Moreover, most of their exports consists in basic products; these kind of exports are not likely to benefit to growth. Note that government final consumption expenditure and financial depth are negatively correlated with growth, but their impact does not appear significant.

The *Policy index* is computed with the estimated coefficients of the macroeconomic policy variables from the regression (1) as follows:

$$P_{i,t} = -1.80 - 0.026 I_{i,t} + 0.479 B_{i,t} - 0.098 O_{i,t} \tag{2.15}$$

The benchmark growth regression allows us to determine the relative importance of the three macroeconomic policies with respect to growth. Following Burnside and Dollar (2000) we interpret the compiled *Policy Index* as a country's predicted growth rate, given its inflation, budget, and trade policies, assuming that it has the mean values of other characteristics. Since inflation and openness have negative coefficients, the index can have negative values if these two are high. The same goes for the budget deficit when the latter is very large.

Regression (2) shows the estimates when the macroeconomic variables have been replaced by the *Policy index*. Note that the aggregated index positively and significantly affects growth, as expected.

### 2.5.2 Aid impact on growth

In this section, we will test the three hypotheses described in Section 2.2.2. To do that, we will introduce in the growth regressions: the aid variable; squared aid (to test **H3**); a set of interaction terms between aid and *Policy Index*; reforms indexes $SPR$, $IR$ (to test **H1**); and initial conditions, $IC$ (to test **H2**). Estimation results are reported in Tables 2.8 and 2.9.

In Table 2.8, in regression (1) aid appears to have significantly influenced growth in transition economies. *Policy Index* is statistically significant too. In regression (2) we test the assumption of diminishing returns to aid by introducing the squared aid variable. This is in accordance with aid effectiveness literature which suggests that a non-linear relationship between aid and growth[29] is probable. The negative and significant coefficient of squared aid confirms the assumption that large amounts of aid are less productive.

In regression (3) the interaction between aid and *Policy index* is introduced. While aid and *Policy Index* keep their positive significance, the interaction term does not appear to influence growth and, moreover, it has the wrong negative sign. Our results illustrate that, in transition economies, aid is a growth driver, but its impact does not seem to be conditional on the quality of the macroeconomic environment. These results do not support Burnside and Dollar's findings, but are instead in line with all the literature that has criticized them (Hansen and Tarp, 2000, 2001; Chauvet and Guillaumont, 2004).

In regression (4), the quadratic aid term and the interaction term are introduced together. The picture is the same: *Policy index*, aid and squared aid are still positive and

[29]See also Hadjimichael et al. (1995), Dunarry et al. (1998), Lensink and White (1999), Hansen and Tarp (2000, 2001), Collier and Dollar (2001, 2002), Chauvet and Guillaumont (2004).

Table 2.8: Growth equation with aid, policy index, and interaction terms.

| | (1) SYS-GMM | (2) SYS-GMM | (3) SYS-GMM | (4) SYS-GMM |
|---|---|---|---|---|
| Initial per capita GDP | 0.109** | 0.061 | 0.104* | 0.096* |
| | (0.016) | (0.047) | (0.052) | (0.048) |
| Financial depth | -0.015 | -0.030 | -0.059 | -0.033*** |
| | (0.048) | (0.033) | (0.060) | (0.053) |
| Government consumption | 0.107 | 0.063 | 0.113 | 0.112 |
| | (0.100) | (0.134) | (0.070) | (0.073) |
| Policy index | 0.672* | 0.936** | 1.161** | 1.097** |
| | (0.341) | (0.307) | (0.468) | (0.408) |
| Aid | 0.182** | 1.148** | 0.122** | 0.604** |
| | (0.058) | (0.512) | (0.007) | (0.018) |
| Aid squared | | -0.389* | | -0.001** |
| | | (0.196) | | (0.0003) |
| Aid×Policy | | | -0.309 | -0.239 |
| | | | (0.306) | (0.368) |
| Constant | -1.383** | -1.540 | -1.136** | -1.687** |
| | (0.399) | (0.641) | (0.407) | (0.687) |
| AR1 | 0.098 | 0.082 | 0.013 | 0.020 |
| AR2 | 0.578 | 0.328 | 0.531 | 0.472 |
| Hansen test(2nd step) (p-value) | 0.098 | 0.149 | 0.174 | 0.246 |
| Difference-in-Hansen test | | | | |
| All system GMM instruments (p-value) | 0.161 | 0.089 | 0.391 | 0.156 |
| Countries | 25 | 25 | 25 | 25 |
| Instruments | 15 | 18 | 18 | 21 |
| Observations | 290 | 290 | 290 | 290 |

*Notes*: The dependent variable is real per capita GDP growth. Time dummies are included in all regressions. Endogenous variables are financial depth (M2/GDP), *Policy index*, aid, and interaction terms. Standard errors in parentheses. *,**,*** significant at 10%, 5%, 1% level.

statistically significant; the interaction term between *Policy Index* and aid is still not significant and has the wrong sign. The hypothesis of diminishing returns to aid is once again confirmed, while the aid conditionality assumption is not.

In sum, the results of our empirical analysis of the aid-growth relationship in transition economies do not confirm Burnside and Dollar's (2000) findings when considering the marginal effect of aid on economic growth with respect to the quality of macroeconomic policy. Nonetheless, aid is found to significantly enhance growth, while the quality of macroeconomic policies does not affect its impact. Moreover, the assumption of diminishing returns to aid is confirmed. It seems that the higher the amounts of aid, the lower their impact on growth.

The next step in the empirical analysis of the aid-growth relationship, and one of the most important contributions of this analysis, is to estimate the aid impact conditioned by structural policy and institutional reforms in transition countries (**H3**). The two indexes, $SPR$ and $IR$, have been separately introduced in our regressions, since their partial corre-

lation is strong (0.82); including them simultaneously in the same regression, would lead to bias due to multicolinearity. In order to capture the marginal effect of aid on growth with respect to quality of structural and institutional reforms, two interaction terms $Aid * SPR$ and $Aid * IR$ have been introduced to the growth regressions.

Both the $SPR$ and $IR$ indexes are considered endogenous to growth. Higher growth rates may decrease resistance to structural and, in particular, institutional reforms, by increasing the amount of resources available to compensate for losses induced by liberalization, privatization or institutional reforms. According to Falcetti et al. (2002) and Merlevede et al. (2003), the further transition countries move away from the beginning of the transition process, the more reasonable it is to assume that reforms are endogenous with respect to growth[30].

As expected, structural policy reforms determine positive growth rates (regression 1). Small and large scale privatization along with price and trade liberalization are likely to positively influence growth rates in transition countries. Our findings are in line with most of the studies on transition economies, which have found that structural reforms have a significant positive impact on economic growth (De Melo et al., 1997; Hebey and Murrell, 1998; Berg et al., 1999). An increase in progress in implementing structural reform improves output performance. When the interaction term is introduced, (regression 2), the $SPR$ index is still significant. However, the aid-growth relationship is not likely to be affected by the increase in the reform scores, as the interaction term $Aid * SPR$ does not appear to significantly influence growth.

We have found the same results with respect to $IR$ index. This appears to be positively associated with growth (regression 3). Progress in competition policy, governance and enterprize restructuring, and banking reform drives growth in transition economies. However, the effect of $IR$ index is weaker than the effect of $SPR$ index. This might come from the fact that institutional reforms, by nature, take much longer to develop, compared with structural reforms, which can be introduced within a short time frame. In regression (4) the impact of aid does not appear to depend on the progress achieved within institutions. Contrary to our expectations,

[30]Other studies that consider reforms to be endogenous are those of Hebey and Murrell (1998) and Wolf (1999), who allow for a feedback of growth to structural reforms; and of Berg et al. (1999) and Ghosh (1997), who adopt an instrumental variable approach to control for the endogeneity of stabilization.

Table 2.9: Growth equation with aid, reform indexes, initial conditions, and interaction terms.

| | (1) SYS-GMM | (2) SYS-GMM | (3) SYS-GMM | (4) SYS-GMM | (5) SYS-GMM | (6) SYS-GMM | (7) SYS-GMM | (8) SYS-GMM |
|---|---|---|---|---|---|---|---|---|
| Initial per capita GDP | 0.009 | 0.013 | 0.022 | 0.008 | 0.084* | 0.135* | 0.08* | 0.133* |
| | (0.051) | (0.042) | (0.059) | (0.065) | (0.047) | (0.070) | (0.047) | (0.070) |
| Financial depth | -0.005 | -0.001 | -0.104 | -0.017 | -0.028 | -0.049 | -0.29 | 0.051 |
| | (0.041) | (0.033) | (0.027) | (0.020) | (0.026) | (0.056) | (0.026) | (0.055) |
| Government consumption | 0.086 | 0.098 | -0.088** | -0.078* | -0.128* | 0.073 | -0.128* | 0.075 |
| | (0.101) | (0.087) | (0.041) | (0.041) | (0.074) | (0.187) | (0.074) | (0.181) |
| Aid | 0.077* | 0.115** | 0.096** | 0.012** | 0.074* | 0.148** | 0.072** | 0.161** |
| | (0.079) | (0.037) | (0.032) | (0.004) | (0.074) | (0.061) | (0.075) | (0.059) |
| SPR index | 0.114** | 0.107** | | | | | | |
| | (0.027) | (0.033) | | | | | | |
| Aid×SPR | | 0.003 | | | | | | |
| | | (0.032) | | | | | | |
| IR index | | | 0.070** | 0.084** | | | | |
| | | | (0.030) | (0.032) | | | | |
| Aid×IR | | | | 0.037 | | | | |
| | | | | (0.026) | | | | |
| IC indicator | | | | | -0.044* | -0.157*** | | |
| | | | | | (0.025) | (0.043) | | |
| Aid×IC | | | | | | -0.104** | | |
| | | | | | | (0.040) | | |
| IC×Time | | | | | | | 0.003* | 0.012** |
| | | | | | | | (0.002) | (0.003) |
| Aid×IC×Time | | | | | | | | 0.008** |
| | | | | | | | | (0.003) |
| Constant | -0.403 | -0.534 | 0.015 | 0.088 | -0.343 | -1.762** | -0.348 | -1.773 |
| | (0.694) | (0.390) | (0.508) | (0.523) | (0.625) | (1.116) | (0.634) | (1.093) |
| AR1 | 0.154 | 0.137 | 0.074 | 0.149 | 0.134 | 0.084 | 0.134 | 0.083 |
| AR2 | 0.431 | 0.446 | 0.269 | 0.424 | 0.380 | 0.942 | 0.378 | 0.921 |
| Hansen test(2nd step) (p-value) | 0.404 | 0.597 | 0.205 | 0.187 | 0.136 | 0.468 | 0.140 | 0.483 |
| Difference-in-Hansen test | | | | | | | | |
| All system GMM instruments (p-value) | 0.147 | 0.252 | 0.462 | 0.247 | 0.810 | 0.806 | 0.822 | 0.819 |
| Countries | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| Instruments | 15 | 18 | 19 | 23 | 17 | 21 | 17 | 21 |
| Observations | 294 | 294 | 294 | 294 | 294 | 294 | 294 | 294 |

*Notes*: The dependent variable is real per capita GDP growth. Time dummies are included in all regressions. Endogenous variables are financial depth (M2/GDP), *Policy index*, *SPR*, *IR*, *IC*, aid, and interaction terms. Standard errors in parentheses. *,**,*** significant at 10%, 5%, 1% level.

Finally, in order to capture the effect of aid on growth with respect to initial conditions, we introduced the $IC$ indicator. Recall that the more negative the value of $IC$ indicator, the better were the initial conditions at the beginning of transition process. The expected negative impact on growth is confirmed (regression 5), which indicates that a bad starting point affects the economic recovery; this result is in line with the literature. Interestingly, it appears that in countries with bad initial conditions aid is more effective in enhancing growth (regression 6). Further, following Falcetti et al. (2002), we interact $IC$ with a time trend $IC \times Time$ to capture the changing effect of initial conditions on output performance over time. Recall that $Time$ represents the number of years since transition started. In regression (7), the positive coefficient of the interaction term of $IC$ with the number of years since transition started suggests that the impact of initial conditions on growth is declining over time, as transition proceeds. This results is in line with De Melo et al.'s (1997b) and Berg et al.'s (1999). When interacting $IC$ with $Time$ and aid variable (regression 8), the effect on growth is positive. We interpret this as evidence that, the declining effect of initial conditions on growth, influences also aid's impact in terms of growth. We can conclude that transition countries' specificities at the beginning of transition period in relation to aid effectiveness are highly important.

## 2.6 Conclusion

Over the past few years, since Burnside and Dollar's (2000) influential study, a dominant paradigm has evolved on how aid should be allocated. The conventional wisdom among donors became the view that not only is aid effective in spurring growth, but that it is more effective in recipient countries with sound policy and good institutions.

This analysis adds to the existing literature by examining the effectiveness of foreign aid allocation on economic growth in transition economies. It raises the question of a consistent relationship between economic growth and foreign aid, paying special attention to the macroeconomic policy environment, progress in implementing reforms and recipient countries specificities at the beginning of transition process. Growth equations are estimated using the two-step GMM estimator on a dynamic panel data set, across 25 Central and East European countries, over 14 years (1990-2004).

Our results show a positive impact of aid on growth, but the result is not robust once we take into account the quality of economic policy. Our findings support Hansen and Tarp (2000), Clemens et al. (2004), Dalgaard et al. (2004) and other similar studies which question the results of the "conditional" literature, such as Burnside and Dollar's (2000), which claim that aid works only in recipient countries with "good policy environment".

Aid conditionality with regard to the quality of institutions and the progress of reforms, is also rejected. There is no evidence of a enhanced impact of aid in when progress has been made on implementing structural policy and institutional reforms. However, in line with transition literature, these two measures of the quality of institutions have positive effects on growth, they are therefore considered important determinants of output performances in transition economies.

Finally, we have tested the hypothesis that the impact of foreign aid is a function of differences across recipient countries, as represented by the initial conditions at the beginning of the transition process. We have found a strong interaction between aid and initial conditions. We interpret this as evidence that aid is more effective in promoting growth in countries with bad initial conditions. Hover, the effect of initial conditions on growth has declined over time, meaning that countries are converging in terms of growth rates regardless of their initial conditions. We have underlined the importance of structural characteristics for the returns to aid. Similar conclusions were made by Dalgaard et al. (2004) who found that climatic variables (which represent structural characteristics) appear to have a direct bearing on the growth process. Consequently, the degree to which aid enhances growth depends on climate-related circumstances.

Motivated by the findings of Burnside and Dollar (2000), the dominant rhetoric of the policy debate on foreign aid changed. The quality of governance became the core question of the debate on foreign aid. In this context, an increasing concern became the allocation of aid towards countries with poor governance. These are countries that have been exposed to low development performance in the last several decades, and undoubtedly, the people in these countries are the most in need of foreign aid. In order to add to this subsequent debate, the next chapter of this dissertation deals with the criteria of aid allocation with an emphasis on the quality of governance in recipient countries.

# Appendix of Chapter 2

***Box no.1: EBRD Transition Indicators.***

**Large-scale privatisation 1** Little private ownership. **2** Comprehensive scheme almost ready for implementation; some sales completed. **3** More than 25 percent of large-scale enterprise assets in private hands or in the process of being privatised (with the process having reached a stage at which the state has effectively ceded its ownership rights), but possibly with major unresolved issues regarding corporate governance. **4** More than 50 percent of state-owned enterprise and farm assets in private ownership and significant progress with corporate governance of these enterprises. **4+** Standards and performance typical of advanced industrial economies: more than 75 percent of enterprise assets in private ownership with effective corporate governance.

**Small-scale privatisation 1** Little progress. **2** Substantial share privatised. **3** Comprehensive programme almost ready for implementation. **4** Complete privatisation of small companies with tradable ownership rights. **4+** Standards and performance typical of advanced industrial economies: no state ownership of small enterprises; effective tradability of land.

**Governance and enterprise restructuring 1** Soft budget constraints (lax credit and subsidy policies weakening financial discipline at the enterprise level); few other reforms to promote corporate governance. **2** Moderately tight credit and subsidy policy, but weak enforcement of bankruptcy legislation and little action taken to strengthen competition and corporate governance. **3** Significant and sustained actions to harden budget constraints and to promote corporate governance effectively (for example, privatisation combined with tight credit and subsidy policies and/or enforcement of bankruptcy legislation). **4** Substantial improvement in corporate governance and significant new investment at the enterprise level, including minority holdings by financial investors. **4+** Standards and performance typical of advanced industrial economies: effective corporate control exercised through domestic financial institutions and markets, fostering market-driven restructuring.

**Price liberalisation 1** Most prices formally controlled by the government. **2** Some lifting of price administration; state procurement at non-market prices for the majority of product categories. **3** Significant progress on price liberalisation, but state procurement at non-market prices remains substantial. **4** Comprehensive price liberalisation; state procurement at non-market prices largely phased out; only a small number of administered prices remain. **4+** Standards and performance typical of advanced industrial economies: complete price liberalisation with no price control outside housing, transport and natural monopolies.

**Trade and foreign exchange system 1** Widespread import and/or export controls or very limited legitimate access to foreign exchange. **2** Some liberalisation of import and/or export controls; almost full current account convertibility in principle, but with a foreign exchange regime that is not fully transparent (possibly with multiple exchange rates). **3** Removal of almost all quantitative and administrative import and export restrictions; almost full current account convertibility. **4** Removal of all quantitative and administrative import and export restrictions (apart from agriculture) and all significant export tariffs; insignificant direct involvement in exports and imports by ministries and state-owned trading companies; no major non-uniformity of customs duties for non-agricultural goods and services; full and current account convertibility. **4+** Standards and performance norms of advanced industrial economies: removal of most tariff barriers; membership in WTO.

**Competition policy 1** No competition legislation and institutions. **2** Competition policy legislation and institutions set up; some reduction of entry restrictions or enforcement action on dominant firms. **3** Some enforcement actions to reduce abuse of market power and to promote a competitive environment, including break-ups of dominant conglomerates; substantial reduction of entry restrictions. **4** Significant enforcement actions to reduce abuse of market power and to promote a competitive environment. **4+** Standards and performance typical of advanced industrial economies: effective enforcement of competition policy; unrestricted entry to most markets.

**Banking reform and interest rate liberalisation 1** Little progress beyond establishment of a two-tier system. **2** Significant liberalisation of interest rates and credit allocation; limited use of directed credit or interest rate ceilings. **3** Substantial progress in establishment of bank solvency and of a framework for prudential supervision and regulation; full interest rate liberalisation with little preferential access to cheap refinancing; significant lending to private enterprises and significant presence of private banks. **4** Significant movement of banking laws and regulations towards BIS standards; well-functioning banking competition and effective prudential supervision; significant term lending to private enterprises; substantial financial deepening. **4+** Standards and performance norms of advanced industrial economies: full convergence of banking laws and regulations with BIS standards; provision of full set of competitive banking services.

**Securities markets and non-bank financial institutions 1** Little progress. **2** Formation of securities exchanges, market-makers and brokers; some trading in government paper and/or securities; rudimentary legal and regulatory framework for the issuance and trading of securities. **3** Substantial issuance of securities by private enterprizes; establishment of independent share registries, secure clearance and settlement procedures, and some protection of minority shareholders; emergence of non-bank financial institutions (for example, investment funds, private insurance and pension funds, leasing companies) and associated regulatory framework. **4** Securities laws and regulations approaching IOSCO standards; substantial market liquidity and capitalisation; well-functioning non-bank financial institutions and effective regulation. **4+** Standards and performance norms of advanced industrial economies: full convergence of securities laws and regulations with IOSCO standards; fully developed non-bank intermediation.

Table 2.10: Data Sources and Definitions.

| Variable name | Source | Definition |
|---|---|---|
| **Aid disbursements** | DAC, OECD | Net disbursements of total ODA/OA (bilateral and multilateral) in % of GDP of recipient country |
| **GDP per capita** | WDI, World Bank | log of per capita GDP en PPP, US$) |
| **GDP per capita growth** | Own calculation, WDI, World Bank | $= ln(GDPpc_t) - ln(GDPpc_{t-1})$, annual, % |
| **Inflation** | WDI,World Bank | GDP deflator, % |
| **Budget balance** | EBRD Indicators Transition Reports | Sum of current and capital revenues including grants, less the sum of current and capital expenditure and government lending minus repayments, in % of GDP |
| **Trade openness** | Own calculation based on WDI, World Bank for observed trade openness | Residual of the regression of observed trade openness (sum of exports and imports over GDP) on structural factors |
| **Policy index** | Own calculation based on Burnside and Dollar (2000) method | Weighted average of three economic policy: inflation, budget balance, and adjusted trade openness |
| **EBRD Transition Indicators** | EBRD Indicators Transition Reports | from 1 to 4+, with 1: little or no change from a rigid centrally planned economy; 4+: the standards of an industrialized market economy |
| **Structural Policy Reform** | Own calculation based on EBRD Transition Reports | Scores calculations computed from the first principal component |
| **Institutional Reform** | Own calculation based on EBRD Transition Reports | Scores calculations computed from the first principal component |
| **Initial Conditions** | Falcetti et al. (2005) EBRD staff calculation | Country score calculations from the first principal component |
| **Financial depth** | EBRD Indicators Transition Reports | M2 in % of GDP |
| **Government consumption** | WDI, World Bank | General government final consumption expenditure in % of GDP. |
| **Time** | Own calculation | Number of years since transition started. |

Table 2.11: Summary statistics.

| | Observations | Mean | Std.Dev | Minimum | Maximum |
|---|---|---|---|---|---|
| *Descriptive Statistics, 1990-2004.* | | | | | |
| GDP growth | 346 | 4.49 | 10.58 | -28.80 | 20.98 |
| GDP per capita | 371 | 6004.87 | 4178.53 | 731.34 | 21482.98 |
| Total aid (% GDP) | 348 | 3.046 | 5.17 | -0.55 | 56.85 |
| Inflation | 373 | 250.92 | 975.13 | -8.5 | 15606.5 |
| Budget balance | 343 | -4.61 | 5.99 | -54.7 | 4.9 |
| Trade openness | 366 | 95.08 | 33.07 | 22 | 176 |
| Adjusted trade openness | 363 | 1.97 | 0.32 | -1.37 | 0.84 |
| Policy index | 333 | -.011 | 0.12 | -1.61 | 0.11 |
| SPR index | 375 | 7.65e-09 | 1 | -2.04 | 1.15 |
| IR index | 375 | -1.08e-08 | 1 | -1.37 | 2.28 |
| Initial conditions | 375 | 5.36e-09 | 2.29 | -3.53 | 3.43 |
| Government consumption | 370 | 17.23 | 5.11 | 5.69 | 30.12 |
| Broad money (M2/GDP) | 325 | 31.12 | 20.68 | 0.0008 | 123.91 |

Figure 2.6: Growth rate of real per capita GDP (1).

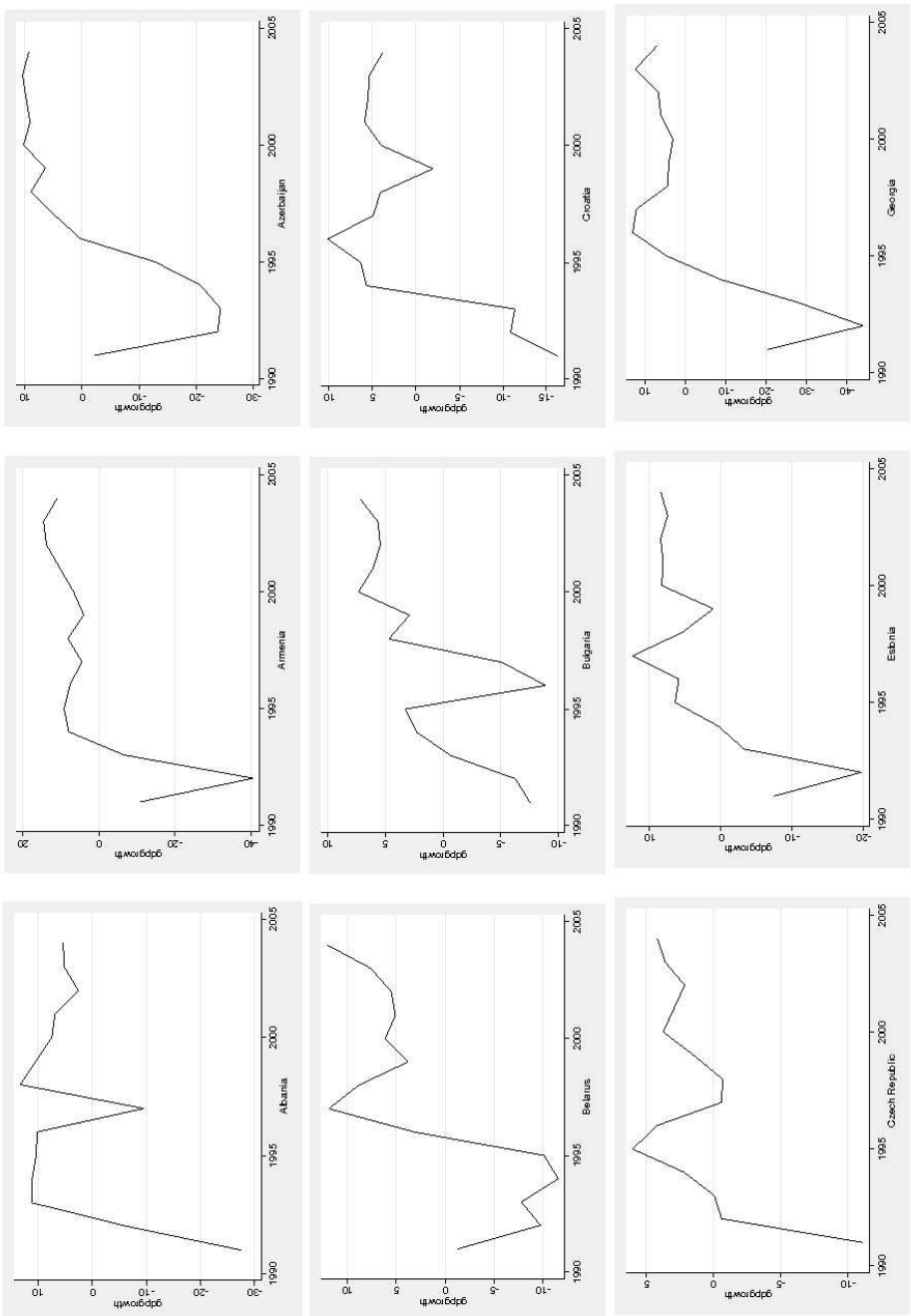


Figure 2.7: Growth rate of real per capita GDP (2).

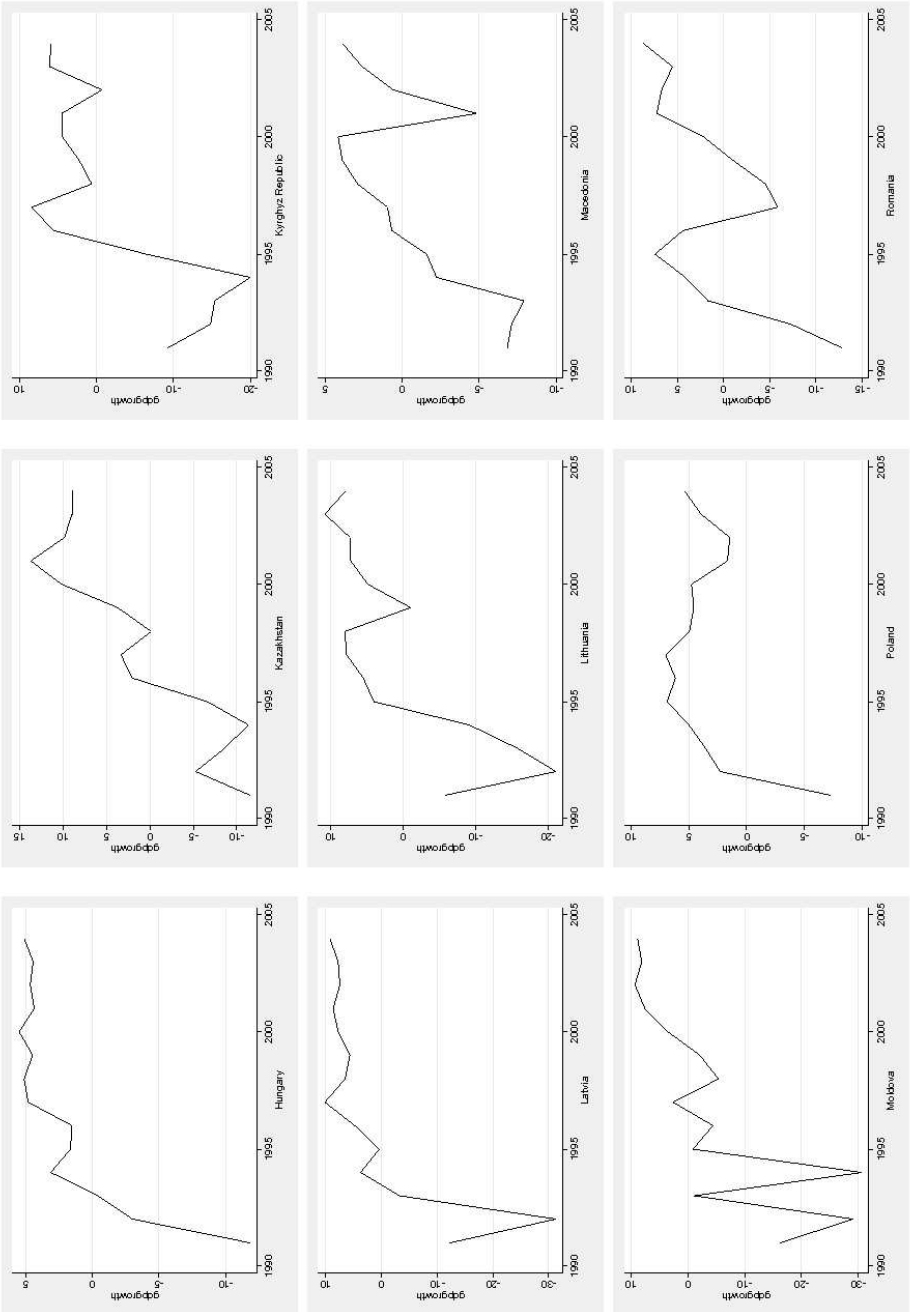


Figure 2.8: Growth rate of real per capita GDP (3).

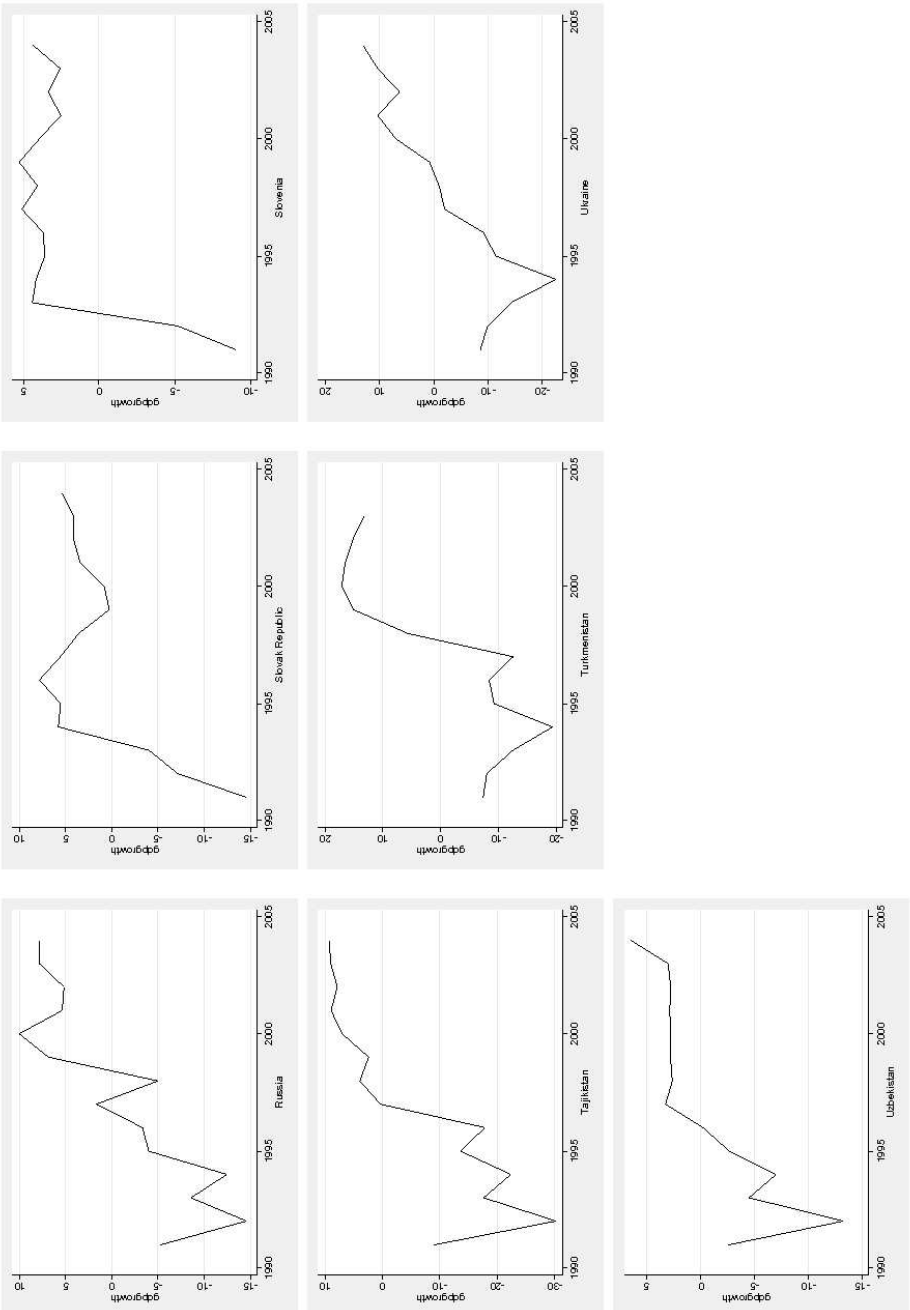


Table 2.12: Initial conditions index - Components.

| **Components** | **Explanations** |
|---|---|
| GDP per capita in 1989 | measured in 1989 US$ at PPP exchange rates |
| Pre-transition growth | in CEE over the time period 1985-1989<br>in the FSU over the time period 1987-1991 |
| Trade dependence on CMEA | the value of trade with CMEA over GDP in 1989 |
| Degree of over industrialization | the share of employment in industry |
| Urbanization rate | the share of population living in urban areas |
| Wealth in natural resources | dummy from 0 to 2 with:<br>0 for poor natural resources<br>1 for moderate natural resource<br>2 for rich natural resources |
| Years under central planning | the years a country spent under central planning |
| Distance to EU | distance between capitals and Brussels |
| Pre-transition existence as a sovereign state | dummy for state capacity, from 0 to 2 with:<br>0 for all new CIS states and the Slovak Republic<br>1 for all dominant states in a federation - Russia, the Czech Republic<br>2 for all established nation states |
| Repressed inflation | derived from the difference between wage growth and productivity over the time period 1987-1990 |
| Black market exchange premium | calculated for 1989 |

*Source*: Falcetti et al (2002), EBRD staff calculation based on data in De Melo et al (1997b) updated and slightly modified.

Table 2.13: Initial conditions - Country scores.

| | **First principal component IC1** |
|---|---|
| ***CEECs*** | |
| **Albania** | -2.09 |
| **Bulgaria** | -2.12 |
| **Croatia** | -2.54 |
| **Czech Republic** | -3.53 |
| **Estonia** | 0.40 |
| **Hungary** | -3.25 |
| **Latvia** | 0.24 |
| **Lithuania** | 0.00 |
| **Macedonia** | -2.51 |
| **Poland** | -1.87 |
| **Romania** | -1.69 |
| **Slovak Rep.** | -2.95 |
| **Slovenia** | -3.18 |
| ***CIS*** | |
| **Armenia** | 1.11 |
| **Azerbaijan** | 3.24 |
| **Belarus** | 1.07 |
| **Georgia** | 2.20 |
| **Kazakhstan** | 2.54 |
| **Kyrghyz Rep.** | 2.27 |
| **Moldava** | 1.09 |
| **Russia** | 1.09 |
| **Tajikistan** | 2.87 |
| **Turkmenistan** | 3.43 |
| **Ukraine** | 1.40 |
| **Uzbekistan** | 2.78 |

*Source*: Falcetti et al. (2002), EBRD staff calculation.
*Note*: The more negative the score, the more favourable initial conditions were.

**Methodology for computing Trade Openness indicator**

The empirical framework for the estimation of observed trade openness is as follows:

$$O_{i,t} = \alpha_0 + \alpha_1 Y_{i,t} + \alpha_2 Pop_{i,t} + \alpha_3 L_i + \varepsilon_{i,t} \tag{2.16}$$

where $O_{i,t}$ represents observed trade openness measured by the ratio of exports and imports over GDP (current prices US$) of country $i$ and year $t$. $Y_{i,t}$ is the per capita GDP (current prices, US$) of country $i$ and year $t$ and is a proxy for the level of development. $Pop_{i,t}$ is the population size. $L_i$ is a dummy variable that equals 1 if the country $i$ is landlocked[31] and 0 otherwise and is a proxy for transportation costs. $\varepsilon_{i,t}$ is the residual that will stands for our adjusted trade openness variable.

Several alternatives are possible for estimating the equation 2.16:

- the OLS estimator, if there is no individual effect, no heteroscedasticity and no correlation. In such cases, a standard regression is estimated once the data is considered as $N \times T$ non panel observations.
- the GLS estimator, if there are individual effects, but no heteroscedasticity and no correlation.
- the FGLS estimator in all other cases. This estimator takes into account the heteroscedastic error structure between panels, as well as panel specific autocorrelation (Wooldridge, 2002; Ouellet, 2005).

In order to choose the appropriate estimation method, we run the Hausman test which allows us to differentiate between random and fixed effects. The result of this test indicates that random-effects suit our data. Furthermore, we run the Breusch-Pagan test which indicates the presence of heteroscedasticity. Next, the hypothesis of the autocorrelation of errors is tested by the Wooldridge test. The result of this test indicates the existence of autocorrelation among errors. The appropriate estimator when dealing with both both heteroscedasticity and error autocorrelation. is the FGLS estimator.

The estimated coefficients[32] of the regression of trade openness are given by the equation (2.17). Note that all variables of interest have the expected sign, negative for population and landlockness, and positive for per capita GDP.

$$O_{i,t} = 6.256 + 0.118 Y_{i,t} - 0.162 Pop_{i,t} - 0.213 L_i \tag{2.17}$$

[31] A landlocked country is commonly defined as a country enclosed or nearly enclosed by land.
[32] The coefficients of all the three variables are significant at 1% level of significance.

# Chapter 3

# Aid Allocation Determinants and Donor Objectives

While there is a consensus among donors about the necessity to enhance growth and reduce poverty, the aid allocation patterns and aid practices have not always been targeted towards these development objectives. Not only has the efficiency of aid allocation models been questioned, but also the real motivations of donors to give aid. Donors have often been suspected of using aid more for their own interests, political, strategic and commercial) than for recipients' needs.

The debate on the real motivations for providing aid is rooted in the literature about effectiveness and the conditions under which aid is more likely to enhance growth (Burnside and Dollar, 2000). The adoption by multilateral donors of the idea of aid conditionality (World Bank, 1998) which further oriented bilateral donors strategies towards selective aid allocation patterns, and, at the same time, the failures of aid in achieving its objectives, have raised questions in academic and policy circles as to the factors that determine the allocation of aid.

In the attempt to explain the main motivations of donors for providing aid, the empirical literature has come up with various conclusions. However, a consensus has emerged as to the key determinants of aid allocation decisions. Three main factors have been identified: (i) *donor interests*; (ii) *recipient needs* and, (iii) *recipient performances*.

Donor interests have often been qualified as either *strategic* and *political* (related to political alliances intended to contribute to changes in international situations), or *commercial* (where the objective would be to expand donor's markets and/or create cheap sources for their imports). Recipient needs are related to the very first purpose of foreign aid, namely promoting economic development and welfare in recipient countries. The

initial debate focused on the question whether the aid allocation patterns were driven by recipient needs or donor interests. Two types of donor behavior have been identified: "altruistic" - oriented uniquely towards recipient needs; and "selfish" - oriented entirely towards donor self-interests (political, strategic and commercial). However, most of the contributions to the aid allocation literature suggests that donors appear neither entirely altruistic, nor completely selfish. In addition, recently, donors have started to pay attention to the economic and social merits of recipients; these have been progressively added in aid allocation models. Mostly, donors have focused on "good performance" with regard to several aspects such as governance, corruption, institutional development, etc.

The purpose of this chapter is to empirically investigate the criteria of foreign aid allocation in transition economies. We will present a pattern of aid allocation that takes into account donor interests, and recipient needs and merits, with a focus on the quality of governance in recipient countries. More precisely, we will ask whether donors reward "good governance". One important aspect of the quality of governance is the quality of institutions and the regulation. It is largely recognized that weak institutions and inadequate legal frameworks can be harmful to development. In transition economies, undertaking institutional changes was a necessary condition for achieving market economy. Without market-friendly institutions and a well regulated market system that would attract foreign capital, and without preventing corruption, it is unlikely that such countries would achieve economic development. Additionally, our analysis will compare multilateral and bilateral aid allocation patterns, at an aggregate level. Finally, it will look at the patterns of bilateral aid allocation by donor (for some major donors) and of multilateral aid allocation of the European Commission (EC) (the most important multilateral donor for CEECs and CIS countries) and the European Bank for Reconstruction and Development (EBRD).

We contribute to the empirical literature, by adding on the determinants of aid allocation in transition economies, which has been given little discussion in the literature so far. Our results indicate that donors, besides their own interests, do pay attention to recipients with regard to their needs. Moreover our findings indicate that the quality of governance is important in the eyes of the donors, since they need to be confident about the way their money is managed, and the use that is given to it. This lack of confidence actually leads donors to apply conditionality to their aid.

The chapter is organized as follows. Section 2 summarizes the main findings of the literature on the determinants of aid allocation. Section 3 sets up a model of aid selection and allocation process, and discusses the econometric procedure and data used. Section 4 presents and interprets the results and, finally, Section 5 concludes.

## 3.1 Literature Review

### 3.1.1 Donor Interests *vs* Recipient Needs and Merits

Research on bilateral aid allocation programmes started in the mid 1950s and, since then, several theoretical studies have attempted to explain the aid allocation decisions made by various bilateral donors, mostly from Western Europe or the United States. Yet, it was only in the late 1970s that the allocation behavior of donors was empirically tested in a series of studies by McKinlay and Little (1978a, 1978b, 1979). Their findings stand as a benchmark for subsequent research, providing a dominant paradigm of aid allocation patterns. They investigate US aid allocation models including recipient needs and donor interests. Their model estimates two distinct equations; one controls only for recipient needs, while the other deals exclusively with donor interests. Their results point out that US aid allocation was motivated by political reasons and security rather than humanitarian criteria.

Later, other studies also found evidence of aid allocation models which were mostly oriented towards the strategic and political interests of the donors. For instance, Maizels and Nissanke (1984), who studied the behavior of donors like the United States, France, Germany, Japan and the United Kingdom agree that bilateral aid allocation is more likely to be determined by donor interests (strategic and commercial), while multilateral aid donors support a model based on recipient needs. Gounder (1994), studying Australian aid allocation, is one of the first to underline the importance of both types of determinants. By exploring US aid allocation Apodaca and Stohl (1999), illustrate that, while the impact of recipient needs (measured by GNP per capita) on the aid allocation decision is positive and statistically significant, US national security interests play a more prominent role in the allocation of aid. Countries that are considered of vital importance to US national security, along with Latin America, therefore receive aid regardless of other factors.

As described above, the early empirical literature on aid allocation was mostly dominated by studies analyzing the self-interests of donors and the needs of recipients separately. The usual control variables used in empirical studies to express donor interests are political similarity, arms transfers, military presence, religious similarity, geographic proximity, share of a donor exports or imports traded with a particular recipient country, stock of private direct investment from a donor to a recipient country. Per capita income is often included in empirical analysis to control for recipient needs; other variables such as infant mortality, life expectancy at birth, and literacy rate are also widely used in aid allocation regressions for this purpose.

Further research has displayed in recent years, a preference for models which combine

both types of aid allocation behavior, while arguing that previous results suffered from the omitted variable bias (McGillivray, 2003). Criticism has emerged with regard to the specification of these models. Henceforth, models including both determinants have been developed (McGillivray and Oczkowki, 1992; Trumbull and Wall, 1994; Boone, 1996; Alesina and Dollar, 2000; Alsesina and Weder, 2002; Berthélemy and Tichit, 2004). For instance, McGillivary and Oczkowski (1992) in a study on UK allocation, find that the allocation of aid favors the distribution of assistance to its former colonies (commonwealth countries). Trumbull and Wall (1994) explore the variations in per capita aggregate ODA across recipients and find that ODA allocations are essentially determined by the needs of recipients, such as infant mortality, and political and civil rights. For Alesina and Dollar (2000) the allocation of bilateral aid is determined as much by political and strategic considerations, as by the economic needs and performances of recipients. Berthélemy and Tichit's (2004) findings support the importance of a country's colonial past and of bilateral trade, as key criteria for aid allocation decisions. Moreover, they point out that good economic and political environments have been rewarded by donors since 1990.

Until the seminal contribution of Burnside and Dollar (2000), with regard to the impact of aid on growth depending on the quality of economic policy, the international donor community did not pay attention to recipient performances. Henceforth, the belief that "good performers" should be rewarded has become common sense for donors. The development of aid effectiveness literature encouraged researchers to explore the behavior of donors with regard to the performances of recipients. Variables related to recipient merits have been added in the aid allocation models, such as:

- economic growth (a measure of economic performance);
- governance, political and civil rights, corruption (measures of institutional quality);
- democracy (a measure of political openness);
- inflation, budget balance, trade openness (measures of economic policy).

Among all these factors, more attention has been given to the quality of governance. It has been recognized that governance is one of the drivers of a stable development and a sound investment climate. Neither donors, nor foreign investors, are likely to be interested in investing or financially supporting countries with low governance or bad institutional quality. The lack of confidence in the capacity of recipients to manage the funds or in the commitment and willingness to do it represents is the main concern that actually leads donors to apply conditionality.

The existing literature provides various indicators of the quality of governance in recipient countries, such as political and civil rights (Trumbull and Wall, 1994; Svensson, 1999;

Alesina and Dollar, 2000; Neumayer, 2003), rule of law and corruption (Alesina and Dollar, 2000; Alesina and Weder, 2002; Kaufmann and Kraay, 2002; Neumayer 2003) or personal integrity rights (Apodaca and Stohl, 1999). By exploring the impact of varying degrees of corruption on aid in recipient countries, Alesina and Weder (2002) find no evidence of a negative impact. Scandinavian aid seems to be directed towards less corrupt countries, while large donors, i.e. France, Japan, USA and UK do not appear to consider the level of corruption as a major factor in the allocation of aid. However, Alesina and Dollar (2000) find that, developing countries that support political rights and civil liberties receive more bilateral aid, *ceteris paribus*. Knack (2000) examines the interdependence between aid and the quality of governance, measured by a *Governance index* (including bureaucratic quality, rule of law and corruption) and finds evidence that higher levels of aid erode the quality of governance.

An important contribution to this literature comes from Guillaumont and Chauvet (1999, 2001), who suggest that as well as the quality of economic policy, the aid allocation models should also consider the vulnerability of developing countries when facing external shocks. They point out the protective role of aid with regard to economic growth, against the negative impact induced by external shocks. Neumayer (2003) compares the importance of "good governance" for donors in the *selection phase* and in the *allocation phase* of the allocation process. He examines democracy, human rights, corruption, regulatory burden and rule of law. He shows that almost all aspects of "good governance" have consequences for a donor's decision in the *selection phase* . The results are similar for the *allocation phase*, except for one indicator, the rule of law.

Some recent studies investigate incentives in the donor-recipient relationship, and their possible influence on the implementation of policy reforms intended to reduce poverty and promote development. For example, Svensson (1998) uses a game theoretical model in which an altruistic donor gives aid according to recipient needs. The results illustrate that aid allocation rules adversely affect recipients' incentives to carry out policies in order to promote human development indicators (infant mortality, life expectancy at birth, and primary school enrollment). The empirical tests show that recipient needs and the size of population are the main determinants of aid allocation patterns. However, aid flows have no statistically significant impact on the promotion of human development indicators.

### 3.1.2 Different Donors, Different Aid Allocation Patterns

Analyzing bilateral aid allocation patterns at an individual level has lead to an identification of important differences among donors allocation behaviors. Nordic countries, i.e. Denmark, Finland, Norway and Sweden appear to allocate more aid to recipients

with less per capita income, open economies and democratic governance. The the United States seem to behave similar to Nordic countries, but only marginally, because it also gives a lot of aid to political allies, like Egypt and Israel. Large donors, like France and Japan allocate more aid to their political allies and to their former colonies. They care only to a small extent about recipient needs and good governance. Most of the donors, except for Belgium, Canada, Italy and the Netherlands, consider the openness policy a criteria of allocation (Alesina and Dollar, 2000). Furthermore, level of corruption is likely to positively influence the allocation of US aid and negatively influence the allocation of both Austrian and Scandinavian aid (Alesina and Weder, 2002).

According to Berthlémy and Tichit (2004) political and civil rights positively influence the allocation pattern of aid for most of the donors, with Austria and the United States relying on this criteria the most, Belgium and France the least. Moreover, social performances (e.g. infant mortality) are considered in the aid allocation models of Germany and Italy, while they are not for most of the other donors, like Austria, Belgium, Canada, Japan, New Zealand, Sweden, Norway and the United States.

Despite their altruistic or selfish behavior, there is evidence of some coordination amongst donors. This coordination was first identified in the literature by (Dudley and Montmarquette, 1976). It appears that, on average, donors pay attention to the total amount of aid received by a recipient from the rest of the donors. In fact, a donor might expect that the impact of its aid in a recipient country would be higher, the greater the amount of aid the rest of the donors grant to that recipient. In other words, the more aid a recipient receives from the rest of the donors, the more effective the aid received from a specific donor will be. Furthermore, a sort of "alliance" is identified among large donors. In a study about Japanese allocation of aid, Katada (1997) observes that as well as its own political and economic interests, Japan also considers alliances with the the United States and improvement of the United States-Japan relationship, by satisfying the United States interests in Asia-Pacific region,s in support of the United States maintenance in the developing world.

While a lot of consideration has been given to bilateral aid allocation, multilateral aid allocation has been discussed only marginally. The common belief is that multilateral aid is more poverty-focused oriented and more predictable than most bilateral aid. Neumayer (2003), in a study on the determinants of aid allocation of four regional multilateral development banks[1] and United Nations Agencies[2], argues that banks focus on the economic

[1] African Development Bank, Caribbean Development Bank, Asian Development Bank and Inter-American Development Bank.

[2] United Nations Development Programme, United Nations Children's Fund, United Nations Regular Programme of Technical Assistance.

needs of recipients, whilst agencies focus on human development aspects. Consequently, political freedom, political rights and civil liberties do not play an important role for the agencies, whereas they do more for the banks.

The ongoing debate on the behavior of donors, which has often pointed to the "selfish" motives of donors, has lead them to state their commitment to improve the aid allocation decisions (World Bank, 2000, 2002). Whether they have delivered on these commitments or not is a subject of current debate. Researchers have carried out empirical analyses in order to identify changes in the allocation behavior of donors. Berthélemy and Tichit (2004) identify an improvement in multilateral donors allocation practices (and to a lesser extent for bilateral donors) towards greater selectivity between the 1980s and the 1990s. Dollar and Levin (2006) advance a similar conclusion when comparing between the late 1980s and the years 2000-2003. Democracy, rule of law and GDP per capita are used as selectivity criteria for recipients. Conversely, Nunnenkamp and Thiele (2006) and Easterly (2007) find evidence of a weak improvement in aid allocation in recent years. While some improvements are identified, i.e. greater regard for the GDP per capita after the late 1970s, and a decline in aid tying, factors such as democracy, corruption, inflation, and openness do not appear to benefit of an increased preoccupation from donors (Easterly, 2007). The response of both bilateral multilateral donors to changing institutional and policy conditions in recipient countries proved to be weak (Nunnenkamp and Thiele, 2006).

### 3.1.3 Bias in Aid Allocation Patterns

The patterns of aid allocation bring out several identification issues that should be taken into consideration in empirical studies. For example, bilateral donors are likely to provide a positive amount of aid to some recipients and nothing to others. Large donors like France, Japan, UK and USA tend to reward most of the recipients, while small donors like Denmark, Finland, Ireland and Norway tend to concentrate their aid only on few recipients (Dudley and Montmarquette, 1976; Alesina and Dollar 2000; Neumayer 2003). This is actually the consequence of the two-step aid allocation procedure, which consists of (1) a *selection phase*, when recipients are selected with regard to given criteria, and of (2) an *allocation phase*, when recipients are provided with aid.

Since donors exclude some countries from the recipients' list, empirically investigating the process of aid allocation with the classical OLS might suffer from bias. This is because the OLS method does not account for the non-linearity between dependent and independent variables. In the case of a two-step allocation process, the choice of the estimation method is constrained by the nature of the dependent variable, which is the amount of aid. This is only partly continuous with a zero positive probability (Neumayer, 2003). The

existing literature suggests using sophisticated estimation techniques in order to deal with this issue. Several alternatives might me applied: *the two-part model* (Dudley and Montmarquette, 1976; McKinlay and Little, 1978; Apodaca and Stohl, 1999; Svensson 1999; Neumayer, 2003), *the Heckman method* (McGillivray and Oczkowski, 1992; Tarp et al., 1998) and *the Tobit model* (Alesina and Dollar 2000; Alesina and Weder 2002; Berthélemy and Tichit, 2004)[3].

Empirical studies have also pointed out certain systemic bias in aid allocation models. Two such bias have been identified by the literature: (i) the *population bias*, and (ii) the *income level bias*.

The *population bias* was first identified in aid allocation patterns by Dudley and Montmarquette (1976). It attests the fact that small countries receive more aid than big countries. Since Dudley and Montmarquette (1976), most of the studies on the determinants of aid allocation have tested this bias. More recently, Neumayer (2003) shows that there is no population bias at the eligibility stage. Nonetheless, at the level stage, all donors have population bias, indicating that small countries receive more aid per capita. Several reasons are provided by the literature as an explanation for this the bias: (i) the decreasing marginal benefits of aid allocation as population size increases; (ii) the potentially higher effectiveness of aid in small countries; and (iii) the relatively limited absorbtion capacity of more populous countries (Neumayer, 2003).

The *income level bias* denotes the fact that very poor countries tend to receive less aid than less poor countries. However, there is a threshold above which richer countries do receive less aid. One explanation for this is that less poor countries have more economic and political power in the international community, than very poor countries. Another explanation is the lack of confidence of donors in the administrative capacity to manage larger aid inflows int very poor countries (Neumayer, 2003).

## 3.2 Conceptual Framework and Methodology

In this section we will formulate a set of hypotheses about the potential factors that guide the decisions of bilateral and multilateral donors when providing aid. Then, we will discuss the theoretical benchmark model and the appropriate estimation technique when dealing with aid allocation patterns. Finally, we will present our data and the variables used in the econometric specification.

[3]A discussion about these estimation techniques is given in Section 3.2.3

### 3.2.1 Conceptual Framework

As previously indicated, the literature on aid allocation point to two main groups of motives for providing aid, namely recipient needs and donor interests. Recipients need foreign assistance to finance development and growth; donors, on the other hand may pursue their own political and economic interests through providing aid. The basic approach from the early literature is the so-called *recipient need* and *donor interest* ($RN - DI$) approach (McKinlay-Little, 1979; Maizels and Nissanke, 1984; Grounder, 1999; Grounder and Sen, 1999). It relies on the estimation of two separate equations, one including only indicators that reveal the needs of recipients and, the other, only indicators that reveal the interests of the donors. However, recent research suggests that estimating separate equations brings about an omission bias. If the variables related to recipient needs are relevant to aid allocation and are not considered in the equation modeling donor interests, then the latter provides biased results. Similarly, if variables related to donor interests are relevant to aid allocation, and they are not included in the equation of recipient needs, then this too provides biased results.

In this analysis, we will combine these two groups of potential aid determinants. We consider that donors, besides pursuing their selfish motivations, also have the desire to contribute to development in poor countries; donors believe that better development outcomes and less poverty, provide a more secure and stable environment. Recent empirical evidence has questioned whether donors have become more selective in allocating aid across countries on the basis of equity and merit criteria. The results are mixed; for instance, Dollar and Levin (2004), and Claessens, Cassimon, and Van Campenhout (2007) show that donors have become more selective in giving aid to countries on a needs basis (measured by GDP per capita), as well as on policy performance and institutional quality. Conversely, Easterly (2007), and Easterly and Pfutze (2008) report different findings. Following the literature that identifies recipient performances as determinants of current aid allocation decisions, we will add in our analysis, variables related to the quality of governance. We will use the governance indicators of Kaufmann et al. (2005). We will also control for the two biases largely identified in the existing literature on the allocation of aid, namely *population bias* and *income level bias*.

In sum, throughout the empirical analysis we will test the following hypotheses:

**H1: Donors consider their own interests in their decision to allocate aid**.
**H2: Donors pay attention to recipient needs in their aid allocation patterns**.
**H3: Governance quality impacts upon aid allocation decisions**.
**H4: Smaller countries receive more aid.**

### 3.2.2 Theoretical Model

Most empirical studies on aid allocation patterns do not explicitly present the theoretical model embodied in the regressions. Nevertheless, it is possible to incorporate them into the theoretical benchmark framework proposed by Dudley and Montmarquette (1976) and later extended by Trumbull and Wall (1994). This model is based on the standard microeconomic theory of utility maximization under a budget constraint and attempts to explain the allocation of bilateral donors in a two-step approach:

- *a selection (eligibility) phase* ;
- *an allocation (level) phase.*

The *eligibility stage* corresponds to a donor's decision to give or not give aid to a specific recipient. The *level stage* corresponds to a donor's decision with regard to the amount of aid granted to the recipients selected in the first step. According to this model, a donor maximizes the relative impact of its aid in the recipient country. This impact is measured by the ratio of per capita aid to per capita income and weighed by the size of the population of recipient. In each period, each donor tries to achieve the maximum utility from the impact of the aid allocated, under the constraint of its limited aid budget.

The main assumptions of Dudley and Montmarquette (1976) model state that, when a donor decides to provide aid, he might expect that:

- the recipient will behave more favorably towards the donor, by supporting the political interests of the donor (selfish vision);
- the recipient will confer economic benefits towards the donor, by increasing its imports from the donor country (selfish vision);
- the population welfare of the recipient will be improved (altruistic vision).

By maximizing the utility function under the budget constraint, Dudley and Montmarquette (1976) derive two econometric specifications, which allows them to test the relative importance of a set of factors, for a donor's decision. The model attempts to explain the individual aid allocation decisions that donors make, assuming that they have different subjective measures regarding the impact of aid in a recipient country. Trumbull and Wall (1994) extended this model to allow optimization by multiple donors. They assumed that all donors have the same subjective measure of the impact of aid in a recipient country. As in Dudley and Montmarquette (1976), a donor maximizes the weighted sum of the total impact of its aid in all recipients, subject to its budget constraint.

In this analysis, as with most of the studies on aid allocation criteria, we will depart from the deterministic model of aid allocation introduced by Dudley and Montmarquette (1976) and extended later by Trumbull and Wall (1994). The next sections present this benchmark model first and then our model, which is extended by introducing the quality of governance as a measure of recipient merits. Moreover, our model controls for the heterogeneity among donors.

## Trumbull and Wall's (1994) Benchmark Model

Trumbull and Wall's (1994) model assumes that in each time period $t$, each donor $i$ allocates its aid budget $Y_{i,t}$ among $N$ recipients, with the objective of maximizing the weighted sum of the total impact of their aid on the recipients. The model makes a strong assumption, by supposing that all donors have the same subjective measure of the impact of their aid on a recipient. This is captured by the variable $w_j$, which measures the weights assigned by donors to each recipient $j$. The weights reveal the relative degree to which donors are concerned with the recipients. The assumption is that all donors assign the same set of weights to recipients.

For a given time period $t$, the per capita impact of aid within a recipient $j$ is $h_j$. It is a function of the per capita aid received $a_j$ , the per capita well-being, proxied by the per capita income, $x_j$, and the size of the population, $N_j$, as follows:

$$h_j = \frac{a_j^{\beta}}{x_j^{\gamma} N_j^{\tau}} \tag{3.1}$$

where $0 < \beta < 1$, $0 < |\gamma| < 1$ and $0 \leq \tau < 1$.

Donors expect that the total impact of aid will increase with the per capita aid. The effect of the income of recipients on the total impact of aid might be either positive or negative, depending on the assumed substitutability/complementarity between aid and the income of recipients. If aid is considered complementary for low levels of income, the impact of income will be positive. Conversely, if aid is considered a substitute for poor levels of income, the impact of income will instead be negative. The expected effect of the size of population on the impact of per capita aid is negative, since donors might expect that the positive impact of aid is easier achieved in smaller countries. Each donor will face the following maximization problem:

$$\max H_i = \frac{w_j a_{i,j}^{\beta}}{x_j^{\gamma} N_j^{\tau}} \tag{3.2}$$

under the budget constraint:

$$\sum_j a_{i,j} = Y_i \tag{3.3}$$

Making the assumption that aid is perfectly fungible, Trumbull and Wall (1994) apply the Lagrangian to obtain the equilibrium values of the marginal effect of an increase in the aid budget and per capita aid for each year and each donor. By introducing the time dimension, making the log transformation and some algebraic transformations, they obtain the following linear form of the equation:

$$\log a^*_{j,t} = \alpha_0 + \alpha_1 logX_{j,t} + \alpha_2 N_{j,t} + \eta_j + \mu_t \tag{3.4}$$

where $a^*_{j,t}$ stands for equilibrium values of per capita aid. Since aid allocation decisions are independent for each time-period, time effects ($\mu_t$) are the same for all recipient countries within a given year. Moreover, each recipient country is assigned different weights. To control for that, recipient fixed effects ($\eta_j$) are used. Consequently, the equation (3.4) allows to control for both unobserved recipient effects and time-period effects.

## Our Model

As highlighted earlier, the most important assumption of the model developed by Trumbull and Wall (1994) is that all donors have the same subjective measure of the impact of aid on a recipient. We consider this assumption too strict since in reality, differences between donors are likely to occur with regard to the subjective measures of the impact of aid on different recipients. There are several factors that might lead to differences in aid giving policy of donors. Therefore, the weights assigned to recipients are likely to vary for individual donors, based on the relative importance of a given recipient in the eyes of the donors. These weights might be determined by historical, cultural, ethnic, political, strategic, or geographic factors that affect the amount of aid. In econometric terms this translates into a possible correlation with right-hand variables. Not taking this into account introduces heterogeneity bias.

For instance, donors might be biased in their behavior towards recipients that are important trade partners. This may determine donors to assign these particular recipients higher weights. This might be taken into consideration to some extent by including variables that control for common language, colonial history, etc. However, cultural, historical, and political factors are often difficult to observe and quantify. The fixed-effects model allows us to control for these factors by assuming that there are fixed donor-specific factors that may be correlated with both the levels of bilateral aid and right-hand-side variables.

Since we cannot tell which variable might be responsible for the heterogeneity bias, we simply include fixed donor-specific effects ($\rho_i$). Contrary to Trumbull and Wall (1994), in this analysis we consider that donors have different subjective measures of the impact of aid given to a recipient. This is our first addition to Trumbull and Wall's (1994) model.

The second addition consists in introducing the quality of governance into the aid allocation model. If donors believe that aid is properly used in countries with good governance, they will expect the total impact of aid to increase the better the quality governance. We therefore expect that donors give more aid to countries with better governance. The marginal impact of governance on per capita aid should be positive, *ceteris paribus*.

Considering these two additions, we can re-write the allocation equation of our model, for a donor $i$, a recipient $j$ and a time-period $t$, by introducing donor fixed effects ($\rho_i$), governance indicators and other control variables, as follows:

$$Aid_{i,j,t} = \alpha_0 + \alpha_1 X_{j,t} + \alpha_2 Z_{i,j,t} + \alpha_3 G_{j,t} + \rho_i + \eta_j + \mu_t + \varepsilon_{i,j,t} \tag{3.5}$$

where $Aid_{i,j,t}$ is the aid per capita from a donor $i$ to a recipient $j$ at time $t$. $X$ is a matrix of control variables for recipient $j$ at time $t$, including GDP per capita, foreign direct investment inflows (% of recipient's GDP), population size, secondary school enrolment, and total amount of aid received from other donors (bilateral and multilateral). $Z$ is a matrix of control variables that characterize the relationship (economic and strategic) between a donor $i$ and a recipient $j$, at time $t$; it includes the export flows from a donor to a recipient (% of donor's GDP) as a proxy for commercial links; the distance between a donor and a recipient; the linguistic proximity index as a measure of cultural proximity between a donor and a recipient. $G_{j,t}$ stands for the quality of governance as measured by Kaufmann et al.'s (2005) indicators; several aspects of governance are compiled into six indicators: voice and accountability, political stability, government effectiveness, regulatory quality, rule of law and control of corruption.

This specification of the aid allocation equation allows us to estimate the marginal effects of the three groups of variables (donor interests, recipient needs and merits) on aid allocation, while isolating unobserved donor, recipient and time-fixed effects. The model assumes that for each period, each donor maximizes the sum of the total impacts of its development assistance on the recipient countries, under the overall budget constraint. Following the consensus which confirms that aid allocation decisions entail two steps, we should consider the selection phase, before estimating the allocation equation (3.5) The selection phase would consist in estimating the probability of giving aid. Here, the dependent variable would be a dummy variable that equals 1 if a country is selected as a recipient country, and 0 otherwise. A country is consider eligible to receive aid if it receives

a positive amount of aid. The allocation phase consist in providing a certain amount of aid to the selected recipients. The dependent variable at this stage is the amount of aid allocated to eligible recipients.

### 3.2.3 Estimation Techniques

When dealing with aid allocation models, an important aspect of the model specification is the presence of unobserved heterogeneity (omitted variable effect). As noted in the previous section, here we will use three types of fixed effects:

- *time-fixed effects* to control for temporal events that might affect aid allocation; they are the same for all the recipients within a given year;
- *recipient-country effects* to capture the heterogeneity among recipients; this lies in the differences in donors' behaviors vis-à-vis recipients, given the fact that each recipient is assigned a different weight by each donor;
- *donor-country effects* to capture the heterogeneity among donors; this appears from the differences in the aid allocation policy, i.e. differences in measuring the impact of aid on each recipient.

Another issue that has to be considered when dealing with this kind of model, is the truncated nature of aid variable. Aid commitments cannot be negative[4]. They are either positive - if the given recipient is among the selected recipients - or zero. The censored nature of aid variable implies that OLS estimates are biased because they do not take into account the non-linearity induced in the estimated relationship. In order to correct this selection bias and model data with a censored character, the previous literature (Neumayer, 2003; Berthélemy and Tichit, 2004; Berthélemy, 2006) provides several limited variable modeling techniques: (i) *the two-part model*; (ii) *the Heckman's method*; and (iii) the *Tobit model*.

- **Two-part model** ⇒ involves a *selection equation* and an *allocation equation*. The *selection equation* is estimated with a Probit technique that determines the probability of a potential recipient country to receive assistance. The *allocation equation* is given by a linear estimation (OLS estimates) that determines the amounts of aid, based only on positive observations.

[4]However, in practice, when measuring aid disbursements, negative amounts of aid might occur. This has nothing to do with the decision of donors. It is rather a consequence of the recipient repayments of loans from the previous period.

The equations of the two-part model can be written as follows:

$$\begin{cases} P(A_{i,j,t}) > 0 = \Phi(cZ_{i,j,t}) + v_{i,j,t} \\ A_{i,j,t} = \beta X_{i,j,t} + u_{i,j,t} \\ Cov(u, v) = 0 \end{cases}$$

where $i$, $j$ and $t$ denote the donor country, the recipient country and the given year; $A_{i,j,t}$ stands for the amount of per capita aid commitments allocated by the donor $i$ to the recipient $j$ for the year $t$; $Z_{i,j,t}$ and $X_{i,j,t}$ are vectors of explanatory variables and $\beta$ and $c$ are the associated coefficients. $\Phi(.)$ stands for the cumulative distribution function (cdf); $u_{i,j,t}$ and $v_{i,j,t}$ are the independent and normally distributed error terms.

The drawback of this method is that it assumes the independence of the two error terms (given by the $Cov(u, v) = 0$). In other words, the choice of the recipient is presumed to be independent from the amount allocated to this recipient in the second step. This means that it considers that the amount of allocated aid is not affected by unobserved factors that might determine the selection decision of a country as an aid recipient. However, if the choice of the recipient is likely to depend on the amount of aid allocated to the given recipient, estimating the two equations while not accounting for the correlation between their error terms would introduce a selection bias in the second step of the estimation.

- **Heckman method** $\Rightarrow$ is similar to the **two-part model**, except that the two error terms $u_{i,j,t}$ and $v_{i,j,t}$ are no longer assumed to be independent. They are correlated, with $Cov(u, v) = \rho$. The two phases of selection and allocation are supposedly tied.

  This method can be implemented either in a two-step or in a one-step maximum likelihood procedure. When implemented as a two-step procedure, the selection equation in the first step is estimated with a Probit, as in the case of the **two-part model**. Then, in the second step, the so-called *Mill's ratio* ($\frac{1}{\phi}$), is computed using the residuals of the selection equation. The *inverse Mill's ratio* ($\lambda$), which is a selection bias control factor, is used to control for bias due to censorship. This factor is a summarizing measure which reflects the effects of all unmeasured characteristics related to the decision of aid allocation (the selection phase). In the second step, this factor ($\lambda$) is introduced as an additional independent variable, together with other explanatory variables in an OLS regression model using only uncensored variables. The objective is to correct both the selection bias and the endogeneity biases, due to the possible correlation between the independent variables and the error term from the selection stage.

The Heckman model has the following expression:

$$\begin{cases} P(A_{i,j,t}) > 0 = \Phi(cZ_{i,j,t}) + v_{i,j,t} \\ A_{i,j,t} = \beta X_{i,j,t} + \rho\sigma\phi(cZ_{i,j,t} + v_{i,j,t})/\Phi(cZ_{i,j,t} + v_{i,j,t}) + u_{i,j,t} \\ Cov(u, v) = \rho \end{cases}$$

where $\rho$ stands for the $Cov(u, v)$, $\sigma$ for the variance of $u$, $\phi(.)$ for the partial distribution function (pdf), and $\phi(.)/\Phi(.)$ for the inverse Mill's ratio.

Implemented as a one-step maximum likelihood procedure, all parameters, including the correlation between the error terms of the two equations, are estimated in a one-step maximum likelihood (ML) procedure.

- **Tobit model** $\Rightarrow$ is a one-step procedure estimated using the ML method that allows one to control for both the censored nature of the dependent variable and the endogenous nature of the selection phase. The difference with Heckman's method is that the independent variables are assumed to have a similar impact on both the probability of receiving aid and the amount of aid allocated. Therefore, the aid received is described as a maximum value between zero and a linear combination of explanatory variables as follows:

$$A_{i,j,t} = \begin{cases} A^*_{i,j,t} \quad if \quad A^*_{i,j,t} > 0 \\ 0 \quad if \quad A^*_{i,j,t} \leq 0 \end{cases}$$

where $A^*_{i,j,t}$ is the latent variable:

$$\begin{cases} A^*_{i,j,t} = \beta X_{i,j,t} + u_{i,j,t} \\ A_{i,j,t} = max(0, A^*_{i,j,t}) = max(0, \beta X_{i,j,t} + u_{i,j,t}) \end{cases}$$

where $u_{i,j,t} \sim N(0, \sigma^2)$.

The existing literature has not come to an agreement as to the most appropriate method to use when estimating aid allocation patterns. However, it is acknowledged that the assumption of independence of the error terms is not likely to hold in the two-part model. As for the other two methods, no consensus has been reached. For instance, McGillivary (2002) argues that the Heckman method is more appropriate because it allows the determinants of the selection of recipients to be different from those of the allocation. An important condition for the use of this method is that the selection equation contains at least one variable which is not related to the dependent variable in the allocation equation. If such a variable is not present, multicollinearity may arise; furthermore, the addition in

the allocation equation of the $\lambda$ factor may lead to difficulties in the estimations. Consequently, Heckman estimators can loose their robustness. The drawback of this method is that it does not allow one to take into consideration the heterogeneity among donors by introducing fixed effects. In fact introducing such fixed effects into the selection equation (which is estimated with a Probit) likely creates consistency problems which are impossible to eliminate in parametric models when the data set has a limited number of time observations. These consistency problems are known as "incidental parameters problems". According to Grenne (2004), although they are not likely to seriously affect Probit/Tobit estimates, they do however affect the variance estimators (Greene, 2004).

In our analysis, since we want to control for donor-specific effects, recipient-specific effects, and period-specific effects, we will run panel fixed effects estimates for the allocation equations, while ignoring the selection equation. Alternatively, since censored observations represents about 30% (1506 out of 4950) in the dataset of bilateral aid flows, we will run Heckman's method. But we will follow Berthélemy (2006) who identifies that the selection bias is of second order[5] (the correlation coefficient, $\rho$ is about 0.35) and consequently we will concentrate only on the allocation equation. For the multilateral aid allocation, since we examine aggregate flows, we do not have any single negative flows; the dependent variable is not censored. We will therefore run only fixed effects estimates, with recipient specific effects and time-dummies. and heteroscedasticity and serial correlation standard errors. All estimations include donor-country effects, recipient-country specific effects and time-fixed effects.

## 3.3 Data and Variables

### 3.3.1 Data

Data on bilateral and multilateral aid flows come from the OECD Geographical Distribution of Financial Flows database. Aid flows are measured by commitments. We consider (i) *bilateral commitments*, which are allocated by 22 donors[6], member countries of DAC (OECD), to 25 CEECs and CIS recipients[7]; and (ii) *multilateral commitments* (aggregate and European Commission aid flows) to the same 25 recipients.

[5]We will make the same assumption in the analysis in the next chapter.

[6]Bilateral donor countries are: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Sweden, Switzerland, the United Kingdom, United States.

[7]Recipient countries are: Albania, Armenia, Azerbaijan, Belarus, Bulgaria, Croatia, the Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Macedonia, Moldova, Poland, Romania, Russia, Slovakia, Slovenia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan.

Note that we are following the literature on aid allocation which is in agreement as to measuring aid by commitments. Aid commitments are viewed as the decision to supply aid; they better reflect the donors' decision, since donors have more control over commitments than disbursements. Sometimes it happens that the amounts disbursed are lower than the committed ones. This difference can be explained by some subsequent failures in the recipient economy, such as recipient capacity of absorption or administrative capacity to manage the flows.

Aid commitments include grants or loans whose objective is to promote economic development and welfare; technical assistance is also included. The nominal aid flows are converted to constant US$ flows at 2000 prices, using the GDP deflator of DAC members, in order to control for the effect of inflation. Furthermore, we compute per capita commitments. According to McGillivray and Oczkowski (1992) and Neumayer (2003) donors are more likely to allocate aid on a country basis than on a per capita basis. However, while using per capita aid allows us to find out whether smaller countries get more aid.

Data on the explanatory variables, such as the GDP per capita, the exports flows, the FDI inflows, population, school enrolment, and life expectancy at birth are taken from the WDI database (World Bank). For governance indicators we use Kaufmann et al.'s (2005) database (World Bank), while data for the distance between countries comes from the CEPII database.

The time span covers the period from 1996 to 2004. We will take 1996 as the starting year of the analysis since the governance indicators (Kaufmann et al., 2005) are only available from this year. As noted in the previous chapter on the effectiveness of aid, the end date is the year 2004, since this was the last year that OECD collected data for CEECs which became EU members starting with 2005.

## Who Gives, To Whom and How Much?

Tables 3.1 and 3.2 below report the average amounts of aid committed by the 22 DAC donors to all recipients over the analyzed period (1996-2004). The major destination of bilateral flows appears to be Russia, with an amount of total bilateral commitments over the period, of about 1189 millions $US (constant 2000 prices). Other important destination for bilateral aid commitments are Ukraine (347 millions $US), Poland (339 millions $US), Kazkhstan (191 millions $US), Albania (186 millions $US) and Uzbekistan (184 millions $US).

Table 3.1: Bilateral aid commitments, constat 2000 millions $US (average 1996-2004) (1).

| | Recipient country | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Donor country** | **ALB** | **ARM** | **AZE** | **BGR** | **BLR** | **CZE** | **EST** | **GEO** | **HRV** | **HUN** | **KAZ** | **KGZ** | **LTU** | **LVA** | **MDA** |
| **AUS** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.03 | 0.04 | 0.01 | 0.01 | 0 | 0 | 0 |
| **AUT** | 4.5 | 1.03 | 0.17 | 4.23 | 0.22 | 3.02 | 0.05 | 1.18 | 4.32 | 4.78 | 0.38 | 0.21 | 0.12 | 0.07 | 0.55 |
| **BEL** | 0.47 | 0.01 | 0 | 0.37 | 0.01 | 0.36 | 0.06 | 0.21 | 0.56 | 0.71 | 0.08 | 0.03 | 0.1 | 0.1 | 0.02 |
| **CAN** | 0.54 | 0.24 | 0.55 | 0.44 | 0.11 | 0.82 | 0.54 | 0.48 | 0.85 | 1.11 | 1.42 | 0.31 | 0.83 | 0.86 | 0.06 |
| **DNK** | 1.56 | 0.21 | 0 | 4.04 | 1.25 | 4.35 | 11.15 | 0.03 | 0 | 0.92 | 0.08 | 0.23 | 18.13 | 14.16 | 0.06 |
| **FIN** | 0.59 | 0.09 | 0.19 | 0.01 | 0.07 | 0.01 | 4.18 | 0.95 | 0.18 | 0.57 | 01 | 1.54 | 2.62 | 2.97 | 0.09 |
| **FRA** | 3.27 | 4.19 | 6.14 | 15.33 | 2.39 | 8.19 | 1.04 | 3.5 | 1.97 | 11.94 | 4.32 | 0.93 | 2.26 | 1.24 | 2.22 |
| **GER** | 29.92 | 16.09 | 13.02 | 41.59 | 7.57 | 14.2 | 3.61 | 28.76 | 15.25 | 20.71 | 9.15 | 9.18 | 6.58 | 5.45 | 3.3 |
| **GRE** | 21.71 | 2.21 | 0.12 | 2.92 | 0.02 | 0.04 | 0.01 | 1.82 | 0.07 | 0.05 | 0.11 | 0 | 0.01 | 0.01 | 0.53 |
| **IRL** | 0.24 | 0.02 | 0.02 | 0.04 | 0.03 | 0.02 | 0 | 0.08 | 0.01 | 0.01 | 0.01 | 0.03 | 0.02 | 0 | 0.03 |
| **ITA** | 41.2 | 0.39 | 0.28 | 0.92 | 0.05 | 0.55 | 0.02 | 1.11 | 2.24 | 0.45 | 0.02 | 0.02 | 0.08 | 0.04 | 0.34 |
| **LUX** | 0.4 | 0.07 | 0.01 | 0.03 | 0.05 | 0.21 | 0 | 0.01 | 0.12 | 0.03 | 0.06 | 0 | 0.01 | 0 | 0.11 |
| **JPN** | 8.48 | 11.96 | 48.57 | 40.83 | 0.23 | 1.92 | 0.51 | 12.23 | 1.46 | 8.06 | 102.02 | 33.62 | 1.76 | 0.9 | 3.74 |
| **NLD** | 4.19 | 5.55 | 1.58 | 3.09 | 0.77 | 1.02 | 0.45 | 4.74 | 1.72 | 1.06 | 0.32 | 1.55 | 0.95 | 0.57 | 5.51 |
| **NZL** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.01 | 0.02 | 0 | 0 | 0 |
| **NOR** | 4.93 | 1.99 | 2.41 | 0.15 | 0.13 | 0.07 | 1.24 | 2.22 | 8.17 | 0.13 | 0.47 | 0.9 | 2.71 | 1.14 | 0.52 |
| **PRT** | 0 | 0 | 0 | 0.03 | 0 | 0.03 | 0 | 0.04 | 0.01 | 0.04 | 0 | 0 | 0 | 0 | 0 |
| **ESP** | 1.96 | 0.16 | 0.01 | 1.12 | 0.01 | 0.15 | 0.02 | 0.12 | 0.45 | 0.47 | 4.14 | 0.01 | 0.03 | 0.01 | 0.01 |
| **SWE** | 2.85 | 0.82 | 0.27 | 0.12 | 2.09 | 0.12 | 2.56 | 1.38 | 3.3 | 0.08 | 0.36 | 0.68 | 8.91 | 5.84 | 2.99 |
| **CHE** | 8.74 | 1.47 | 1.87 | 5.41 | 1.51 | 1.07 | 0.38 | 3.84 | 1.54 | 0.51 | 0.13 | 9.28 | 0.24 | 0.52 | 1.62 |
| **GBR** | 5.16 | 2.18 | 1.06 | 4.31 | 0.43 | 2.17 | 0.89 | 2.85 | 1.53 | 2.88 | 2.2 | 2.64 | 0.51 | 1.39 | 2.17 |
| **USA** | 45.02 | 91.68 | 38.38 | 43.55 | 12.32 | 1.73 | 1.21 | 84.97 | 28.3 | 6.67 | 65.63 | 41.78 | 5.34 | 3.13 | 44.93 |
| **Total** | 185.73 | 140.36 | 114.65 | 168.53 | 29.26 | 40.05 | 27.92 | 150.52 | 72.08 | 61.22 | 190.93 | 102.97 | 51.21 | 38.4 | 68.8 |

*Source*: Own calculation based on OECD-DAC database.

*Donor countries*: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Sweden, Switzerland, United Kingdom, United States.

*Recipient countries*: Albania, Armenia, Azerbaijan, Belarus, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova.

Table 3.2: Bilateral aid commitments, constat 2000 millions $US (average 1996-2004) (2).

| | Recipient country | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Donor country** | **MKD** | **PLD** | **ROM** | **RUS** | **SVK** | **SVN** | **TJK** | **TKM** | **UKR** | **UZB** |
| **AUS** | 0.11 | 0 | 0 | 0 | 0 | 0 | 0.01 | 0.01 | 0 | 0.01 |
| **AUT** | 1.94 | 2.06 | 2.21 | 4.35 | 3.03 | 2.92 | 0.15 | 0.01 | 1.34 | 0.09 |
| **BEL** | 0.33 | 0.5 | 0.98 | 0.49 | 0.23 | 0.07 | 0.02 | 0 | 0.13 | 0 |
| **CAN** | 1.49 | 92.11 | 2.02 | 14.88 | 0.83 | 1.45 | 2.22 | 0.08 | 14.61 | 0.3 |
| **DNK** | 0.38 | 24.47 | 6.4 | 24.26 | 3.52 | 0.02 | 0 | 0 | 5.6 | 0 |
| **FIN** | 0.23 | 0.55 | 0 | 14.72 | 0.01 | 0 | 0 | 0.02 | 0.82 | 0 |
| **FRA** | 3.12 | 110.78 | 26.61 | 27.21 | 4.92 | 1.88 | 0.09 | 0.33 | 7.19 | 2.33 |
| **GER** | 15.41 | 51.22 | 29.2 | 99.31 | 7.13 | 2.29 | 6.27 | 0.62 | 35.04 | 15.19 |
| **GRE** | 5.35 | 0.28 | 1.57 | 0.83 | 0.06 | 0.05 | 0 | 0.02 | 1.62 | 0.16 |
| **IRL** | 0.08 | 0.07 | 0.14 | 0.22 | 0 | 0.01 | 0.27 | 0 | 0.05 | 0.03 |
| **ITA** | 3.81 | 0.97 | 1.24 | 1.9 | 0.44 | 0.26 | 0.12 | 0.01 | 0.45 | 0.24 |
| **LUX** | 0.12 | 0.1 | 0.26 | 0.4 | 0.08 | 0 | 0.07 | 0 | 0.19 | 0 |
| **JPN** | 22.06 | 18.23 | 61.09 | 7.65 | 14.05 | 0.66 | 6.21 | 5.63 | 2.29 | 112.66 |
| **NLD** | 19.59 | 1.04 | 3.21 | 4.63 | 1.34 | 0.18 | 1.41 | 0.01 | 2.55 | 0.29 |
| **NZL** | 0 | 0 | 0 | 0 | 0 | 0 | 0.02 | 0.01 | 0 | 0.03 |
| **NOR** | 4.31 | 0.61 | 0.17 | 29.94 | 0.31 | 0.01 | 0.87 | 0.05 | 2.42 | 0.25 |
| **PRT** | 0.78 | 0.07 | 0.03 | 0.01 | 0 | 0.01 | 0.02 | 0 | 0 | 0 |
| **ESP** | 0.22 | 0.96 | 1.31 | 1.77 | 0.15 | 0.05 | 0 | 0 | 0.5 | 1.2 |
| **SWE** | 3.72 | 4.74 | 0.39 | 26.03 | 0.06 | 0.16 | 1.73 | 0.12 | 4.81 | 0.12 |
| **CHE** | 5.41 | 0.39 | 7.33 | 9.06 | 0.68 | 0.03 | 7.27 | 0.07 | 4.24 | 2.52 |
| **GBR** | 4.66 | 7.43 | 9.29 | 38.33 | 9.66 | 0.42 | 2.39 | 0.31 | 12.29 | 0.91 |
| **USA** | 42.35 | 22.3 | 39.79 | 883.47 | 7.52 | 0.58 | 40.54 | 8.72 | 251.13 | 47.4 |
| **Total** | 135.47 | 338.88 | 193.24 | 1189.46 | 54.02 | 11.05 | 69.68 | 16.02 | 347.27 | 183.73 |

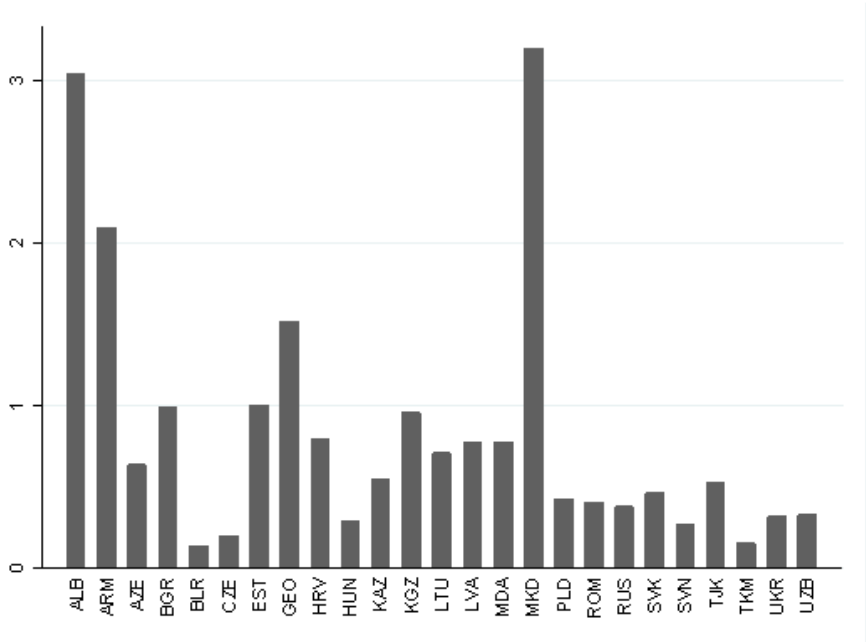
*Source*: Own calculation based on OECD-DAC database.

*Donor countries*: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Sweden, Switzerland, United Kingdom, United States.

*Recipient countries*: Macedonia, Poland, Romania, Russia, Slovakia, Slovenia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan.

In per capita terms, the countries that get the most appear to be Macedonia, Albania, Armenia, and Georgia (Figure 3.1).

Figure 3.1: Bilateral per capita commitments, constant 2000 $US (period average, 1996-2004).




The average aid per capita by recipient from the most important donors are shown in Figures 3.6-3.11, in the Appendix. Note that Macedonia is a favored destination for all large donors. The United States and Japan reward ex-Soviet Union Republics, like Armenia, Georgia, Kazakhstan, Kyrgyzstan and Azerbaijan the most. Conversely, CEECs countries seem to be awarded more by the EU. For example, the largest French aid flows go to Poland, Romania and Bulgaria. Donors like Germany, France and United Kingdom appear to allocated aid to almost all the recipients in our sample, while others, such as Denmark for example, concentrates on Estonia, Latvia and Lithuania, and allocates almost nothing to any of the other recipients.

Looking at total and per capita commitments, by donor, multilateral and bilateral (Figures 3.2 and 3.3) it is clear that multilateral flows are largely higher. This is not surprising at all, since the European Commission (EC) - on behalf of the European Union, and the European Bank for Reconstruction and Development (EBRD), are the two biggest multilateral donors for CEECs and CIS. Bilateral donors, which are EU members might display a preference for providing more aid through the EC.

Figure 3.2: Bilateral and multilateral commitments, constant 2000 millions $US (period average, 1996-2004).

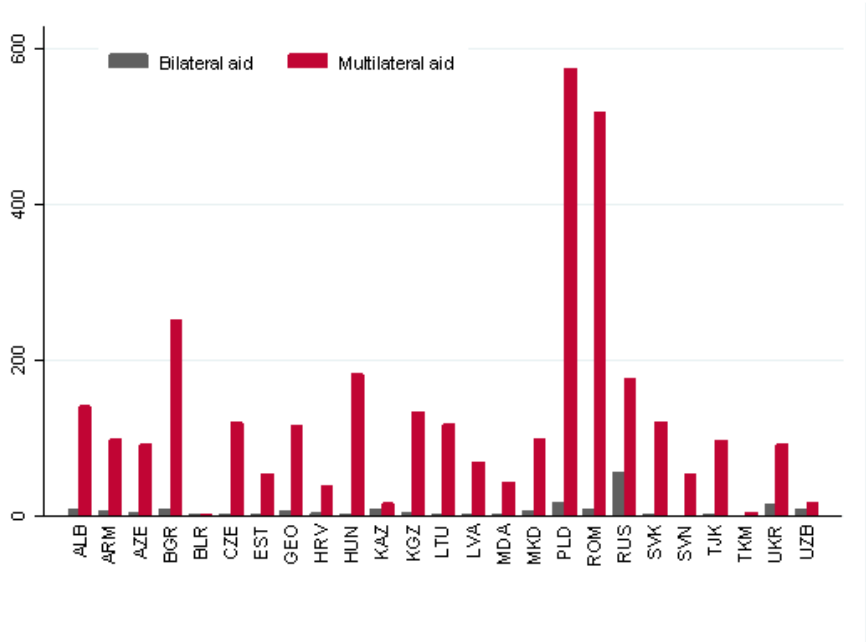



Figure 3.3: Bilateral and multilateral per capita commitments, constant 2000 $US (period average, 1996-2004).

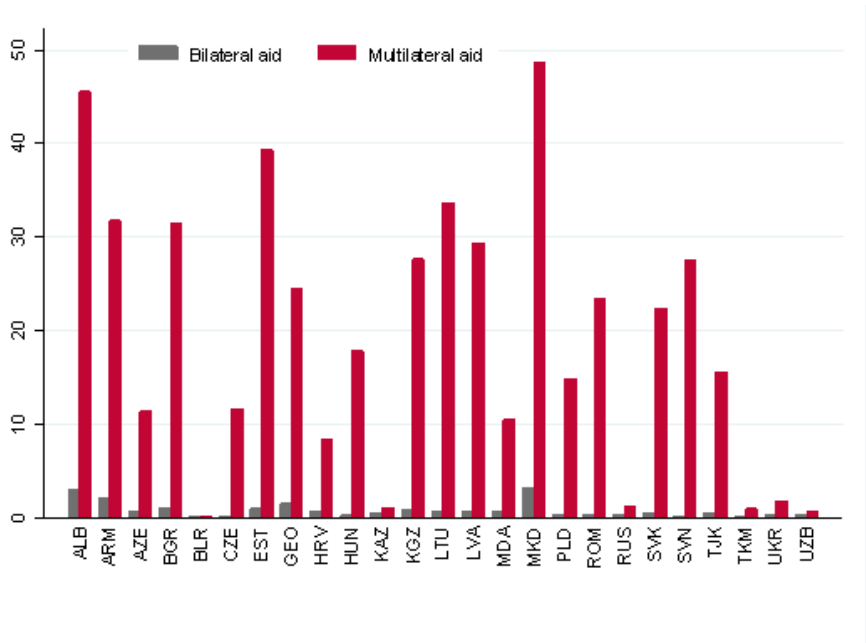


Table 3.3: Multilateral Aid Flows and share of Total Multilateral, constant 2000 millions $US.

| | EC Aid flows | EC % of total | EBRD Aid flows | EBRD % of total | Other Multilateral | Other % of total | Total Multilateral |
|---|---|---|---|---|---|---|---|
| 1996 | 70.6 | 80.0 | 4.0 | 4.5 | 13.7 | 15.5 | 88.3 |
| 1997 | 51.9 | 62.4 | 3.5 | 4.2 | 27.7 | 33.4 | 83.1 |
| 1998 | 62.6 | 70.6 | 3.4 | 3.8 | 22.6 | 25.6 | 88.6 |
| 1999 | 88.8 | 73.7 | 2.4 | 2.0 | 29.2 | 24.3 | 120.4 |
| 2000 | 129.8 | 89.5 | 1.8 | 1.1 | 35.7 | 9.4 | 167.3 |
| 2001 | 145.5 | 95.2 | 3.4 | 2.1 | 13.4 | 2.7 | 162.3 |
| 2002 | 147.3 | 99.1 | 2.5 | 1.7 | -3.2 | -1 | 146.6 |
| 2003 | 158.5 | 89.0 | 1.7 | 0.9 | 18 | 10.1 | 178.2 |
| 2004 | 103.9 | 83.7 | 2.3 | 1.9 | 17.9 | 14.4 | 124.1 |

*Source*: Own calculation based on OECD-DAC database.

Table 3.3 reports the average annual multilaterak flows from the EC and the EBRD, as well the shares in the total multilateral. Note that the share of the EC aid is relatively high, between 62% and 99% over the period. This aid is allocated mainly through two technical assistance schemes - *PHARE* and *TACIS*, as well as in the form of humanitarian assistance, food aid and financial assistance on commercial terms.

Compared to the amount of aid provided by the EC, the multilateral aid from the EBRD is small, but it is not negligible. The EBRD assistance takes the form of project financing, primarily in the private sector - banks, industries and businesses (both new ventures and investments in existing companies). As a development bank, the EBRD seeks to support projects that are assisting development and that are also commercially viable. Actually, the creation of such an international financial institution represented the collective response of Western Europe to unprecedented transformations and challenges in CEECs in 1989, in the aftermath of the Berlin Wall. The very first objective of the EBRD was to assist the countries in the region in undertaking the necessary changes required to move from systems based on centrally planned command economies to free democratic institutions and market economies. Since the start of the transition process, the EBRD has been involved in the liberalization of prices, the privatization and the reforming of banking systems, and setting up new legal frameworks.

Looking at the EC aid flows, by destination (Figure 3.4) one can notice that current new EU members have benefited the most. During the analyzed period, Poland was on average the largest beneficiary in terms of aid volumes (570 million $US 2000). It was followed by Romania (511 million $US 2000), Bulgaria (248 million $US 2000), Hungary (181 million $US 2000) and Russia (154 million $US 2000). EBRD aid flows were committed mostly to Russia (22 million $US 2000). Ukraine ranked second (7 million $US 2000), followed by Romania (4 million $US 2000) and Poland (3 million $US 2000) (Figure 3.5).

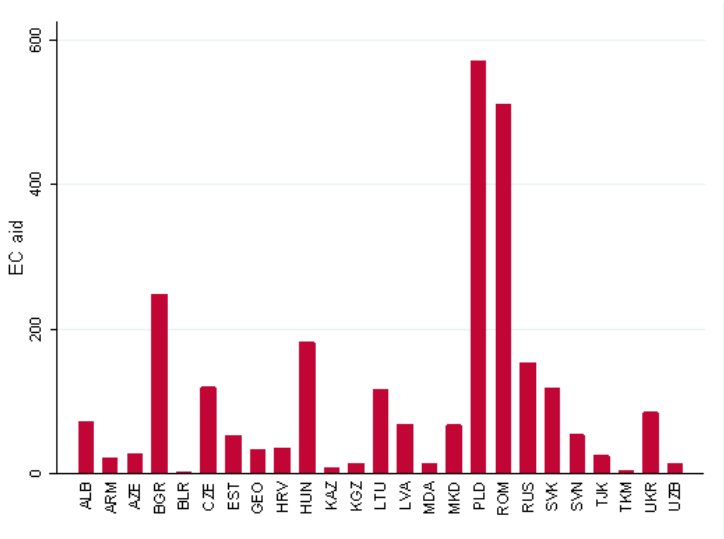



Figure 3.4: EC aid (average 1996-2004, millions $US 2000).

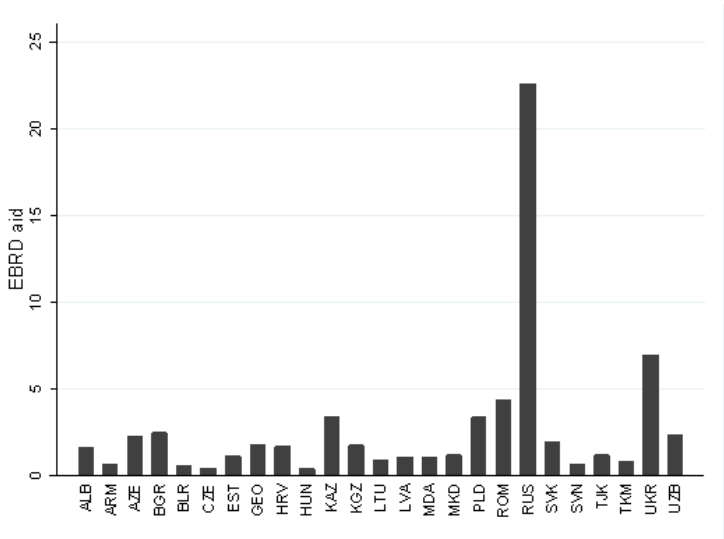



Figure 3.5: EBRD aid (average 1996-2004, millions $US 2000).

### 3.3.2 Variables

The choice of our control variables is guided by this previous literature. They are discussed in the following sections.

#### Donor Interests Variables

Economic and strategic self-interests that motivate donor countries' development assistance policies are the promotion of trade by the intensification of commercial links with recipients; the strengthening of relationships from past colonial ties; the creation of political alliances; the promotion of democracy and civil liberties in recipient countries, etc.

Here we consider the following variables that measure such interests:

- $X_{i,j,t} \Rightarrow$ the total exports of goods and services from a donor $i$ to a recipient $j$ for year $t$, measured as share of the donor's GDP.

  This variable captures the commercial link between donor and recipient. Donors aid allocation policy are generally biased towards recipients that tend to trade more with them than others. Export flows are calculated in thousands of US dollars, at 2000 constant prices, deflated by the GDP deflator of the donor country. Then, they are expressed as a ratio of the total exports of the donor over its GDP. We expect this variable to positively impact upon the allocation of aid.

- $D_{i,j} \Rightarrow$ the distance between a donor $i$ and a recipient $j$.

  Initially used in gravity models, this variable represents a proxy for the transportation costs of bilateral trade. This suggests that partners that are geographically close to each other trade more. In the same way, the *distance* is included in aid allocation models. It is expected to negatively affect aid allocation, since donors are expected to allocate more aid to countries that are geographically closer. The variable is taken from CEPII database and is defined as the sum of bilateral distances between the biggest cities of the two countries, weighted by the share of the cities in the overall population of the countries.

  Note that we do not control for the common language as is usually done in aid allocation literature in order to capture the cultural similarity between a donor and a recipient. In the literature, this proximity is usually measured by a dummy that equals 1 if a donor and a recipient speak the same language and 0 otherwise. However, this is difficult to apply to our sample because it does not include countries

that have important cultural ties. In fact, in our sample, no single pair of countries share a common language. Using this kind of dummy would not be appropriate (it would take only zero values). We do not either consider variables to capture the colonial ties since we do not have donors' ex-colonies in our sample of recipient countries.

**Recipient Needs Variables**

In addition to the economic and politico-strategic interests of donors, developmental motives and humanitarian concerns are mentioned among the motives of donors allocation programmes. Here we use the following variables to capture the needs of recipients:

- $GDP_{j,t} \Rightarrow$ the per capita GDP of the recipient $j$ at time $t$.

  The income is measured in constant US dollars, at 2000 prices and stands for the material well-being of the population in a recipient country. It is expected to negatively influence the allocation of aid, since the poorest countries should get the most aid.

- $SE_{j,t} \Rightarrow$ the secondary school enrolment rate of the recipient $j$ at time $t$.

  This is measured by the percentage of individuals enrolled in secondary school. It reflects the social needs of the recipient country and is expected to have a negative impact on the aid allocation. A higher rate of secondary school enrolment would reduce aid flows, since donors would perceive this as an improvement in human development, which, generally, is associated with the alleviation of monetary poverty.

  We have also used another two measures of recipient needs, namely life expectancy at birth and infant mortality rate, but they do not appear to significantly influence aid allocation. This might be due to the lack of available data. Dropping them from regressions saves about 500 observations.

**Recipient Performances Variables**

Additionally, we introduce variables that capture the performances of recipient countries, since we are relying on the role these factors play in enhancing the effectiveness of aid allocation and welfare improvement. These variables are as follows:

- $FDI_{j,t} \Rightarrow$ the foreign direct investment inflows of recipient $j$ at time $t$ as a share of its GDP.

  This captures the economic performances of the recipient countries. It is expected to have a positive impact on the allocation of aid. The larger the FDI inflows, the better

the development outcomes. FDI inflows as a means of acquiring technologies, skills and access to international markets are one of the drivers of growth in an economy. Therefore, they represent a good indicator of the health state of an economy.

- $Gov_{j,t}$ ⇒ Kaufmann et al.'s (2005) aggregate governance indicators for recipient $j$ at time $t$. They cover the following six different aspects of the governance performance:
  - *voice and accountability* ⇒ includes indicators measuring various aspects of the political process, civil liberties and political rights. These indicators measure the extent to which citizens of a country are able to participate in the selection of governments. Moreover, they measure the independence of the media, which plays an important role in monitoring those in authority and holding them to account for their actions;
  - *political stability*⇒ includes indicators which measure the perception of the likelihood that the government in power will be destabilized or overthrown by possibly unconstitutional and/or violent means (including civil violence and terrorism);
  - *government effectiveness* ⇒ includes measures of the quality of public service provision, the quality of bureaucracy, the competence of civil servants, the independence of the civil service from political pressure, and the credibility of the government's commitment to policies. It focuses on the quality of good policy and public service delivery;
  - *regulatory quality* ⇒ measures the incidence of market-unfriendly policies, such as price controls or inadequate bank supervision, as well as the perception of burdens imposed by excessive regulation in areas such as foreign trade and business development;
  - *rule of law* ⇒ includes indicators that measure the extent to which agents have confidence in and abide by the rules of society, such as the perception of the incidence of crime, the effectiveness and predictability of the judiciary, and the enforceability of contracts. It focuses on the success of a society in developing an environment in which fair and predictable rules form the basis for economic and social interactions, and the extent to which property rights are protected;
  - *control of corruption* ⇒ measures the perception of corruption, conventionally defined as the exercise of public power for private gain. The particular aspect of corruption measured by the various sources differs somewhat, ranging from the frequency of "additional payments to get things done", to the effects of corruption on the business environment, to measuring "grand corruption" in the political arena or in the tendency of elite forms to engage in "state capture".

The presence of corruption is often a manifestation of a lack of respect of both the corrupter (i.e. private citizen or firm) and the corrupted (i.e. public official or politician) for the rules which govern their interaction, and hence represents a failure of governance (according to this definition).

These governance indicators are computed from data gathered from various sources, such as international organizations, survey institutes, risk-rating agencies, and think-tanks. They are measured in units ranging from -2.5 to 2.5 for our sample. Higher values correspond to better governance outcomes. They are available for the period 1996-2004, but only every two years until 2002, with missing observations for 1997, 1999 and 2001. Therefore, we will replace the missing observations with the constructed mean of the previous and next year values. For example, for 1997, the indicator will be computed as the mean of the indicators for 1996 and 1998.

Donors might tend to reward countries with high political stability, effective governments and sound policy, and low levels of corruption. Nevertheless, aid is also meant to reduce political instability and civil conflicts[8]. In our aid allocation model we use these governance indicators in order to control whether donors reward good governance in transition economies or, whether on the contrary, they give aid to help improve the quality of governance in these countries.

## 3.4 Empirical Results

The empirical analysis of the behavior of bilateral donors proceeds in two steps. First, we will analyze the average behavior of all 22 bilateral aid donors (DAC members) in both a static and a dynamic model. Subsequently, we will conduct a donor-by-donor analysis in order to examine the extent to which their policies converge or diverge. However, we will not analyze all of the 22 DAC donors, but only five of them, namely those which are the major donors for CEECs and CIS. Furthermore, we will test the determinants of multilateral aid allocation provided by the EC, the major multilateral donor for CEECs and CIS countries, and the EBRD.

Since the donors' decisions about the allocation of aid are based on the past level of performance or needs of recipients, or on commercial flows with recipients, the following variables are lagged one period: per capita GDP, secondary school enrolment, FDI, governance indicators, exports. This allows us to avoid simultaneity bias.

[8]See Collier and Hoeffler (2002).

### 3.4.1 Bilateral Aid Allocation Determinants

#### Average Bilateral Aid Behavior

Table 3.4 reports estimation results of the aid allocation equation for bilateral aggregate aid flows. Regressions are run using panel fixed effects. Note that a regression is estimated for each variable of governance quality. We only show here three out of six, namely voice and accountability, rule of law, and control of corruption. Estimates for the other variables of governance quality are not shown since they test insignificant.

Our results suggest that both needs and merits of recipients, as well as donors interest are important factors that guide the bilateral allocation of aid at the aggregate level. Note that per capita GDP is always negative and statistically significant, proving that poorer countries receive more aid. Population size is negatively correlated with the amount of aid committed, and it does appears significant; the population bias is confirmed in our analysis.

School enrolment ratio is never significant. However it has the right negative sign (if considered as an indicator of needs). Note that this variable might also be considered as an indicator of social performance of recipients. If it is given such an interpretation, then its impact is expected to be positive with respect to aid allocation.

The variables that measure the quality of governance have all the expected positive sign. This is evidence that the quality of governance affects the aid allocation decision of donors. Recipients with more respect for civil liberties and political rights, for the rule of societies and property rights, and for the market-friendly policies, and with better control of corruption seem to get more aid from the donors. Similar results are obtained for voice and accountability and regulatory quality in *Chapter 4* about aid and migration patterns.

Bilateral trade, proxy for the donor strategic interests, measured by the exports from a donor to a recipient is positively correlated with aid. Donors tend to reward trade partners. This result points out that donors interests matter. Moreover, geographical proximity from the donor appears to play a role in the allocation of aid. Donors allocate more aid to recipients that are geographically closer.

Two variables are introduced in order to test for the complementarity/subsitutability between the allocation of aid of a given donor and the allocation of aid from the other bilateral/multilateral donors. These are: the total aid received by a given recipient from all bilateral donors and the total aid received by a given recipient from all multilateral donors. The results show that, while the bilateral aid allocation of other donors is a substitute of the allocation of aid from a given donor, multilateral aid allocation appears

as a complement of the latter. In other words, a donor is likely to give less aid to a recipient if this gets more aid from other bilateral donors. This results is in line with Berthelemy (2006) who found, after introducing recipient-fixed effects in the allocation equation, that bilateral aid flows of donors are substitutes of each other. However, a donor is likely to give more aid to a recipient if this gets more aid from multilateral donor agencies.

Table 3.4: Aid Allocation Equation (fixed effects estimates).

| | (1) FE | (2) FE | (3) FE |
|---|---|---|---|
| **GDP per capita** | -0.887** | -0.736* | -0.589* |
| | (0.434) | (0.434) | (0.433) |
| **Population** | -0.456** | -1.642** | -1.772** |
| | (1.925) | (1.949) | (1.896) |
| **Secondary school enrolment** | -0.010 | -0.010 | -0.014 |
| | (0.009) | (0.009) | (0.009) |
| **Exports** | 0.263*** | 0.260*** | 0.260*** |
| | (0.30) | (0.030) | (0.030) |
| **FDI** | 0.010 | 0.008 | 0.008 |
| | (0.008) | (0.008) | (0.008) |
| **Distance** | -1.132*** | -1.137*** | -1.137*** |
| | (0.076) | (0.076) | (0.076) |
| **Aid per capita other donors** | -4.002*** | -3.996*** | -3.996*** |
| | (0.869) | (0.864) | (0.863) |
| **Aid per capita multilateral** | 0.028** | 0.008* | 0.018* |
| | (0.034) | (0.034) | (0.034) |
| **Voice and Accountability** | 0.573** | | |
| | (0.203) | (3.52) | |
| **Regulatory quality** | | 0.062* | |
| | | (0.174) | |
| **Control of corruption** | | | 0.542*** |
| | | | (0.225) |
| **No of obs** | 3093 | 3093 | 3093 |
| $R^2$ | 0.65 | 0.65 | 0.65 |
| $\mathbf{FE}_i$ | yes | yes | yes |
| $\mathbf{FE}_j$ | yes | yes | yes |

*Notes*: ***, **,* denotes significance at 1%, 5%, 10% level. Standard errors in parentheses. Regressions include time-dummies, donor fixed effects ($\mathrm{FE}_i$), and recipient fixed effects ($\mathrm{FE}_j$), not reported here.

In Table 3.5 estimates were run with Maximum Likelihood Heckman one-step and two-step procedure. The correlation coefficient, $\rho$, between the errors in the selection and allocation equations is not very high (0.35) however it is not insignificant. Note that the estimations lead to similar results.

Table 3.5: Aid Allocation Equation (Heckman).

| | (1) Heckman ML[a] | (2) Heckman two-step | (3) Heckman ML[a] | (4) Heckman two-step | (5) Heckman ML[a] | (6) Heckman two-step |
|---|---|---|---|---|---|---|
| **GDP per capita** | -0.732*** | -1.134** | -0.901*** | -1.161** | -0.526*** | -0.794* |
| | (8.29) | (2.45) | (10.46) | (2.48) | (6.49) | (1.70) |
| **Population** | -3.769*** | -3.094* | -3.749*** | -3.195* | -3.995*** | -2.980* |
| | (16.98) | (1.44) | (16.81) | (1.47) | (18.02) | (1.39) |
| **Secondary school enrolment** | -0.024 | 0.004 | -0.028 | 0.0008 | -0.014 | 0.0003 |
| | (5.08) | (0.62) | (6.01) | (0.11) | (3.11) | (0.05) |
| **FDI** | -0.020 | 0.004 | -0.017 | 0.004 | -0.019 | 0.006 |
| | (2.73) | (0.52) | (2.31) | (0.11) | (2.63) | (0.77) |
| **Exports** | 0.687*** | 0.726*** | 0.686*** | 0.719*** | 0.686*** | 0.730*** |
| | (22.41) | (11.17) | (22.31) | (10.98) | (22.90) | (11.61) |
| **Distance** | 0.222 | -1.195*** | 0.270 | -1.181*** | 0.191 | -1.214*** |
| | (4.07) | (14.63) | (5.06) | (14.47) | (3.60) | (14.89) |
| **Aid per capita other donors** | -2.869*** | -4.649*** | -2.814** | -4.614*** | -3.031*** | -4.594** |
| | (12.75) | (4.96) | (12.49) | (4.92) | (13.56) | (4.92) |
| **Aid per capita multilateral** | 0.247*** | 0.076* | 0.179*** | 0.036 | 0.263*** | 0.081** |
| | (6.30) | (1.86) | (4.63) | (0.89) | (7.93) | (1.98) |
| **Voice and Accountability** | 0.539*** | 0.703*** | | | | |
| | (5.11) | (3.52) | | | | |
| **Regulatory quality** | | | 0.216** | 0.373** | | |
| | | | (2.45) | (2.22) | | |
| **Control of corruption** | | | | | 1.161*** | 1.297*** |
| | | | | | (10.04) | (5.55) |
| **Lambda**[b] | | 4.130* | | 4.680** | | 3.452* |
| | | (1.92) | | (2.09) | | (1.69) |
| **No of obs** | 3768 | 2738 | 3768 | 2738 | 3768 | 2738 |
| **Censored obs** | 1030 | | 1030 | | 1030 | |
| $\rho$ | 0.35 | | 0.35 | | 0.35 | |

*Notes*: ***, **,* denotes significance at 1%, 5%, 10% level. $z$ or $t$-statistics in parentheses.
$\rho$ stands for the correlation between residuals of selection and allocation equations.
[a] Regressions are run using maximum-likelihood Heckman one-step procedure. [b] Inverse Mill's ratio.

### Dynamic Bilateral Aid Allocation

The next step in our analysis is introducing dynamics in the aid allocation equation. That means we include the lagged dependent variable (per capita aid lagged one period) among the regressors. This allows us to detect the short term influences of aid allocation. There are reasons to believe that the allocation of foreign aid might be dynamic in nature. The assumption which allows us to introduce dynamics in the aid allocation pattern is that donors take into consideration the past allocation patterns when taking their present decision about the amounts of aid to allocated to a certain recipient. Consequently, we estimate the allocation equation by using system GMM estimator[9] of Blundell and Bond (1998).

Estimation results are reported in Table 3.6. The main result concern the lagged endogenous variable, $Aid\ per\ capita_{t-1}$. As expected donor countries that financially support a given recipient country, continue to do so. In other words, present aid allocation decision depends on past aid allocation decision. This might be driven by the creation of a sort of networks between donors and recipients which would allow a better distribution of funds between them.

Overall, the results of the dynamic estimation are rather similar to those of static estimation, which indicates that our results are robust. Donors tend to provide larger amounts of foreign aid to the poorer nations which are in a greater need for development assistance. Moreover, the population bias is once again confirmed. The quality of governance remains an important criteria of aid allocation. The same results is found for donor interests, as measured by the commercial ties with recipients. Donors appear to financially support their trading partners. The impact is almost the same as the one in the static estimation. Additionally, both the substitutability with respect to bilateral aid and the complementarity with respect to multilateral aid are reaffirmed in the dynamic estimation.

### Bilateral Aid Allocation by Donor

Next, we analyze the behavior of the five largest donors for CEECs and CIS. As described in section 3.3.1 the major donors in per capita terms for transition economies are United States, United Kingdom, Germany, Japan and France. Table 3.7 reports the estimation results considering the amounts of aid committed by each of the five donors. Regressions shown here are run only for one indicator of governance quality, namely voice and accountability. Similar results have been obtained for regulatory quality and rule of

[9]Details about GMM estimator have been provided in Chapter 2, section 2.3.3.

Table 3.6: Dynamic Aid Allocation Equation.

| | (1) SYS-GMM[a] | (2) SYS-GMM[a] | (3) SYS-GMM[a] |
|---|---|---|---|
| **Aid per capita$_{t-1}$** | 0.226*** | 0.228*** | 0.215*** |
| | (4.08) | (4.12) | (3.86) |
| **GDP per capita** | -0.801*** | -0.952*** | -0.545*** |
| | (5.35) | (6.13) | (3.95) |
| **Population** | -5.516*** | -5.451*** | -5.778*** |
| | (9.00) | (8.83) | (9.58) |
| **Secondary school enrolment** | -0.023 | -0.026 | -0.012 |
| | (4.01) | (4.67) | (2.15) |
| **FDI** | -0.010 | -0.008 | -0.009 |
| | (1.32) | (1.07) | (1.17) |
| **Exports** | 0.627*** | 0.622*** | 0.640*** |
| | (7.81) | (7.58) | (17.62) |
| **Distance** | -0.162* | -0.122* | -0.202** |
| | (1.86) | (1.45) | (2.29) |
| **Aid per capita other donors** | -4.830*** | -4.749*** | -5.020*** |
| | (8.17) | (7.97) | (8.71) |
| **Aid per capita multilateral** | 0.184*** | 0.127*** | 0.223*** |
| | (4.30) | (3.11) | (5.30) |
| **Voice and Accountability** | 0.392*** | | |
| | (3.64) | | |
| **Regulatory quality** | | 0.096* | |
| | | (0.89) | |
| **Rule of law** | | | 1.132*** |
| | | | (5.897) |
| **Hansen test[b]** | 0.606 | 0.613 | 0.502 |
| **Serial correlation test[c]** | | | |
| **AR1** | 0.000 | 0.000 | 0.000 |
| **AR2** | 0.207 | 0.208 | 0.228 |
| **No of obs** | 2412 | 2412 | 2412 |
| **No of groups** | 452 | 452 | 452 |
| **No of instruments** | 27 | 27 | 27 |

*Notes*: ***, **,* denotes significance at 1%, 5%, 10% level. $z$-statistics in parentheses. Time dummies are included in all regressions but not reported.

[a] Regressions are run with system GMM estimator (two-step). [b] The null hypothesis of Hansen test: instruments not correlated with the error term. [c] The null hypothesis of serial correlation test: no first and second order serial correlation of errors.

law, while for the others, the estimates are not significant. Here we do not have to deal with the censored nature of the dependent variable, since the five major donors that we analyze reward most of the recipients, even with small amount of aid. Consequently, we do not need to use Heckman's procedure. Regressions are run with recipient-country fixed effects.

The results are overall in accordance with those for aggregate aid flows, with some exceptions. Per capita GDP is negatively correlated with aid flows for all the five donors which suggest that each donor has a poverty-oriented aid allocation pattern. Social needs, as measured by the secondary school enrolment, are not taken into consideration by these donors. However this result should be taken with precaution because of the quality of data on this indicator. Consistent with previous findings, "good governance" is rewarded by four of the donors. Only the United States shows a negative but not significant relationship between voice and accountability indicator and aid flows.

Donors interests, captured by the commercial links with recipients appear significant only for the United States, Japan and France. This result is consistent with the result obtained by Berthélemy (2006) which identified these three donors as "egoistic" (or "moderately egoistic") based on a positive and significant correlation between the exports to the recipient country and the aid committed to the same recipient. We conclude that these donors use aid also to strengthen commercial ties with their recipients. However, Germany shows a negative relationship, suggesting that its aid allocation decision are not dominated by selfish motives.

The substitutability between the aid of a given donor and the total aid given by the other donors appears to work only for Germany and the UK, while the Japanese aid seems to be a complement for the total recipient's bilateral aid. The complementarity with the multilateral aid appears to be significant only for the US and the UK aid.

Table 3.7: Aid Allocation Equation by Donor.

| | (1) US aid | (2) German aid | (3) Japanese aid | (4) French aid | (5) UK aid |
|---|---|---|---|---|---|
| **GDP per capita** | -0.691** | -0.159 | -0.773*** | -0.273** | -0.130 |
| | (2.98) | (1.01) | (2.74) | (1.24) | (0.42) |
| **Population** | -0.889** | -0.234** | -0.999** | -0.356** | -0.210** |
| | (3.45) | (1.12) | (4.36) | (2.67) | (1.34) |
| **Secondary school enrolment** | -0.035 | -0.024 | -0.026 | -0.022 | -0.017 |
| | (2.77) | (3.79) | (1.87) | (2.37) | (1.72) |
| **FDI** | -0.012 | -0.007 | 0.059** | 0.002 | -0.029 |
| | (0.67) | (0.73) | (2.63) | (0.20) | (1.58) |
| **Exports** | 0.199*** | -0.337** | 0.128** | 0.323** | 0.464 |
| | (0.72) | (2.99) | (1.31) | (2.34) | (2.16) |
| **Distance** | 1.598 | -0.365** | -3.036*** | 0.339* | 0.530** |
| | (1.82) | (2.69) | (5.55) | (1.66) | (2.18) |
| **Aid per capita other donors** | 0.167 | -0.206** | 0.306* | 0.246 | -0.604** |
| | (0.92) | (1.77) | (1.89) | (1.59) | (2.52) |
| **Aid per capita multilateral** | 0.209** | 0.031 | 0.157 | 0.051 | 0.203** |
| | (2.08) | (0.56) | (1.35) | (0.65) | (2.16) |
| **Voice and Accountability** | -0.317 | 0.622*** | 0.468** | 0.691*** | 0.613** |
| | (1.01) | (3.56) | (1.44) | (2.52) | (2.14) |
| **Constant** | 7.319* | -6.035** | 22.329** | -14.42*** | -1.779 |
| | (1.88) | (2.22) | (3.48) | (4.39) | (0.46) |
| **No of obs** | 171 | 176 | 176 | 175 | 167 |
| $R^2$ | 0.53 | 0.60 | 0.44 | 0.65 | 0.40 |

*Notes*: ***, **,* denotes significance at 1%, 5%, 10% level. $t$-statistics in parentheses. Recipient-specific fixed effects and time-period fixed effects not reported.

### 3.4.2 Multilateral Aid Allocation Determinants

#### Average Multilateral Aid Behavior

Table 3.8 provides estimations results for the aggregate multilateral aid flows. Regressions are run with recipient-country fixed effects (since the dependent variable is not censored (all recipients in our sample get multilateral aid) we do not need to take into consideration the selection phase; we do not need to use Heckman's method). Note that the variables *Exports*, *FDI* and *Distance* were taken out from the estimations since they should not play a role in multilateral aid allocation. In fact they characterize the patterns of bilateral allocation - *Exports* and *Distance* are a proxy for commercial links between a recipient and a donor, while *FDI* stand for the economic performance of the recipient. To avoid multicollinearity the indicators of governance quality (Kaufmann et al., 2005) are entered separately in the regressions. Moreover, a dummy variable to control for the ties between the new members of EU and the EU, since they were receiving more assistance in preparation for their integration in 2004 and 2007, respectively.

The two recipient needs variables, per capita GDP (constant $US 2000), and secondary school enrolment have the expected negative sign. This is evidence that multilateral aid

Table 3.8: Total Aid Multilateral Flows.

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| **GDP per capita** | -1.062*** | -1.209*** | -0.994*** | -1.185*** | -1.043*** | -1.181*** |
| | (7.29) | (8.26) | (6.18) | (7.47) | (7.38) | (8.25) |
| **Population** | -0.416** | -1.639*** | -0.385** | -1.143*** | -0.309*** | -1.077** |
| | (5.70) | (3.85) | (4.86) | (4.58) | (4.17) | (3.51) |
| **Population squared** | | 0.191*** | | 0.238*** | | 0.176** |
| | | (3.61) | | (4.37) | | (3.34) |
| **Secondary school enrolment** | -0.041** | -0.043** | -0.052* | -0.052* | -0.036** | -0.038** |
| | (4.41) | (4.74) | (5.19) | (5.45) | (3.81) | (4.19) |
| **Dummy EU** | 0.504** | 1.029** | 1.426*** | 1.895*** | 0.933** | 1.354*** |
| | (1.52) | (2.93) | (4.86) | (6.35) | (3.30) | (4.49) |
| **Voice and Accountability** | 1.439* | 1.188* | | | | |
| | (6.65) | (5.40) | | | | |
| **Government effectiveness** | | | 1.074** | 0.813** | | |
| | | | (4.25) | (3.29) | | |
| **Regulatory quality** | | | | | 1.099* | 0.917* |
| | | | | | (7.14) | (5.77) |
| **Constant** | 9.577** | 8.191*** | 7.188** | 8.128*** | 3.14 | 9.098** |
| | (3.09) | (4.21) | (2.17) | (4.76) | (1.09) | (3.49) |
| **No of obs** | 176 | 176 | 176 | 176 | 176 | 176 |
| $R^2$ | 0.69 | 0.71 | 0.64 | 0.68 | 0.70 | 0.72 |

*Notes*: ***, **,* denotes significance at 1%, 5%, 10% level). $t$-statistics in parentheses.
Recipient-specific fixed effects and time-period fixed effects not reported.

is poverty oriented. We find that poorer countries get more multilateral assistance that richer countries. A one percent decline in per capita GDP associates with 0.9 to 1.2 percent increase in per capita aid committed by multilateral agencies (depending on the specification of the model). The elasticity of per capita aid committed by multilateral agencies with respect to secondary school enrolment varies from 0.036 to 0.052. Overall, the multilateral aid allocation in the case of CEECs and CIS appears to be responsive to recipient needs.

Multilateral donors, similarly to bilateral donors direct more aid to smaller countries, given by the negative coefficient of population size variable. However, the bias towards smaller countries might be reversed after a certain threshold of population size. To capture this, the quadratic term of population size is introduced in regressions (2, 4, 6). Estimations results confirm the assumption of non-linearity in the population size variable[10]. As noted by Neumayer (2003), the population bias at the multilateral level of aid allocation is not completely justified. There is no reason for multilateral agencies to believe that poor people in large countries are less in need of aid than poor people in small countries.

The estimation results also suggest that the quality of governance as measured by Kaufmann et al. (2005) indicators matter for multilateral aid allocation. Three out of

[10]The U-shaped is sometimes confirmed for per capita GDP. In our estimations we find no evidence of the non-linearity in the per capita GDP - if included in the regressions, the quadratic term of per capita GDP does not test significant.

six indicators appears to have a significant positive effect on the amount of per capita multilateral aid flows: voice and accountability, government effectiveness and regulatory quality (the other three indicators of the quality of governance - political stability, rule of law and control of corruption if included in the regressions test insignificant, and therefore not reported). Our results are in accordance with much of the existing literature. "Good governance" is rewarded by multilateral agencies. In practice, the strength of the role of good governance on the development agenda of the donors has been often underlined in recent years.

## 3.5 Conclusion

Over time, the challenges of development lead to shifts in aid architecture. Recently, donors have pledged to reach the target level of committed aid of 0.7 percent of their GNI. However, increasing the amounts of aid is only the starting point. Donors have to achieve efficient allocation of aid flows among recipients in order to ensure that aid resources will help to promote development and welfare in recipient countries.

The analysis of the allocation of aid in the case of transition countries reveals that, overall, there are not so many differences between bilateral and multilateral aid allocation patterns. It appears that both allocation pattern take into consideration recipients needs and merits. However, when compared to multilateral aid allocation patterns, bilateral aid allocation looks inferior with respect to social needs of recipients as measured by the secondary school enrolment.

In accordance with much of the literature, per capita GDP capita is an important determinants of foreign aid flows for both bilateral and multilateral aid allocation. Monetary poverty remains one of the motivations of aid giving. The population bias is confirmed at both bilateral and multilateral level of aid allocation. However, at the multilateral aid level this might seem surprising.

Finally, recipients with better governance receive relatively higher per capita aid. The quality of governance matters for donors' aid allocation patterns, as it is seen as a signal of aid being put to good use, and consequently of donors' improving their aid allocation towards recipients that perform best.

# Appendix of Chapter 3

Figure 3.6: United States per capita aid (average 1996-2004, $US).

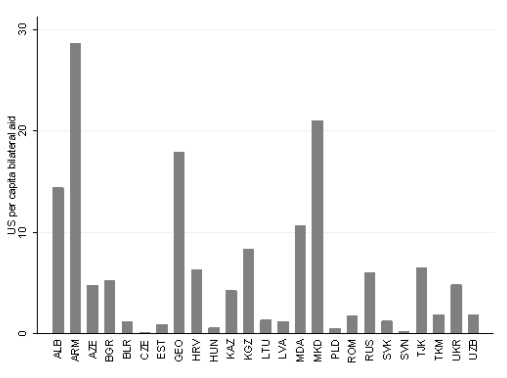



Figure 3.7: Japanese per capita aid (average 1996-2004, $US).

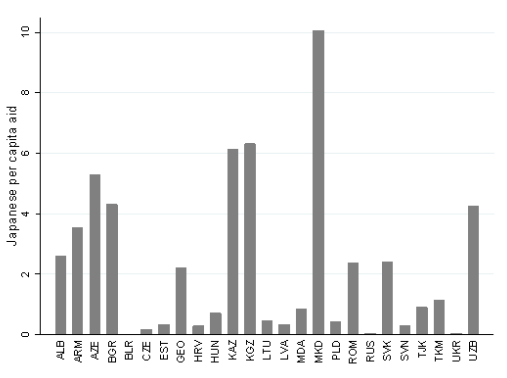



Figure 3.8: German per capita aid (average 1996-2004, $US).

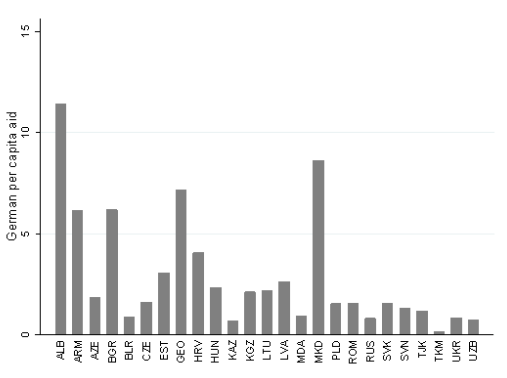


Figure 3.9: Danish per capita aid (average 1996-2004, $US).

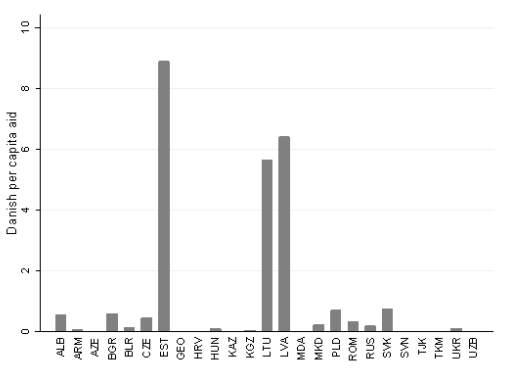



Figure 3.10: French per capita aid (average 1996-2004, $US).

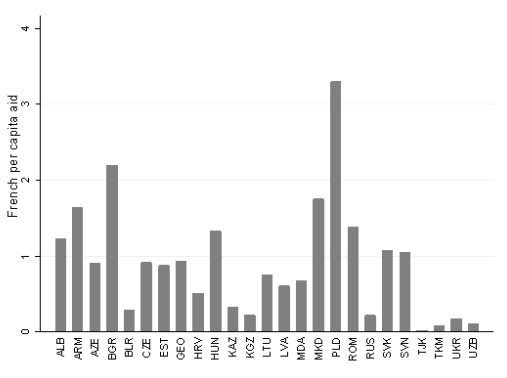



Figure 3.11: British per capita bilateral aid (average 1996-2004, $US).

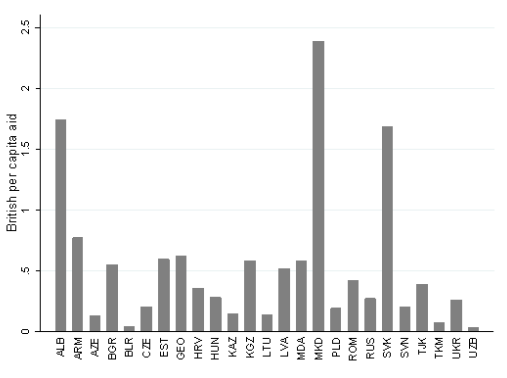


Table 3.9: Data Sources and Definitions.

| Variable name | Source | Definition |
|---|---|---|
| **Bilateral Aid**$_{i,j}$ | DAC, OECD | Commitments of bilateral ODA/OA per capita of donor $i$ to recipient $j$ (2000 constant US$) |
| **Multilateral Aid** | DAC, OECD | Commitments of multilateral ODA/OA per capita |
| **GDP per capita**$j$ | WDI, World Bank | GDP per of recipient $j$ (2000 constant US$) |
| **Population**$_j$ | WDI,World Bank | Population of recipient $j$ (millions inhabitants) |
| **Distance**$_i, j$ | CEPII database | Bilateral distance between donor $i$ and recipient $j$ (kilometers) |
| **Exports**$_i, j$ | WDI, World Bank | Exports flows from donor $i$ to recipient $j$ as a share of donor's GDP |
| **FDI**$_j$ | | FDI inflows of recipient $j$ as a share of its GDP |
| **Secondary school enrolment**$_j$ | WDI, World Bank | % of individuals enrolled in secondary school |
| **Voice and Accountability**$_j$ | Kaufmann et al. (2005) World Bank | Units ranging from -2.5 to 2.5 with higher values corresponding to better governance outcome |
| **Regulatory Quality**$_j$ | | |
| **Rule of law**$_j$ | | |

Table 3.10: Summary statistics.

| | Observations | Mean | Std.Dev | Minimum | Maximum |
|---|---|---|---|---|---|
| *Descriptive Statistics, 1996-2004.* | | | | | |
| Bilateral aid per capita | 4950 | 0.84 | 2.86 | -0.37 | 44.64 |
| Multilateral aid per capita | 4950 | 19.28 | 18.90 | 0.006 | 101.21 |
| GDP per capita | 4928 | 2367.79 | 2223.95 | 139.1701 | 11008.84 |
| FDI | 4950 | 4.79 | 5.39 | -0.22 | 45.15 |
| Distance | 4950 | 4591.43 | 4365.78 | 59.61723 | 18478.29 |
| Population | 4950 | 15.75 | 28.98 | 1.35 | 147.74 |
| Secondary school enrlment | 4950 | 89.13 | 10.28 | 38.21 | 112 |
| Voice and accountability | 4950 | -0.11 | 0.93 | -1.89 | 1.25 |
| Regulatory quality | 4950 | -0.17 | 0.98 | -2.71 | 1.42 |
| Control of corruption | 4950 | -0.41 | 0.65 | -1.74 | 1.05 |
| Government effectiveness | 4950 | -0.22 | 0.72 | -1.61 | 1.16 |

# Chapter 4

# Aid and Migration: Substitutes or Complements?

Migration has become a significant aspect of globalization (O'Rourke and Williamson, 1999; Hatton and Williamson, 2002). Movement of labor has to some extent been liberalized throughout the globalization process. Nevertheless, some governments have raised various barriers to international labor movements in order to deal with undesired international immigration pressure. However, such restrictive policies have two potential shortcomings. First, they stimulate illegal immigration, which is often costly, difficult to prevent, and in turn, might create severe social and political tension. Second, they are potentially inconsistent with other foreign policy instruments, such as development assistance policies, which are used vis-à-vis potential immigrants countries of origin. For example, in Europe, it would have been inconsistent to assist neighboring countries in their development, whilst also preventing the migration of workers from those same neighbors. However, in spite of tough immigration policies implemented by several governments of developed countries, the percentage of international immigrants in developed countries has doubled during 1970-2000.

Recently, immigration policy has become a core concern in the ongoing debate that has emerged in OECD countries with regard to their foreign policies vis-à-vis developing and transition economies (OECD, 2006). The necessity of jointly implementing development policies has been determined by the increasing interdependencies between countries consequence of the globalization process. For instance, OECD countries depend upon developing countries with regard to their exportations and fuel consumption, while developing countries are linked to developed countries mainly through their importations of basic products. Actually, aid, trade, investment and migration constitute key policy areas which define a country's international economic relations. Hence, the opening up of

trade, facilitation of international investment, foreign aid, and migration controls all form a complex mix of policies that cannot be considered in isolation. They interact with each other, and to be efficient, they must be designed and implemented in a coherent manner.

Several aspects of the policy coherence debate have been largely discussed in the previous literature. Substitutability or complementarities between trade and factor movements have been a recurring theme in the international economics literature since the seminal work of Mundell (1957). Based on Heckscher-Ohlin model, Mundell shows that trade and labor movements are likely substitute each other. More precisely he finds that: (i) an increase in trade barriers determines a reduction in trade flows and an increase in migration flows, and (ii) an increase in migration barriers reduces migration while increasing trade. However, this is a theme that has been revisited with new results, suggesting possible complementarities between labor flows and trade in particular (Markusen, 1983). Additional results have since been obtained. Schiff (2006) provides a survey of recent developments on the nature of the relationship between trade and migration. He illustrates that, in the case of trade protection, complementarity is likely to hold only at low tariffs, while substitution holds at high tariffs. Moreover, it is argued that the nature of this relationship is likely to depend on the type of policy changes in both the origin and the host country, as well as on the type of shocks that can occur in these countries.

In this analysis, we will consider another aspect of the policy coherence debate, namely whether aid and migration policies are substitutes or complements. To our knowledge, very few empirical papers have addressed this question precisely. Faini and Venturini (1993), writing on Greece, Portugal, Spain and Turkey, constitute one notable exception. They first assumed that aid policies to these countries were favorable for growth. Then, using migration data, they showed that growth would not necessarily reduce the incentive to migrate. This counterintuitive outcome is explained by the so-called "hump-shaped pattern" of migration, which implies that at very low levels of income per capita, growth translates into more migration by allowing poor migrants to afford the costs associated with migration.

One main objective of this study is to clarify the influence of aid on migration. We will consider not only the effect of total aid on migration, following the previous literature, but also that of bilateral aid:

- First, we will test the effect of total aid on migration as a component of gross national expenditure. Instead of assuming that aid influences migration through a growth effect[1] we will merely assume that aid, which contributes to the financing of gross

[1]The literature on aid effectiveness is very rich in results, as presented in Chapter 2 of this dissertation. Still, no consensus has emerged regarding the impact of aid on growth in developing countries. In a recent meta-analysis Doucouliagos and Paldam (2008) found that it is at best insignificant.

national expenditure in the recipient country, increases its domestic wages, and in turn its migration. We will refer to this relation between total aid and migration as a "push" effect;

- Second, we will test for the possibility of a direct positive effect of bilateral aid on bilateral migration through what we call an "attraction" effect, i.e. more bilateral aid given to a country intensifies the attractiveness of the donor country for citizens of the recipient country. At a theoretical level, we can assume that more bilateral contacts through aid policy implementation increase the information about the donor country that is available to potential migrants of the recipient country. This additional information reduces the transaction costs attached to the considered migration flow. The existence of this attraction effect will be empirically tested through a gravity model. For instance, it might come from contacts with the donor country's experts and visits of the recipient country's nationals to the donor country. It could also be somewhat associated with the part of official assistance which consists of financing scholarships for foreign students and support granted to refugees in donor countries, which is sometimes quite large[2]. This attraction effect is expected to be stronger amongst skilled migrants.

Conversely, bilateral aid flows may not be independent from bilateral migration. Lahiri and Raimondos-Møller (2000) have shown that the lobbying activities of migrants can influence the geographical aid pattern through a networking mechanism. This means that we have to deal with a simultaneity problem. In other words, there might be a direct two-way causality from migration to aid, as well as from aid to migration, We propose to solve this problem through a simultaneous equation system explaining bilateral migration and bilateral aid, in which we will include other, exogenously determined, explanatory variables, that will allow us to properly identify both equations.

This chapter adds to the existing literature on the subject in at least three ways.

Firstly, we have shown that aid and migration are substitutes above a threshold of US$7348 (PPP 2000 prices). For a majority of sending countries there is, therefore, on average, a combination of generous aid policies and restrictive immigration policies that are not necessarily at odds with one another: increasing aid will help reduce migration pressure from all sending countries above the threshold. However, this policy combination is inconsistent when implemented vis-à-vis poor countries. These findings underline the importance of a coherent implementation of development policies, while considering their potential shortcomings.

[2]For instance, in France, these two components have accounted for about 25% of the total Official Development Aid (ODA) in recent years.

Secondly, we have found a significant influence of migrants on aid allocation, as suggested by the model of Lahiri and Raimondos Møller (2000). We have gone further by analyzing the other way around, i.e. the causality running from aid to migration. We have identified, two components of this causality: (1) one running from bilateral aid to bilateral migration, which reflects the *attraction effect*; this appear to be all the more significant for skilled migrants; and (2) one running from total aid to migration, which reflects the *push effect*; any poverty reduction that would be induced by aid may help alleviate the budgetary constraint faced by the poor and then translate into more migration.

Finally, regarding the differences between skilled and unskilled migration behavior, we have pointed out that unskilled migrants are attracted to more redistributive welfare states, while skilled migrants gravitate towards countries that offer better opportunities and greater expected earnings. Moreover, we have shown that the complementarity between trade and migration is higher for skilled than for unskilled migrants, a fact which is consistent with Markusen's model of a technological superiority in rich countries. This complementarity explains the fact that rich countries export skilled labor-intensive goods and host relatively more skilled individuals.

This chapter is organized as follows. Section 1 explains the concept of Policy Coherence for Development and stresses the importance of analyzing the relationship between aid and migration in the context of this debate. Section 2 reviews the main findings of the literature on migration and aid. Section 3 derives a "gravity" model of migration, which is jointly estimated with an aid bilateral allocation equation. Section 4 provides a discussion of data, and Section 5 outlines the econometric estimation results. Section 6 extends the analysis to the migration of skilled migrants *versus* unskilled migrants. The last section concludes the analysis.

## 4.1 Policy Coherence for Development

This section provides some insight into the concept of Policy Coherence for Development (PCD) and subsequently, into the potential interactions and impacts of several development policies set up by developed OECD countries vis-à-vis developing countries.

The PCD concept was born from the debate that has emerged with respect to the negative effects in developing countries of trade policies implemented by developed countries. Presently, the PCD mainly takes into consideration interactions between four major policies related to aid, investment, migration and trade. The definition considered by OECD for PCD is the following: "the pursuit of development objectives through the systemic

promotion of mutually reinforcing policy actions on the part of both OECD and developing countries." (OECD Development Centre, 2006, p. 6). Simply defined, PCD refers therefore to the fact that the gap between the intent and the outcome of policy can be significantly reduced or even eliminated if mutually supportive approaches are used in related policy areas in pursuit of a common goal, that is development. Thus, when relevant policies are working together in the same direction, it can be claimed that coherence does exist (WTO, 2004). Working together at cross purposes for development, sound policies in one area need to be supported by appropriate policies in other ares, and more important, their impact should not been studied separately or independently of each other.

While there is a consensus about the interactions between policies, an ongoing debate has emerged about how to implement them in a coherent manner in order to maximize their joint positive impact in developing countries. Each policy should enhance the objectives of the others and avoid inconsistencies among their objectives. Incoherences are well-known; for example, migration policies aiming to promote the migration of skilled health-care professionals by providing powerful incentives for them to leave their home countries and migrate to developed countries (the so-called *brain drain* phenomenon[3]) might reduce the impact of aid policies designed to increase the supply of health-care services, and to consequently improve health-care systems in those same developing countries. Also, certain permissive migration policies towards IT workers from developing country (e.g India), accentuate *brain drain*, and consequently might not be consistent with the objective of fighting against poverty in these countries. Another case of incoherence characterizes the aid and trade policies of several donor countries; in particular, increased aid flows designed to enhance development in developing countries, might be offset by the use of trade restrictions on their exports, since these trade barriers, in turn, induce costs which almost equal the flows of aid.

To illustrate the importance of a coherent implementation of development policy we show in Table 4.1 the possible interactions between the policies related to aid, investment, migration and trade, given the objective of each policy (in columns) and the effects of each policy on the objectives of each other (in rows).

[3]This stands for the migration of high-skilled labor force.

Table 4.1: Interactions Among OECD-countries' Policies.

| | ***OBJECTIVES*** | | | |
|---|---|---|---|---|
| ***EFFECTS*** | **AID:** growth and poverty reduction | **INVESTMENT:** expands productive capabilities | **MIGRATION:** enhances income opportunities | **TRADE:** expands consumption possibilities |
| **AID POLICY...** | ... | promotes infrastructure and human-capital investment, reduces investment costs | ...capacity building, market integration in home country | ...promotes trade capacity building in LDCs* and demand for rich-country goods and services |
| **INVESTMENT POLICY...** | raises human and physical stock in LDCs*; promotes local enterprize development | ... | ...expands employment opportunities in LDCs* | ...enhances linkages to foreign markets; creates business networks; increases export capacity; upgrades quality standards |
| **MIGRATION POLICY...** | ...induces remittances, lowers unemployment, can contribute to skill formation, increases productivity | ...encourages brain circulation and technology transfers; expands savings | ... | ...encourages trading opportunities and networks |
| **TRADE POLICY...** | ...promotes growth | ...enhances market access | ...increases wages | ... |

*Source*: OECD, Policy Brief No. 28, 2006.
*Note*: Least Developed Countries.

One important issue required for an efficient joint implementation of policies is to identify whether the interaction between them works either as a complement or a substitute in their effects on a given objective. Two policies are to be considered as complementary if an increase in one is likely to induce an increase in the other. For instance, more permissive migration towards a developed OECD country increases the inflows of remittances to developing countries. This migration policy might be combined with increased, but targeted aid to a migrant source country. This aid can help spread the benefits of migration more equitably. In such a case, the two policies - migration and foreign aid - work together as complements (Dayton-Johnson and Xenogiani, 2006). Two policies are to be considered as substitutes if an increase in one is likely to induce a decrease in the other. For example, providing more aid might induce restrictions in legal immigration. That is, higher aid transfers are likely to prevent the need to migrate.

Moreover, the efficient joint implementation, which enhances the positive effects of the development policies, requires both developed and developing countries to get involved (See Figure 4.3 in the Appendix of the chapter). This means that PCD implies reciprocity. While developed countries should make sure that their policies do not harm beneficiary countries, developing countries should improve their capacity to benefit from the favorable policies set up by developed countries. The effectiveness of policy coherence depends on the degree of international cooperation desired by the countries and their willingness to shape their policies around a common approach jointly determined by the countries involved.

## 4.2 A Review of the Literature

Since in this analysis we examine the relationship between aid and migration, and since we have provided, in the first two chapters of this dissertation some insight about aid issues (effectiveness, allocation criteria), we have considered important to briefly outline the main findings of the literature on international migration. A particular emphasis is given to the relationship between migration and aid.

### 4.2.1 Migration: Main Findings

International migration is a complex phenomenon that has drawn the attention of economists, researchers, policy makers and international agencies. From mass migration in the late nineteenth and early twentieth centuries to new trends in migration flows, the phenomenon has been greatly analyzed. The literature on international migration has emerged in two main directions. One focuses on the impact of migration either within host countries or home countries, while the other focuses on its determinants.

For decades, research analyzed the consequences of migration in receiving countries, specifically the effects of international migration on labor markets. The integration of immigrants within the society of host countries was also widely addressed. Several positives aspects of migration in destination countries have been identified. It has been argued that immigrants help to maintain a low ratio of capital to labor, provide semi-skilled and skilled labor in industries where the local labor force is inadequate, and perform the traditional role of a labor reserve by keeping wages low (Petras, 1984). A more recent body of literature suggests that immigration in countries where migrants are net fiscal beneficiaries of transfers, reduces the welfare of the native population (Wildasin, 1994; Michel, 2003). However, the net loss in the welfare of natives, because of immigration, in particular that of low-skilled workers, might, under certain conditions, transform into net benefits for natives (Razin and Sadka, 2004). Moreover, as noted by Epstein and Wildasin (1999), unemployed immigrants receiving transfers can be profitable for both native workers and employers. In a study on developed European countries, Razin, Sadka and Swagel (2004) observe that, the higher the share of low-educated migrants in the total population, the lower the tax rate on income and transfer rate. Conversely, Carrington and Detragiache (1998), and Bauer and Kunze (2004) argue that high-skilled migration is more likely to be accepted by developed host countries because these migrants are among net fiscal contributors.

It is only recently that economists and researchers have drawn attention to aspects related to the impact on sending countries. The consequences in source countries concern: (i) outcomes, such as income and growth; these effects are related to remittances and lost labor forces; (ii) consumption and investment; (iii) trade-related outcomes and *brain drain/gain* issues; these are related to lost high-skilled labor forces.

Since migration might generate important gains in terms of growth, poverty reduction, insurance against risk and the accumulation of human capital, it has been perceived as an engine of growth and convergence (Faini, 2006). Through remittances generated by migration, living standards in home countries are likely to improve and might lead to a rise in the capital available for investment. Moreover, when migrants return to their home countries, they are generally more skilled and can spend larger amounts of financial funds on investment. This might induce changes in the structure of both human and physical capital in the home country. Also, social and political reforms might be encouraged when migrants return home with new knowledge and experience.

An issue of great importance for both origin and host country that has been paid an increasing amount of attention in the international community, is the migration of highly-qualified workers. Policy-makers, economists and international agencies currently

consider skilled migration a significant aspect of globalization. While high-skilled workers are being attracted in developing countries in order to sustain the economic growth of these "knowledge intensive" economies, sending countries have to deal with the losses of their skilled and educated workers. Both negative and positive consequences of *brain drain* phenomenon for sending countries have been identified in the literature. Faini (2006) points out one negative impact. The social marginal productivity of skilled workers even when unemployed at home, is not necessarily zero, since they could move to other regions (e.g. rural) instead of migrating abroad. Some studies advanced arguments to illustrate the positive aspects. First, migration of skilled individuals might increase the returns to education and, in the long run, might lead to an increase in the number of educated individuals in the source country (Stark et al. 1997, 1998). Second, skilled migrants earn more and may therefore remit more (World Bank, 2006). More remittances to home countries are likely to relax the foreign exchange constraint, and further enhance growth. Third, skilled migrants might be helpful in establishing commercial contacts and investment links with their home country; this might make the home country more attractive for foreign investors (Griswold, 2003).

The most important contributions to purely economic determinants of migration have been proposed by Sjaastad (1962) and Borjas (1989, 1994). According to their model, migration is positively influenced by the income per capita in the country of destination, relative to the income per capita in the country of origin. Migration is also a decreasing function of migration costs. In addition, migration depends upon the payoff to the observed and unobserved characteristics in the host country relative to the payoff in the source country. Observed migrations fit relatively well the predictions of the model (Massey et al., 1998), but the model fails to explain one stylized fact: the "hump-shaped" pattern. The "hump-shaped" pattern hypothesis, which can be found in the empirical literature (Faini and Venturini, 1993; Clark, Hatton and Williamson, 2002; Hatton and Williamson, 2002; Adams and Page, 2003), refers to a positive correlation between GDP per capita and migration for relatively low levels of GDP per capita, and to a negative correlation for relatively high levels of GDP per capita. In fact, in the early stages of development, migration is likely to increase since aid relaxes financial constraints and individuals find the means to migrate. At a certain development level, when income reaches a critical threshold, migration is likely to decrease, since potential migrants are less willing to move (as they find good work opportunities in their home countries).

Several factors might explain the "hump-shaped" relationship between economic development and migration. First and foremost, the "hump-shaped" pattern can be related to the existence of migration costs, which reduce the possibility of emigration from the poorest countries. Migration costs include many elements. Such costs can be reduced

by geographical proximity (closer countries are generally more open to bi-directional migration) and common language, as well as historical ties, which may imply an overall knowledge of the habits of the destination country.

The migration hump has also been explained by other factors in the literature. First, the poorest countries are also the youngest, and old adults are less likely to migrate than young adults. This is a demographic factor (Hatton and Williamson, 1994). Second, the rural population is reputed to be more reluctant to undertake international migration (according to Hatton and Williamson (2002) this factor is weak). This is an industrialization factor.

Changes in the fundamental reasons that have driven migration have occurred over time. Hatton and Williamson (1998, 2002) illustrate that while mass migration from Europe to the New World during the nineteenth and early twentieth centuries, was driven mainly by economic considerations, i.e. large income gaps between origin and destination countries, over time, the motive of income differentials among countries has weaken. Social, cultural and political aspects have been added to the list of migration determinants. Mass migration from Europe has also been explained by changes in the structure of the population, notably increases in population growth, the existence of migration networks (family, friends) and structural economic shifts from agriculture to industry. Examining more recent migration trends, Griswold's (2003) findings support the view that the wage differential is not the only factor which explains migration. Other conditions push people to leave their home. Such conditions include migration costs, migration networks and the desire to spread risk and raise capital[4] (a more recent motivation, according to the "new economics of migration").

### 4.2.2 Joint Determination of Migration and Aid

As previously highlighted, migration might interact in various and complex ways with other international flows, such as trade, foreign direct investment and development assistance. The interaction between migration and aid has been analyzed in several recent studies. Foreign aid has been considered as a measure that can foster development in origin countries, by eliminating some of the differentials in welfare between host and home countries. Furthermore, this reduces the incentive to migrate (Faini and Venturini, 1993).

[4]When sending some of their members to work abroad, families can actually diversify their risk. They gain income from aboard when domestic wages decrease or domestic unemployment increases. Consequently, these families might raise their capital and use it for domestic investment in the absence of a sound banking system or a private equity market.

Hatzipanayotou and Michael (2005) in analyzing the implications of migration, address the welfare implications of aid designed to discourage migrants from moving to donor countries to receive social benefits. They model migration coming from an aid recipient developing country, characterized by low income, poor infrastructure and no welfare system, to a rich developed donor country with a sound welfare system. They show that, when immigration costs decrease as a consequence of greater economic integration between donor and recipient countries, which, for example, intensifies migration inflows, it is desirable for donor-host country to increase aid to recipient-home country in order to co-finance the public infrastructure of the latter and therefore further dissuade migration inflows.

The interaction between aid and migration has also been analyzed with respect to donor countries' wish to deal with unwanted immigration. Gaytan-Fregoso and Lahiri (2000) examine the impact of foreign aid on illegal immigration. They find that foreign aid is likely to increase levels of illegal immigration, if the total amount of aid is small. Conversely, when the level of aid is large, additional aid reduces illegal immigration.

Faini and Venturini (1993) relate the evolution of migration observed in Europe from the 1960s to the 1980s to this migration hump framework. They find a negative relationship between migration and development for Greece, Portugal, and Turkey, but not for the more advanced Spain or Italy. Clark et al. (2002), studying immigration to the Unite States between 1971 and 1998, find a negative relationship between income and migration for middle-income and high-income countries that reverses for low-income countries. Cogneau and Gubert (2005) highlight that Mali and Mexico are two countries where the most of migration comes from regions not classified as among the poorest.

Aid may influence migration indirectly through its impact on income, but the existence of direct links between migrations and foreign aid should be consider too. In aid allocation literature, there is a standard argument, developed by Lahiri and Raimondos Møller (2000), suggesting that, in developed countries, immigrants act as a lobbying force in favor of development assistance allocation to their home countries.

Stylized facts are consistent with this view. In most cases, those countries that receive the most aid from a donor country (specifically those that are in the first quintile of aid recipients) are by far the main sources of immigration to that donor country. On average, immigrants coming from countries that are among the main beneficiaries of donor aid allocation policies account for 44 % of total immigrants to donor countries, and this ratio is well above 50 % in all donor countries except for the United States and Nordic European countries.

However, this observation requires further scrutiny, for two reasons. First, both variables may be correlated simply because they are correlated with a third variable, e.g. geographical proximity or historical and cultural ties. Second, the proportion of migrants originating in countries which are main aid recipients is probably too high to result only from lobbying activities of previous immigrants. For example, this concentration is observed even in donor countries which are not among the major destinations of immigrants, such as Italy, Japan or Spain.

Actually, this correlation might be due to a reverse link, namely from aid to migration. Aid concentration in a given recipient country may stimulate migration into the donor country, because it facilitates contacts and population movements with this donor country, through various channels, such as technical assistance. Specifically, at least in some donor countries, a significant part of official development assistance is related to financing of scholarships for foreign students and support granted to refugees in donor countries. For example, in France, these two components account for about 25 % of total ODA in recent years. Such assistance may have a major impact on migration, insofar as it facilitates the mobility of foreigners to donor countries.

The issue of complementarity/substituability between aid and migration is another issue that has received attention in the literature. This is, as previously mentioned, an important question in the context of the policy coherence for development, which concerns not only aid and migration, but also other development policies. In a study on the interaction between aid flows and three other North-South flows, namely trade, FDI and migration, Cogneau and Lambert (2006) find evidence of complementarity with respect to development assistance-migration relationship. Griswold (2003) identifies complementarity development and migration. He illustrates that the propensity to migrate is likely to rise when the economic context improves in the sending countries Remittances become more profitable under sound economic conditions; this increases the incentive to migrate. Complementarity between aid and migration might appear counterintuitive, since it is widely believed that an effective way to dissuade migration is to improve welfare in origin countries, by fighting the causes of migration, such as unemployment, poverty reduction and inequalities. Nevertheless, the substitutability between aid and migration has not yet been proven empirically. Therefore, one objective of this analysis is to shed light on the debate concerning the complementarity/substitutability between aid and migration. Our results, in Section 6, will reveal that there is a threshold above which migration and aid are substitutes.

## 4.3 Model

This section presents the model which consists of two equations estimated simultaneously: (1) a *migration gravity equation*, and (2) an *aid allocation equation*. It discusses the variables (the determinants of both migration and aid allocation) as well as the appropriate estimation method.

### 4.3.1 Migration Gravity Equation

According to Sjaastad (1962) and Borjas (1989, 1994), migration can be viewed as an investment in human capital. Migrants choose the destination where their expected payoff is higher than that of any other alternative, including domestic wage. Several predictions can be made based on the human capital investment approach: emigration is higher from source countries with a lower mean income (considered as a proxy for domestic wage), and immigration to host countries with a higher mean income; such movements are lower when migration costs are high; they are higher the greater the payoff to the observed income-generating variables (in our paper: education, benefits that can be drawn from redistribution policies) in the host country relative to the payoff in the source country. Section 6 will revisit the self-selection issue (Borjas, 1989), i.e., the impact that the different returns to education have on migration flows.

These predictions are derived from three equations, namely, two wage equations regarding the home and destination countries and one equation describing the cost of migrating. We rely on a "gravity model" of international migration commonly used for quantifying the potential for migration (e.g., Karemera et al., 2000; Rotte and Vogler, 2000). Migration depends upon supply or push factors, which are the income per capita and the population in the origin country, and it also depends on demand or pull factors in the host country, which are likewise a function of income and population. Income per capita here is a proxy for wages in the origin and destination countries. The larger income per capita is in the recipient country, the higher the probability of moving; conversely, the lower it is in the sending country, the higher the probability of migrating. A higher population in the receiving (sending) country reflects better opportunities for work (higher supply size). In principle, both populations have positive parameters, but a sending country of small size may result in higher migration. This is because in a small country the only migration possibility is international migration, while in a large country, in some instances there can be inter-regional migration.

To this basic gravity equation we add total aid received by country i ($a_i$). The underlying assumption is that domestic wages are influenced not only by GDP per capita but

also by total aid received, which finances gross national expenditure. As such it can be accounted for in the push factors. Instead of adding aid per capita to GDP per capita ($GDPpc_i$), we enter it as a separate variable, because the elasticities of wages to GDP per capita and to total aid may differ[5].

We add also a trade intensity variable, measured by the bilateral export from the country of emigration to the country of immigration as a ratio of GDP of the country of emigration. A positive parameter would imply that labor flows and external trade are complements (*pull factor*), while a negative parameter would imply that they are substitutes (*push factor*).

As a result, we get the following system of supply and demand equations:

$$\begin{cases} S_i = s_0 * GDPpc_i^{b_1} * pop_i^{b_2} * aid_i^{b_3} * X_{ij}^{b_4} \\ D_j = d_0 * GDPpc_j^{c_1} * pop_j^{c_2} * aid_j^{c_3} * X_{ij}^{c_4} \end{cases}$$

Combining supply and demand yields a migration equation, to which we add $R_{ij}$, which accounts for transaction costs restraining migrant flows, such as transport costs the linguistic cost of moving, and historical ties, such as residing in a former colony. We add to those transaction costs the attraction effect induced by bilateral $a_{ij}$. This effect tells that migration cost is lower when the representative agent has contacts with agents in the destination country, while the probability of being in contact with such an agent is related to the bilateral aid received by the origin country:

$$Migration_{ij} = a_0 S_i^{a_1} D_j^{a_2} / (R_{ij}^{a_3} a_{ij}^{-a_4}) \tag{4.1}$$

Taking the log of both sides yields the following equation:

$$\begin{aligned} m_{ij} = \alpha_0 + \alpha_1 GDPpc_i + \alpha_2 GDPpc_j + \alpha_3 pop_i + \alpha_4 pop_j + \alpha_5 a_{ij} + \alpha_6 a_i + \\ + \alpha_7 X_{ij} + A_8 R_{i,j} + u_{ij} \end{aligned} \tag{4.2}$$

where:

- $m_{ij}$ stands for the log of bilateral migrations stocks;
- $GDPpc_i$ and $GDPpc_j$ stand for the log of GDP per capita of country $i$ and $j$;

[5]Only part of gross national expenditure financed by aid can end up in wage increases because aid also finances expenditure components such as technical assistance, import costs associated to aid tying, etc.

- $pop_i$ and $pop_j$ stand for the log of the population of country $i$ and $j$;
- $aid_{ij}$ stands for the log of bilateral aid given by donor $j$ to recipient $i$. In order to smooth out fluctuations in aid flows, we take averages over the years 1996 to 2000 and over the years 1991 to 2000 for the sensitivity analysis;
- $aid_i$ stands for the log of total aid, including multilateral aid, received by country $i$. The smoothing procedure is applied here as well;
- $X_{ij}$ stands for the logarithm of bilateral export from the origin country $i$ to the destination country $j$ as a ratio of GDP of the origin country $i$;
- $R_{ij}$, is proxied by a set of control variables: the bilateral distance between the sending and the receiving countries, a "former colony" dummy equal to 1 when countries $i$ and $j$ have had in the past a colonial relation and equal to zero otherwise; a dummy for common language; we also further test whether some post-colonial ties are more influential than others (e.g., within the Commonwealth, labor mobility is greater than between France and former French colonies); dummy variables that account for some stylized facts: the fact that "western offshoots" namely Canada, the United States, Australia, and New Zealand, have more immigrants than the "old" Europe; the strong link between the United States and Latin America; the cultural specificity of Japan, which has very restrictive attitudes vis-à-vis immigration; and the migration policy variable, a component of the "Commitment to Development Index" (Center for Global Development) that reflects the extent to which rich countries aid poor countries by opening their frontiers to the migrants. The index is ranked between 1 and 10, with a higher score meaning that it is easier for individuals to immigrate, find a job, and send remittances abroad (this index is for 2003, but it is stable over time);
- $u_{ij}$ stands for the error term.

### 4.3.2 Aid Equation

We employ the aid equation proposed by Berthélemy (2006), who emphasizes a different set of explanatory variables: geopolitical motives by which aid is provided preferably to countries that are like-minded, to reinforce attitudes in favor of the donor. Those motives are captured by dummy variables; merits and needs, which include the extent of poverty as measured by the GDP per capita of the recipient country, the size of the recipient country as measured by its population, and the quality of institutions; trade interests: donors giving more assistance to recipients that are major trade partners; and internal

politics, as in Lahiri and Raimondos-Møller (2000), where the lobbying activities of the migrants influence the geographical aid pattern. This networking effect is captured by $m_{ij}$, defined above. It is symmetrical to the effect of bilateral aid on bilateral migration through the attraction effect. Finally, bilateral aid is explained by the total aid provided by country $j$, and the parameter for this variable is expected to be reasonably close to 1, under the neutral assumption that the total size of aid budget does not affect significantly its structure.

The model is written as follows:

$$Aid_{i,j} = \beta_0 + \sum_k \beta_1 kcol_i jk + \beta_2 GDPpc_i + \beta_3 pop_i + \beta_4 Inst_i + \beta_5 X_{ji} + \beta_6 m_{ij} + \\ + \alpha_7 aid_j + v_{ij} \quad (4.3)$$

where:

- $col_{ijk}$ is the same colonial dummy variable as described above, to which we add an additional dummy variable equal to 1 when recipient $i$ is an Asian country and donor $j$ is Japan. The latter dummy variable takes into account the geopolitical specificity of the Japanese foreign policy in favor of Asia;
- $GDPpc_i$ is the log of GDP per capita of the recipient $i$;
- $pop_i$ is the log of its population of the recipient $i$;
- $Inst_i$ describes the quality of institutions in the recipient country $i$. Here, we depart from Berthélemy (2006) by using the World Bank's governance indicators developed by Kaufmann et al. (2005), namely: voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption;
- $X_{ji}$ refers to trade intensity, measured by bilateral exports from the donor $j$ to the recipient $i$ as a ratio of GDP of the donor $j$. In order to avoid simultaneity biases, this variable is lagged by five years;
- $aid_j$ is the log of the total aid budget of donor $j$;
- $v_{ij}$ stands for the error term.

We also introduce the possibility that unobserved variables co-determine aid and migration; in econometric terms, this implies a correlation between the error terms $u_{ij}$ and $v_{ij}$ of the two equations. Hence the parameters are estimated using the three-stage least squares method (3SLS), which allows for the correction of possible simultaneity biases and also takes into account the correlation between residuals of the two equations.

For both the migration and aid allocation equation, there is a standard technical problem, related to the censored nature of the dependent variable, which cannot be negative. Estimating such equations with all observations could potentially result in large biases. In the aid allocation literature, this problem is frequently overcome by estimating equations on samples restricted to strictly positive variables. This also permits the equations to be specified in logarithmic form, facilitating the interpretation of parameters as elasticities. We adopt this logarithmic specification form here. This method may result, however, in a second bias (known as the selection bias) that comes from the fact that the selection of a country as a recipient of assistance (or as a destination of migration) may depend on variables that also influence the amount of assistance (or the number of migrants). There is no perfect solution to this problem in the absence of variables that would explain the selection of a country but not the amount of aid (or the number of migrants) that it receives. The most frequent approach is to assume that the selection bias is of second order, and we adopt this approach here. In his paper on aid allocation, Berthélemy (2006), who used a large dataset that included a time-series dimension, found that there was no significant correlation between the selection of aid recipients and aid allocation, suggesting that there is no significant selection bias.

## 4.4 Data and stylized facts

In this analysis we take advantage of the World Bank's recent release of an update to the global database of the Development Research Centre on Migration, Globalization and Poverty. This database consists of a 226x226 matrix of origin-destination stocks by country[6] and by level of education for the year 2000. We restrict this dataset to the stocks of migrants from 187 sending countries, which are developing, emerging, and transition economies, to 22 OECD member countries (the members of the Development Assistance Committee of the OECD).

Since we are interested in the impact of aid flows on migration, ideally we would rely upon migration flow data. While the United Nations provides total migrant stocks for each country, the OECD is the only source to provide both stocks and flow data on immigrants in OECD countries. However, as emphasized by Lucas (2005), the latter are not collected in a systematic and comparable way. By contrast, the data set that has been made available recently by the World Bank is the first to offer comprehensive and reliable information on the pattern of international migration between countries. More importantly, our assumption of two channels for the impact of aid on migration is tested

[6]See Parsons et al. (2007) for a complete description of the database

by using the education level embodied in the immigrant stocks. This information is made available only by the World Bank dataset, on which we therefore rely. In order to correct a possible mismatch, we use aid flows aggregated over time. For this aggregation we have used two alternative time spans, five and ten years, with very similar results. Aid data are Official Development Assistance disbursements available in the OECD/DAC database. Sources for other explanatory variables are described in Table 4.7 in the Appendix of the chapter.

Table 4.2 shows the overall geographical structure of international "South-North" migrants. The largest destination of migrants appears to be North America, which is not surprising since the United States and Canada are by nature immigration countries, similar to both Australia and New Zealand in this respect. These four "western offshoots" have historically been major destination for migrants, given the small size of their native population. The Western Europe is the second largest destination, surpassing developed Asia and Oceania, including Japan, Australia, and New Zealand. The latter two attract many migrants, but are demographically small countries compared to Japan.

The vast majority of immigrants to North America come from the neighboring Latin America countries (most notably from Mexico), while immigrants to Western Europe are more diversified, coming from the neighboring Central and Eastern Europe, Africa, and the Middle East, and also from Asia (principally from former colonies in South Asia and Indochina, and to some extent from China).

Table 4.2: Migrants in proportion of total "South-North" migration (2000).

| | **North America** | **Developed Asia & Oceania** | **Western Europe** | **Total** |
|---|---|---|---|---|
| **Africa & Middle East** | 4.4% | 0.8% | 18.4% | 23.9% |
| **Latin America** | 31.2% | 0.9% | 4.3% | 36.4% |
| **Developed Asia & Oceania** | 14.2% | 3.6% | 6.6% | 24.2% |
| **Central & Eastern Europe** | 4.7% | 0.7% | 10.0% | 15.5% |
| **Total** | 54.6% | 6.0% | 39.4% | 100.0% |

*Source*: Own calculation based on World Bank data.

The relative weights of the regions of origin are however very different, as Asia is much more populated than either Africa or Central and Eastern Europe. Consequently, it is also useful to consider the shares of migrants over the population of origin. Table 4.3 provides this information. It indicates that the greatest source of per capita migration comes from citizens of Latin American countries (in particular, Mexican immigrants to the United States), followed by citizens from Central and Eastern European countries. Africans tend to migrate even less, although they do migrate to Western Europe, and Asians migrate much less than any other group.

Table 4.3: Migrants in proportion of population of country of origin (2000).

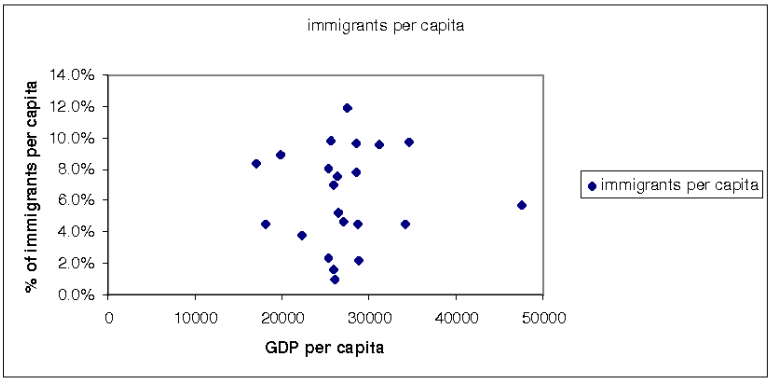
| | North America | Developed Asia & Oceania | Western Europe | Total |
|---|---|---|---|---|
| **Africa & Middle East** | 0.3% | 0.0% | 1.1% | 1.4% |
| **Latin America** | 3.0% | 0.1% | 0.4% | 3.4% |
| **Developed Asia & Oceania** | 0.2% | 0.1% | 0.1% | 0.4% |
| **Central & Eastern Europe** | 0.8% | 0.1% | 1.6% | 2.5% |

*Source*: Own calculation based on World Bank data.

Hence, it seems that distance plays a major role in migration behaviors - people tend to migrate to neighboring countries or regions. Historical ties and cultural factors, such as common languages, likely play a significant role also, as suggested by the large number of immigrants coming from former colonies. For example, in Europe, 35% of immigrants come from former colonies.

Considering the purely economic determinants of migration, a standard intuition, consistent with the seminal Harris and Todaro (1970) model, is that migration is positively influenced by the per capita income of the country of destination, relative to the per capita income of the country of origin. However, stylized facts do not confirm this intuition. The correlation between per capita GDP and the percentage of per capita immigrants (in the total population) in developed countries is insignificant (Figure 4.1). There is, however, a significant positive correlation between per capita GDP and the percentage of per capita emigrants (in the total population) in developing, emerging and transition economies at the 2% significance level.

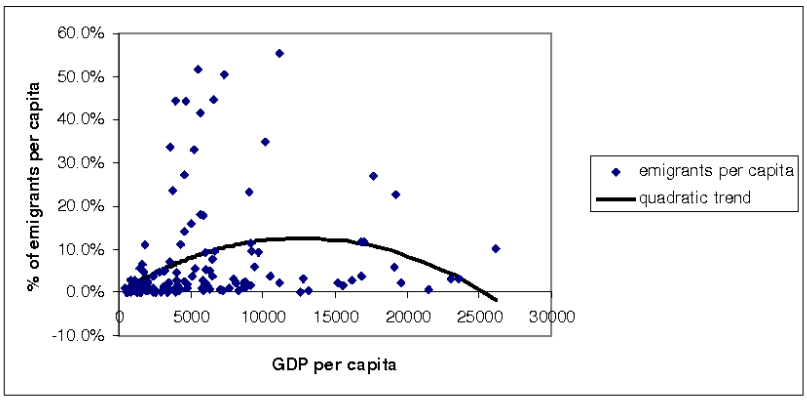
Figure 4.1: Immigration and per capita GDP in destination countries (2000).




Importantly, this positive correlation masks a more complex pattern, namely that

there is a positive correlation for relatively low levels of GDP per capita and a negative correlation for relatively higher levels of GDP per capita (Figure 4.2). This hump-shaped pattern, also observed in our dataset, can be related to the existence of migration costs, which reduce the possibility of emigration from poorer countries.

Figure 4.2: Emigration and GDP per capita in origin countries (2000).




## 4.5 Estimation Results

Table 4.4 reports the main findings of our model of joint determination of migration equation and aid allocation. Each estimate is composed of two columns: in the first column aid is averaged over five years, in the second it is averaged over ten years.

Since we are principally interested in migration behavior, the aid equation is reported at the bottom of the table here only for reference. Its properties are very similar to those of equations estimated by Berthélemy (2006), with the expected negative sign for the GDP per capita variable and positive signs for the trade intensity variable, the former colony dummy variable (with a significantly higher parameter for former Spanish colonies), and the Japan-Asia dummy variable. The sign of the population parameter is also positive but lower than 1, results that correspond to the standard ones in the literature: that is, smaller countries receive more aid than larger countries per capita[7].

With respect to the governance variables, we find that two of them are significant and lead to very similar results - voice and accountability and regulatory quality. We show

[7]To interpret this parameter correctly, we also have to take into account the parameter associated with trade intensity, given that the latter variable is also presumably positively correlated to population. However, even if we add up the two parameters, the final result is still below one, meaning that smaller countries receive more aid per capita than larger countries.

results for both variables in 4.4 (respectively, columns 1-2 and columns 3-4). Finally, we find that migrant stocks influence aid allocation. Hence our data are consistent with the existence of lobbying activities by immigrants to donor countries in favor of their countries of origin. Introducing this variable does not alter the significance of other cultural proximity variables, such as the post-colonial dummy variable.

We now turn to the migration equation estimations. Most variables, except for the GDP per capita of countries of destination, have significant parameters with the expected signs[8]. One possible explanation of the negative result obtained for the GDP per capita of the country of destination variable is that all of our 22 destination countries are rich, with relatively small differences among them. In addition, many factors beyond GDP per capita may affect disparities of purchasing power actually obtained by migrants in the different immigration countries, and most of these factors are not observable. For instance, depending on the functioning of the labor markets, immigrants, who are outsiders in the market, may face different obstacles in their search for a job. Such unobservable disparities, notable in terms of the unemployment rates of immigrants, are potentially of much greater magnitude than GDP per capita variations. Therefore, we decided to drop the GDP per capita of destination countries from our list of explanatory variables. This does not affect the rest of our results.

Foreign aid exerts a significant and relatively large positive influence on migration. As previously explained, we distinguish between two possible channels. The first one (associated with bilateral aid) is bilateral by nature. It corresponds to what we called the "attraction effect". More aid to a country intensifies the attractiveness of the donor country for citizens of the recipient country. Part of this effect comes from aid given in the higher education sector: when a donor country provides scholarships for students originating from a developing country, this increases the flow of migrants[9]. More generally, the presence of a donor in a recipient country, or of projects funded by this donor, creates opportunities for contacts between the local population and the donor country. If this conjecture is relevant, we can expect that the increase in migration due to bilateral aid will consist mainly of skilled people. This consistency check will be provided in the next section. The second channel (associated with total aid) is related to the budgetary constraints which can prevent people from migrating. The first (bilateral aid) effect dominates the second effect. The coefficient of bilateral aid varies from 0.273 to 0.316, implying that an increase in bilateral aid of ten percent will increase bilateral migration stocks by about

[8]It is not significant either in Faini and Venturini (1993, Table 4, p. 441), where country equations are estimated and the wage differential is included in the specification; it is not always significant in Karemera et al. (2000, p. 1751), who estimate a gravity migration equation very similar to our equation.

[9]Similarly, subsidies given to refugees are accounted for in bilateral aid, in which case aid also creates an attraction effect.

Table 4.4: Gravity estimation of Migration and Aid (three-stage least-squares).

| **Migration** | 1 : Aid averaged over 5 years | 2 : Aid averaged over 10 years | 3 : Aid averaged over 5 years | 4 : Aid averaged over 10 years |
|---|---|---|---|---|
| Bilateral Aid | 0.316*** | 0.276*** | 0.312*** | 0.273*** |
| | (8.95) | (8.62) | (8.86) | (8.49) |
| Total aid of recipient | 0.145*** | 0.161*** | 0.156*** | 0.169*** |
| | (3.38) | (3.54) | (3.65) | (3.71) |
| GDP per capita_i | 0.806*** | 0.770*** | 0.808*** | 0.771*** |
| | (19.39) | (19.06) | (19.45) | (19.10) |
| Population_j | 0.639*** | 0.634*** | 0.642*** | 0.636*** |
| | (12.81) | (12.70) | (12.88) | (12.74) |
| Population_i | 0.557*** | 0.555*** | 0.554*** | 0.553*** |
| | (19.44) | (19.40) | (19.38) | (19.35) |
| Distance | -0.676*** | -0.721*** | -0.682*** | -0.728*** |
| | (14.13) | (15.57) | (14.25) | (15.70) |
| Common language | 0.895*** | 0.911*** | 0.896*** | 0.912*** |
| | (7.81) | (8.14) | (7.83) | (8.15) |
| Former colony | 1.365*** | 1.335*** | 1.376*** | 1.340*** |
| | (6.67) | (6.66) | (6.73) | (6.68) |
| Former colony of Portugal | 2.669*** | 2.588*** | 2.695*** | 2.618*** |
| | (3.97) | (3.77) | (4.01) | (3.82) |
| Former colony of the UK | 0. 409 | 0.397 | 0.406 | 0.409 |
| | (1.41) | (1.37) | (1.40) | (1.41) |
| USA-Latin America | 0.695** | 0.775** | 0.704** | 0.789** |
| | (2.14) | (2.46) | (2.17) | (2.50) |
| Western offshoots | 1.426*** | 1.506*** | 1.423*** | 1.501*** |
| | (12.94) | (13.91) | (12.93) | (13.86) |
| Japan | -3.234*** | -2.983*** | -3.209*** | -2.961*** |
| | (19.48) | (18.69) | (19.35) | (18.55) |
| Trade intensity | 0.086*** | 0.087*** | 0.085*** | 0.087*** |
| | (4.00) | (4.08) | (3.97) | (4.04) |
| Migration policy | 0.109*** | 0.118*** | 0.110*** | 0.119*** |
| | (7.38) | (8.00) | (7.44) | (8.05) |
| Intercept | -14.405*** | -13.767*** | -14.423*** | -13.781*** |
| | (12.06) | (11.47) | (12.09) | (11.48) |
| **Aid** | | | | |
| GDP per capita_i | -1.424*** | -1.488*** | -1.365*** | -1.411*** |
| | (22.19) | (23.75) | (21.83) | (23.10) |
| Population_i | 0.103** | 0.118*** | 0.072** | 0.082** |
| | (2.80) | (3.29) | (1.99) | (2.31) |
| Former colony | 0.340 | 0.672*** | 0.295*** | 0.664*** |
| | (1.57) | (3.16) | (1.36) | (3.10) |
| Former colony of Spain | 1.990*** | 1.608*** | 1.975*** | 1.566*** |
| | (4.26) | (3.69) | (4.21) | (3.57) |
| Japan-Asia | 1.269*** | 1.212*** | 1.295*** | 1.253*** |
| | (4.15) | (4.07) | (4.22) | (4.19) |
| Migrations | 0.226*** | 0.236*** | 0.243*** | 0.253*** |
| | (8.00) | (8.55) | (8.57) | (9.15) |
| Total aid of donor | 1.064*** | 1.069*** | 1.049*** | 1.053*** |
| | (28.26) | (31.56) | (27.89) | (31.03) |
| Trade intensity | 0.414*** | 0.445*** | 0.397*** | 0.422*** |
| | (14.16) | (15.93) | (13.47) | (14.88) |
| Voice and accountability | 0.357*** | 0.418*** | | |
| | (6.01) | (7.27) | | |
| Regulatory quality | | | 0.271*** | 0.308*** |
| | | | (4.68) | (5.41) |
| Intercept | 5.345*** | 5.768*** | 5.154*** | 5.428*** |
| | (4.68) | (5.17) | (4.51) | (4.85) |
| Number of observations | 1766 | 1877 | 1766 | 1877 |
| R-squared | | | | |
| Migration | 0.7053 | 0.7033 | 0.7053 | 0.7032 |
| Aid | 0.5838 | 0.6305 | 0.5819 | 0.6272 |

*Note*: *** (resp. **, *) significant at the 1% level (resp. 5%, 10%). Student-t between brackets. _i stands for the country of origin of migrants and _j for their country of destination.
Source: Authors' computations.

three percent. An increase in total aid of ten percent augments migration by a mere 1.5 percent on average.

The coefficient of the migration policy component of the "Commitment to Development Index" is positively signed, meaning that a stricter immigration policy translates into less migration. We know that aid and migration policies are not always coherent. For instance, Spain is very open to immigration; in 2005 it received a flow of immigrants from developing countries equivalent to 1.45% of its population, while in the same year it gave a net flow of aid of only 0.23% of its GDP. By contrast, Denmark and the Netherlands gave more than three times as much aid, while they received only 0.30% of immigrants. Our estimates contribute to this debate by allowing us to determine the amount of bilateral aid that would have the same effect on migrations as a deterioration of the migration policy component. An average deterioration of the latter by one point would be equivalent to an average reduction of the level of aid by about 23.6%[10].

Population and distance variables have the correct signs, positive and negative, respectively. Our dummy variables also have the expected signs. Countries of origin of migrants who share a common language or a common colonial history with a developed country tend to send more migrants to this country. In a similar way, the United States attracts more people from Latin America. We find also that Portugal (and to a smaller extent the United Kingdom) attracts more migrants from its former colonies than do the other former colonial powers. Finally, we find that the "western offshoots" attract more migrants than the "old" European countries and that Japan attracts less, a stylized fact that is mentioned in Lucas (2005, p. 127).

The GDP per capita of the migrant's country of origin has a positive parameter, suggesting that the effect of total fixed costs of migration prevails over the effect of relative income comparison. However, consistent with the stylized facts described in the previous section, it is likely that this effect of GDP per capita of the country of origin could be negative after some threshold is reached. This is tested in Table 4.5 by introducing a quadratic term in the migration equation[11].

After taking into account the indirect effect of GDP per capita through aid allocation, we may conclude that the total income effect is positive below a threshold of US$7348, in

[10] A one-point change in the migration component leads to a reduction of migration by about 11% for each donor-recipient dyad, according to estimates in the first column of Table 1. In order to compensate for this, an increase of aid by 23.6% would be necessary (0.109/(0.316+0.145).

[11] In principle we should not include the square of logarithms of GDP per capita but the square of logarithms of domestic wages, which is in our framework supposed to be a linear combination of logarithms of GDP per capita and logarithms of aid. However this would introduce a non-linearity in estimation. Given that the contribution of aid to domestic wages is small compared to the contribution of GDP per capita (on average about 13%, using the parameters estimated in Table 4.4), this approximation does not change qualitatively our results.

Table 4.5: Gravity estimates of Migration and Aid with quadratic per capita GDP of country of origin (three-stage least-squares).

| **Migration** | 1 : Aid averaged over 5 years | 2 : Aid averaged over 10 years | 3 : Aid averaged over 5 years | 4 : Aid averaged over 10 years |
|---|---|---|---|---|
| Bilateral Aid | 0.338*** | 0.301*** | 0.334*** | 0.297*** |
| | (9.86) | (9.65) | (9.83) | (9.53) |
| Total aid of recipient | 0.111*** | 0.128*** | 0.121*** | 0.135*** |
| | (2.65) | (2.86) | (2.91) | (3.03) |
| GDP per capita_i | 4.050*** | 4.148*** | 4.081*** | 4.206*** |
| | (7.79) | (8.20) | (7.84) | (8.29) |
| GDP per capita_i_sq | -0.200*** | -0.208 | -0.202 | -0.212 |
| | (6.20) | (6.65) | (6.25) | (6.74) |
| Population_j | 0.608*** | 0.596*** | 0.611*** | 0.599*** |
| | (12.47) | (12.22) | (12.57) | (12.30) |
| Population_i | 0.538*** | 0.534*** | 0.535*** | 0.532*** |
| | (18.96) | (18.87) | (18.93) | (18.85) |
| Distance | -0.684*** | -0.726*** | -0.693*** | -0.736*** |
| | (14.49) | (15.91) | (14.65) | (16.10) |
| Common language | 0.939*** | 0.960*** | 0.940*** | 0.962*** |
| | (8.30) | (8.70) | (8.31) | (8.72) |
| Former colony | 1.257*** | 1.212*** | 1.269*** | 1.217*** |
| | (6.21) | (6.11) | (6.28) | (6.14) |
| Former colony of Portugal | 2.708*** | 2.642*** | 2.746*** | 2.684*** |
| | (4.10) | (3.92) | (4.16) | (3.99) |
| Former colony of the UK | 0.556* | 0.488* | 0.556* | 0.505* |
| | (1.95) | (1.71) | (1.95) | (1.78) |
| USA-Latin America | 0.511 | 0.578** | 0.519 | 0.591* |
| | (1.60) | (1.87) | (1.63) | (1.91) |
| Western offshoots | 1.427*** | 1.510*** | 1.425*** | 1.505*** |
| | (13.18) | (14.20) | (13.18) | (14.17) |
| Japan | -3.205*** | -2.959*** | -3.177*** | -2.933*** |
| | (19.60) | (18.84) | (19.47) | (18.68) |
| Trade intensity | 0.093*** | 0.093*** | 0.092*** | 0.092*** |
| | (4.35) | (4.41) | (4.30) | (4.38) |
| Migration policy | 0.106*** | 0.114*** | 0.107*** | 0.115*** |
| | (7.31) | (7.90) | (7.38) | (7.98) |
| Intercept | -26.164*** | -25.984*** | -26.277*** | -26.214*** |
| | (10.98) | (11.24) | (11.03) | (11.33) |
| **Aid** | | | | |
| GDP per capita_i | -1.447*** | -1.508*** | -1.392*** | -1.436*** |
| | (22.64) | (24.18) | (22.32) | (23.60) |
| Population_ih | 0.088** | 0.102*** | 0.056 | 0.066* |
| | (2.40) | (2.87) | (1.57) | (1.89) |
| Former colony | 0.287 | 0.621*** | 0.241 | 0.617*** |
| | (1.33) | (2.93) | (1.11) | (2.90) |
| Former colony of Spain | 1.902*** | 1.543*** | 1.885*** | 1.494*** |
| | (4.14) | (3.59) | (4.09) | (3.46) |
| Japan-Asia | 1.309*** | 1.260*** | 1.331*** | 1.293*** |
| | (4.36) | (4.30) | (4.42) | (4.39) |
| Migrations | 0.204*** | 0.215*** | 0.220*** | 0.233*** |
| | (7.10) | (7.68) | (7.67) | (8.30) |
| Total aid of donor | 1.081*** | 1.085*** | 1.066*** | 1.068*** |
| | (28.51) | (31.81) | (28.14) | (31.27) |
| Trade intensity | 0.413*** | 0.443*** | 0.398*** | 0.421*** |
| | (14.03) | (15.75) | (13.39) | (14.75) |
| Voice and accountability | 0.341*** | 0.409*** | | |
| | (5.66) | (7.01) | | |
| Regulatory quality | | | 0.238*** | 0.279*** |
| | | | (4.06) | (4.85) |
| Intercept | 5.744*** | 6.174*** | 5.570*** | 5.856*** |
| | (5.07) | (5.57) | (4.90) | (5.27) |
| Number of observations | 1766 | 1877 | 1766 | 1877 |
| R-squared | | | | |
| Migration | 0.7032 | 0.7033 | 0.7033 | 0.7034 |
| Aid | 0.5841 | 0.6306 | 0.5822 | 0.6273 |

*Note*: *** (resp. **, *) significant at the 1% level (resp. 5%, 10%). Student-t between brackets. _i stands for the country of origin of migrants and _j for their country of destination.
Source: Authors' computations.

PPP 2000 prices[12]. These figures are similar to the US$8000 in PPP 2000 prices reported in Lucas (2005, p. 133). In the same vein, Adams and Page (2003, p. 18) argue that "the share of international migrants increases until a country has a per capita GDP income (in 1995 prices) of $1630, and falls thereafter". By converting US$7348 in PPP 2000 prices into US$ in 1995 prices, we find a figure that is not far from $1630. For instance, for lower middle-income countries, the ratio of PPP to current prices is equal to 2.8 in 2000. In 1995 prices, it is about 3.1.

This result confirms the view[13] that migrants must be able to afford the costs associated with international migration and that migration does not happen for the lowest-income countries. On this point, Hatton and Williamson (2002) observe that Sub-Saharan migrants are remarkably few because the bulk of their migration is within Africa and not abroad.

## 4.6 Skilled and Unskilled Immigrants

We turn now to a disaggregation of our results by education level of migrants. The decision to migrate depends upon observable and unobservable characteristics, including education and dispersion of earnings in both the source and destination countries. As a result, (1) educated persons migrate to the countries that value educated labor the most, and (2) host countries that tax high income workers relatively more than source countries attract more unskilled migrants. The migration of skilled labor can generate a policy issue in itself: some donors attract skilled migrants from developing countries, hence destroying capacities that they have contributed to building through their financial support. This creates an additional policy coherence dilemma, which is documented for instance by the OECD (2006), notably regarding the emigration of skilled personnel in the health sector.

In addition, this disaggregation is useful to further validating our interpretation of the previously reported effect of bilateral aid on bilateral migration. Our conclusion, based on the assumption from previous sections, is that aid affects migration through two channels: by facilitating contacts and population movements of skilled foreigners (e.g., students) into the donor country and by allowing migrants to afford migration costs. While the former channel is of a bilateral nature, the latter is about the total amount of aid provided by all donors, including multilateral agencies. Our dataset allows us to test whether skilled migration is more reactive to bilateral aid and whether unskilled migration is more affected by total aid.

[12]Estimate obtained from column 1. Estimates obtained from other columns lead to very similar results.

[13]Shared with many others: see Rotte and Vogler (2000, p. 495) or Hatton and Williamson (1998, chapter 3).

Finally, we can test whether trade and migration are substitutes or complements for unskilled migrants versus skilled migrants. In Markusen (1983), one main reason for complementarity appears when both trade and migration are based upon technological superiority in the exporting sector. Countries achieving technological progress export more, have higher wages, and attract more skilled migrants.

Our estimates are obtained in a gravity framework similar to the previous one. We add to this model variables that contribute to test selection hypotheses: the replacement rates (over 60 months of unemployment, with or without social aid), taken here as a proxy for redistribution policies, and the Gini index in the destination countries[14]. Introducing the same variables in origin countries, while desirable, was impossible due to data constraints. We expect that a rather equal or redistributive society will attract relatively more migrants with below average skills; conversely, positively selected individuals with above average skills will prefer destinations with higher earning and unequal distribution of incomes. Table 4.6 reports the result for the test of whether unskilled (primary) and skilled (secondary plus tertiary) estimated parameters are equal or not.

In all specifications, the coefficient of total aid is significantly lower for skilled migrants, as reflected by the difference in the coefficients for skilled and unskilled workers set equal to -0.189 (column 1) and significant at the 1% level. The coefficient of bilateral aid is significantly higher for skilled workers. This result corroborates the prediction from our model, namely that bilateral aid promotes skilled migration, while total aid enhances unskilled migration by relaxing budgetary constraints.

Distance and language have the same impact on the migration of both types of workers. Interestingly, coming from a former colony is more significant for unskilled migrants, but coming from a former British colony is more significant for skilled workers. Moreover, skilled migrants seem to be particularly attracted to the western offshoots. The coefficient estimated for the replacement rate (with or without social aid) is lower for skilled migrants than for unskilled migrants, as expected: skilled individuals are not attracted to countries offering higher replacement rates. The coefficient estimated for the Gini variable is significantly higher for skilled migrants than for unskilled migrants: skilled migrants select destinations where their expected wage varies over a wider range. Finally, the complementarity between trade and migration is higher for skilled than for unskilled migrants, a finding which corresponds to Markusen's model, and the influence of migration policy is significant only for skilled migrants.

[14]Hatton and Williamson (2002) also use the Gini coefficient as a proxy for the return to skills.

Table 4.6: Tests of differences in parameters in equations for skilled (with tertiary and secondary education) and unskilled migrants[a].

| Migration | 5 years | 10 years | 5 years | 10 years | 5 years | 10 years | 5 years | 10 years |
|---|---|---|---|---|---|---|---|---|
| Bilateral Aid | 0.278*** | 0.280*** | 0.276*** | 0.277*** | 0.310*** | 0.280*** | 0.334*** | 0.370*** |
| | (4.62) | (5.20) | (4.49) | (5.12) | (3.76) | (4.22) | (3.15) | (3.56) |
| Total aid of recipient | -0.189*** | -0.247*** | -0.192*** | -0.245*** | -0.211** | -0.245*** | -0.216** | -0.307*** |
| | (2.61) | (3.28) | (2.64) | (3.26) | (2.57) | (3.04) | (2.25) | (2.93) |
| GDP per capita_i | -1.180 | -1.045 | -1.219 | -1.105 | -1.366 | -1.096 | -1.395 | -1.204 |
| | (1.28) | (1.19) | (7.06) | (1.26) | (1.42) | (1.24) | (1.30) | (21.93) |
| GDP per capita_i_sq | 0.085 | 0.076 | 0.087 | 0.079 | 0.097 | 0.079 | 0.100 | 0.088 |
| | (1.49) | (1.40) | (1.53) | (1.46) | (1.62) | (1.44) | (1.48) | (1.43) |
| Population_j | -0.333*** | -0.351*** | -0.426*** | -0.446*** | -0.414*** | -0.398*** | -0.531*** | -0.570*** |
| | (4.08) | (4.41) | (5.01) | (5.40) | (3.87) | (4.08) | (4.08) | (4.32) |
| Population_i | -0.028 | -0.012 | -0.030 | -0.020 | -0.040 | -0.018 | -0.040 | -0.031 |
| | (0.61) | (0.27) | (0.67) | (0.43) | (0.84) | (0.39) | (0.74) | (0.57) |
| Distance | 0.062 | 0.073 | 0.133* | 0.137* | 0.108 | 0.102 | 0.041 | 0.064 |
| | (14.94) | (0.98) | (1.67) | (1.80) | (1.28) | (1.29) | (0.42) | (0.68) |
| Common language | 0.285 | 0.307 | 0.243 | 0.245 | 0.257 | 0.300 | 0.251 | 0.250 |
| | (1.46) | (1.64) | (1.25) | (1.31) | (1.29) | (1.59) | (1.16) | (1.21) |
| Former colony | -1.068*** | -1.006*** | -0.918*** | -0.853*** | -1.059*** | -0.952*** | -1.308*** | -1.346*** |
| | (3.28) | (3.19) | (2.85) | (2.73) | (3.13) | (2.98) | (3.10) | (3.23) |
| Former colony of Portugal | -0.355 | -0.858 | 0.672 | -1.141 | -0.323 | -0.863 | -0.376 | -0.816 |
| | (0.34) | (0.81) | (0.64) | (1.09) | (0.30) | (0.82) | (0.34) | (0.74) |
| Former colony of the UK | 0.897** | 0.962** | 1.065** | 1.139** | 0.974** | 0.994** | 0.959* | 1.178** |
| | (1.96) | (2.15) | (2.34) | (2.55) | (2.07) | (2.20) | (1.84) | (2.28) |
| USA-Latin America | 0.557 | 0.613 | 0.218 | 0.299 | 0.520 | 0.602 | 0.756 | 0.767 |
| | (1.09) | (1.25) | (0.43) | (0.61) | (1.01) | (1.23) | (1.44) | (1.53) |
| Western offshoots | 0.808*** | 0.840*** | 0.361* | 0.455** | 0.583*** | 0.652*** | 0.607 | 0.713*** |
| | (3.65) | (4.82) | (1.93) | (2.54) | (3.05) | (3.61) | (2.97) | (3.56) |
| Japan | -0.200 | -0.134 | -0.989*** | -0.855*** | -0.143 | -0.029 | 0.623** | 0.673** |
| | (0.74) | (0.53) | (3.21) | (2.99) | (0.52) | (0.12) | (2.06) | (2.31) |
| Trade intensity | -0.138*** | -0.151*** | 0.114*** | -0.129*** | -0.141*** | -0.147*** | -0.119*** | -0.138*** |
| | (3.65) | (4.05) | (3.03) | (3.51) | (3.53) | (3.83) | (2.80) | (3.18) |
| Migration policy | 0.034 | 0.038 | 0.043* | 0.045** | 0.062** | 0.065*** | 0.142*** | 0.142*** |
| | (1.42) | (1.60) | (1.80) | (1.93) | (2.51) | (2.68) | (4.72) | (4.89) |
| Replacement rate | | | -0.022*** | -0.021*** | | | | |
| Without social aid | | | (6.63) | (6.58) | | | | |
| Re placement rate | | | | | -0.013** | -0.010** | | |
| With social aid | | | | | (2.37) | (2 .15) | | |
| Gini index | | | | | | | 0.105*** | 0.099*** |
| | | | | | | | (3.23) | (3.17) |
| Intercept | 10.019** | 9.698** | -12.461*** | 12.281*** | 12.669*** | 11.088** | 10.164** | 10.284** |
| | (2.39) | (2.47) | (2.94) | (3.10) | (2.60) | (2.59) | (2.02) | (2.93) |
| Number of observations | 3035 | 3218 | 3035 | 3218 | 3035 | 3218 | 2468 | 2637 |
| R-squared | 0.6468 | 0.6526 | 0.6484 | 0.6549 | 0.6285 | 0.6414 | 0.6626 | 0.6602 |

*Note*: *** (resp. **, *) significant at the 1% level (resp. 5%, 10%). Student-t between brackets. _i stands for the country of origin of migrants and _j for their country of destination.

[a] H0: test whether the coefficients for skilled (secondary + tertiary) and unskilled (primary) migrants are or are not significantly different. The figures correspond to the difference between skilled and unskilled migrants' coefficients. Basic regressions for skilled and unskilled migrants are available upon request.

Source: Authors' computations.

## 4.7 Conclusion

This paper takes advantage of a recent database of the World Bank on disaggregated migration flows by level of education. Starting from the seminal work of Faini and Venturini (1993), which introduced the link between total aid and migration (push effect), we propose a model of joint determination of aid and migration. This model is rooted in the traditional Borjas approach, to which non-linearity of the effect of income per capita is added. This pattern has been explained in the previous literature (e.g., Faini and Venturini, 1993) by a budgetary constraint hypothesis, arguing that at very low levels of income, any income increase will be accompanied by more migration instead of less migration. In addition, the model highlights a new channel for the impact of aid on migration. This channel is related to a reduction of transaction costs of migration, and we call it the attraction effect (the other way around is the networking effect, e.g., the impact of presence of aid workers on bilateral aid).

In this framework, we have shown that foreign assistance and migration are substitutes above a threshold of US$7348 in PPP 2000 prices. For a majority of sending countries there is, therefore, on average, a combination of generous aid policies and restrictive immigration policies that are not necessarily at odds with one another: increasing aid will help reduce migration pressure from all sending countries above the threshold. This policy combination is, however, inconsistent when implemented vis-à-vis poor countries. For those countries, there is a trade-off between the aid that they receive and migration policies that are imposed on them: a deterioration of the migration policy by one point in the Center for Global Development indicator is equivalent to an average reduction of the level of aid by about 23.6%.

Second, we analyze the dual causality between aid and migration. We have found a significant influence of migrants on aid allocation, as suggested by the model of Lahiri and Raimondos Møller (2000). We go further by emphasizing the other way around, in other words the causality running from aid to migration. According to our model, this causality has two components. The first is the causality running from bilateral aid to bilateral migration, and this reflects the attraction effect. We have established that this attraction effect is all the more significant for skilled migrants. The second one stands for the causality from total aid to migration. Any poverty reduction that would be induced by aid may help alleviate the budgetary constraint faced by the poor and then translate into more migration.

Regarding the differences between skilled and unskilled migration behavior, we report several interesting findings. First, the higher significance of the migration component of

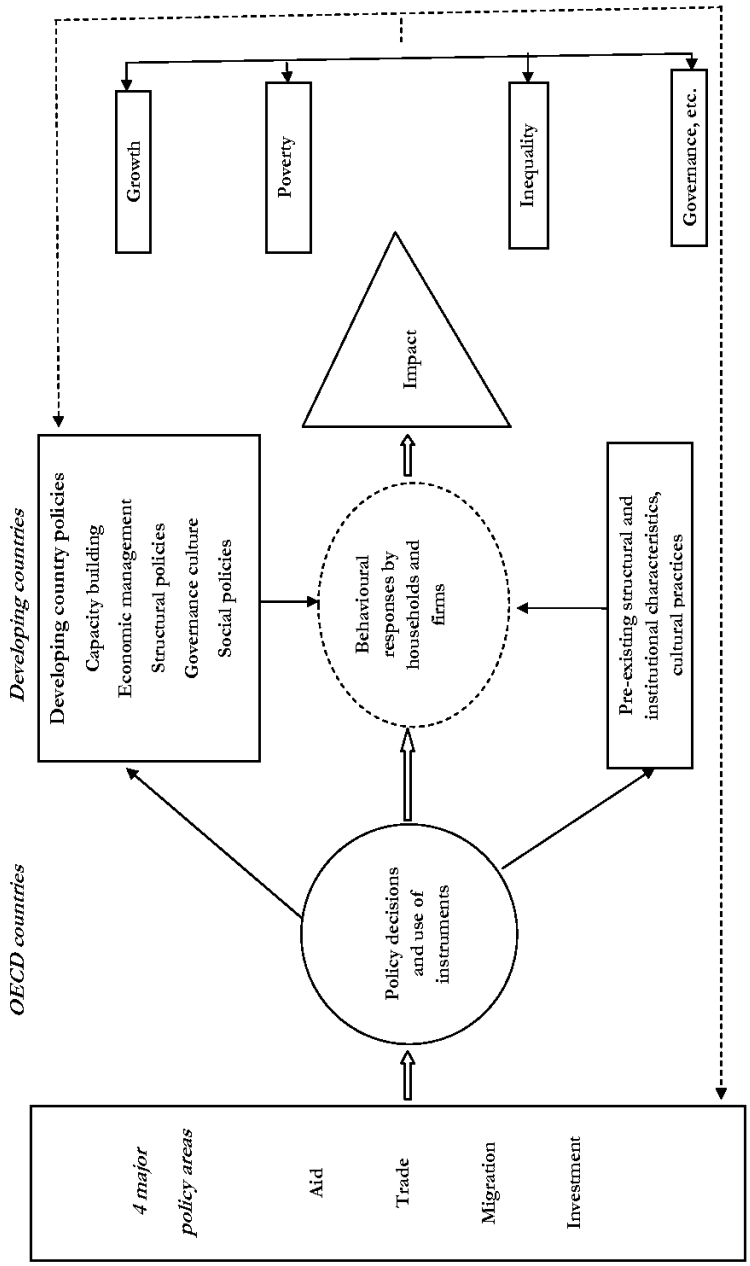
the CGD's Commitment to Development Index is strongly associated with skilled migration but not unskilled migration. This echoes the fact that recent migration policies favor skilled migrants over the unskilled. Second, our results confirm that unskilled migrants are attracted to more redistributive welfare states, while skilled migrants gravitate towards countries that offer better opportunities and greater expected earnings. Third, we show that the complementarity between trade and migration is higher for skilled than for unskilled migrants, a fact which is consistent with Markusen's model of a technological superiority in rich countries. This complementarity explains the fact that rich countries export skilled labor-intensive goods and host relatively more skilled individuals.

# Appendix of Chapter 4

Table 4.7: Data Sources and Definitions.

| Variable name | Source | Definition |
|---|---|---|
| **Migration** | Development Research Centre on Migration, World Bank | Stock of migrants. |
| **Bilateral Aid** | DAC database, OECD | Aid flows commitments averaged over a five-year period (1996-2000) and ten-year period (1991-2000), constant prices 2000 $US (million). |
| **Total Aid** | DAC database, OECD | Sum of bilateral and multilateral aid flows committed by a donor, constant prices 2000 $US (million). |
| **GDP per capita_j** | World Development Indicators, World Bank | GDP per capita of home country of migrants, constant prices PPP 2000 $US (million). |
| **GDP per capita_i** | World Development Indicators, World Bank | GDP per capita of host country of migrants, constant prices PPP 2000 $US (million). |
| **Population_j** | World Development Indicators, World Bank | Population of migrants' home country, (million inhabitants). |
| **Population_i** | World Development Indicators, World Bank | Population of migrants' host country, (million inhabitants). |
| **Distance** | CEPII database | Bilateral distance between home and host country (kilometers). |
| **Common language** | CEPII database | Dummy variable equal to 1 if the home and the host country share a common language. |
| **Former colony** | CEPII database | Dummy variable equal to 1 if the home and the host country have a colonial link. |
| **Former colony of Portugal** | Own calculations | Dummy variable equal to 1 if the home country is a former colony of Portugal. |
| **Former colony of Spain** | Own calculations | Dummy variable equal to 1 if the home country is a former colony of Spain. |
| **Former colony of UK** | Own calculations | Dummy variable equal to 1 if the home country is a former colony of United Kingdom. |
| **USA-Latin America** | Own calculations | Dummy variable equal to 1 if the home country is a Latin American country and the host country is United States of America. |
| **Japan-Asia** | Own calculations | Dummy variable equal to 1 if the recipient is an Asian country and the donor is Japan. |
| **Western offshoots** | Own calculations | Dummy variable equal to 1 if the host country is Australia, New Zealand, Canada or United States of America. |
| **Japan** | Own calculations | Dummy variable equal to 1 if the host country is Japan. |
| **Europe** | Own calculations | Dummy variable equal to 1 if the home country is a Central and Eastern European country and the host country is a Western European country. |
| **Trade intensity** | Feenstra et al. database (2005), NBER | In the migration equation: Exports from recipient to donor country, % as a ratio of the GDP of the recipient, lagged by 5 years. In the aid equation: Exports from donor to recipient country, as a ratio of the GDP of the donor, lagged by 5 years. |
| **Voice and Accountability** **Regulatory quality** | Kaufmann et al. (2005) database, World Bank | Measured in units ranging from -2.5 to 2.5, with higher values corresponding to better governance outcomes. |
| **Migration policy** | Center for Global Development | Migration component of Commitment to Development Index, 2003 data. Ranks between 1 and 10, with higher scores corresponding to more openness vis-à-vis immigration. |
| **Replacement rate** | OECD Social Indicators | Average net replacement rates over 60 months of unemployment, 2001 data. |
| **Gini index** | OECD | Calculations from OECD questionnaire on distribution of household incomes. |

Figure 4.3: Policy Coherence: Basic Framework.



# General Conclusion

In this dissertation we have presented a discussion on foreign aid effectiveness and aid allocation criteria in transition economies. We have also explored aid's relation to migration in the context of policy coherence for development.

The questions relating to aid and its effectiveness in promoting growth have gained increasing attention over the last few decades, both in academic and policy circles. Foreign aid's contribution to growth has been extensively analyzed and it has been argued that its impact depends on how macroeconomic policies are implemented in recipient countries. The belief that aid benefits to growth more when sound economic policies are set up (following Burnside and Dollar's (2000) findings), has long dominated the debate about the effectiveness of aid and has produced a broad and inconclusive literature. The role of aid as a development policy instrument, and its capacity to achieve its objectives, as well as the real motivations of donors to provide aid have often been questioned. Aid literature has also broadly explored the determinants of aid allocation, in an attempt to identify the role of donors' aid allocation policies in achieving an efficient allocation among recipients and consequently ensuring development effectiveness, as well as finding the causes of aid failure.

Relating aid effectiveness and allocation to transition economies is one objective of this dissertation. We consider that the experience of transition economies as aid recipients, even though not very long, is an opportunity to shed light on several issues related to development policy and growth. Ever since the early years of transition, packages of structural and institutional reforms were implemented in order to deal with the changes required by the transformation from centrally planned to market economy. Supported mainly by multilateral organizations (the European Commission, the EBRD, the World Bank, the IMF) and to a lesser extent by bilateral donors, these reforms have not always had the expected outcomes, at least in some of these countries.

A question that comes natural is whether the foreign financial and technical assistance worked in these countries? The answer is simply common sense: sometimes it did work,

but sometimes it did not. When it did, the financial assistance helped countries to adopt market institutions that placed them on a development path. Among those who succeed in reforming their economies we can count most of CEECs countries. For them, the integration perspective played an important role in the institutional transformation. The necessity to satisfy the requirements for the integration within the EU supported the new orientation of economic policy towards the institutional dimension. Actually, the adoption of *acquis communautaire* consisted basically in the harmonization of institutions with those of the countries already members of the EU. This preparation has been a determinant factor in the institutional transformation of CEECs, while it was the missing ingredient in the transformation process of the CIS; this explains to a certain extent their delayed transformation.

Another objective of this thesis is to place aid in its relation to other development policies, in particular migration policy, and therefore contribute to the debate about policy development coherence. This is supported by the belief that together with foreign aid, other policies with regard to trade, investment and migration might contribute to growth. Moreover, a joint analysis of the objectives of these policies likely improves the understanding about their potential shortcomings and provides means on how each policy should enhance the objectives of the others.

This dissertation contributes to the policy debate and aid literature in several ways.

With regard to aid effectiveness, it adds to the debate on aid conditionality by exploring how aid influenced growth (*Chapter 2*). It analyzes the interaction of aid with different factors and tests their significance in enhancing growth. The factors considered are (i) macroeconomic policy, (ii) structural and institutional reforms, and (iii) initial conditions. Our findings reject Burnside and Dollar's (2000) belief that aid works better in a sound policy environment. Aid appears to have contributed to growth, but not necessarily where sound macroeconomic policies were set up. The same goes for structural policy reforms and institutions. They positively impact on growth but they do not necessarily enhance the effectiveness of aid in terms of growth. Our results also indicate that the initial situation of a recipient (at the beginning of the transition period) plays an important role in the process of macroeconomic adjustment and restructuring; furthermore it comes out that in countries with bad initial conditions aid it is more effective in enhancing growth. However, it seems that the effect of initial conditions changes over time; their role is decreasing as the transition proceeds.

Concerning the determinants of aid allocation in transition economies, this dissertation adds to the literature dwelling on the criteria of aid allocation. It explores donors'

motivations for providing aid, and stresses the role of governance among the of aid allocation criteria (*Chapter 3*). We have identified the motives that underlie the aid to these economies; more precisely, we have investigated whether donors attempt to make aid effective in promoting reforms and enhancing growth by taking into account the recipients' needs, in their aid allocation strategies. Additionally we have examined whether the quality of governance matters for donors' aid allocation decisions. Our findings point out that, on average, bilateral donors do take into account the recipients' needs. Moreover, good quality of governance seems to be rewarded by donors, since they consider it as a sign of aid being put to good use. Overall, bilateral aid allocation patterns are not different from multilateral ones, which, as expected, take into consideration recipient needs, and merits (to a lesser extent). However, some donors, e.g. the United Stats, France, Japan, give weight to their self-interests when making allocation decisions.

Finally, this dissertation takes part in the debate on policy coherence for development, by studying the complementarities that might exist between migration and foreign aid (*Chapter 4*). With regard to the impact of total aid on migration, our findings reveal the existence of a so-called "push" effect; this effect indicates that total aid increases migration by financing expenditures and by that, it increases the wages in the origin country of migrants (aid recipient country). Moreover, we have identified an "attraction" effect, which indicates that bilateral aid influences migration by enhancing information about labor market conditions in the migrants destination country (i.e. the aid donor country). We have shown that aid and migration are substitutes above a threshold of about $7300 US per capita (PPP 2000 prices). For countries below this threshold, increases in income per capita (as a consequence of efficient aid policy) initially stimulate rather than dampen emigration; for these countries there is a trade-off between aid and migration policies. With respect to the degree of migrants' qualification, it appears that skilled migrants are more sensitive to the "attraction" effect than unskilled migrants.

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Having looked back at the main findings of our empirical studies, in this concluding section we wish to focus on some more fundamental questions, regarding the challenges which are still relevant with regard to aid.

Despite all the controversies surrounding aid and its effectiveness in enhancing growth, from our point of view, there is no reason to consider foreign aid as an useless instrument for development. The experience of successful transition economies has shown that aid can be considered as a prerequisite of successful development. The financial support and

technical assistance that the international organizations (the EU, the EBRD, the WB, the IMF) and some bilateral donors, provided for the implementation of structural and institutional reform programs have played an important role in the restructuring and subsequent development of transition economies.

In our opinion, aid failures should not necessarily be considered in terms of a donor's allocation behavior, nor in terms of aid volume, but rather in terms of a recipient country structural characteristics and/or its capacity to manage the funds. Knowledge of how to spend money in the most effective way, and, maybe most importantly, willingness to do so, are key issues for aid's success. Corruption, commonly considered as an outcome of transition (for example, countries like Uzbekistan, Turkmenistan, Kyrgyzstan, Azerbaijan, Taijikistan are found by Transparency International[15] to be among the most corrupt countries in the World) might disturb this managerial capacity. Low quality of the governance is a key element which adversely affects aid achieving its objectives. Concerned with the way aid is effectively used by the governments of recipient countries, donors are lead to apply conditionality. A solution to cope with this lack of confidence might be to provide more aid through NGOs (where there is the conviction that they are active and pro-poor supportive), and thus bypassing the governments.

Reforming these economies and achieving fast and self-sustained growth have not been easy tasks of transition and results have varied across economies. They were often accompanied by macroeconomic imbalances which made the reforms more difficult to implement and the subsequent outcomes less impressive. Moreover, they generated social costs and did not automatically solve acute social problems, even where economic welfare was achieved quickly, in countries like Hungary, Poland, Czech Republic. Problems of excessive income disparities, regional differences, poverty and social exclusion had to be tackled, and indeed still have to be, in particular in some CIS countries, where the situation is sometimes critical.

In our opinion, more should be done in order to properly address these social issues, such as directing more aid towards sectors like health and education (in particular in rural areas). We consider that making more resources available for public spending (where donors are confident in the quality of governance) or as previously mentioned, through NGOs, for these sectors, is crucial.

Furthermore, more support should be provided to investment, particularly for small and medium-sized enterprises (SME). For example, through reduced taxation for investment activity, investments become attractive. In this respect, the role of aid would be to support

[15] 2008 Corruption Perceptions Index.

government's revenues. Productive investment is a way to underpin economic growth and development. This is particularly important in the context of the current crisis that has affected these economies. High levels of unemployment is one the problems that should be presently payed attention. Increasing investment might, to a certain extent, overcome this issue. Furthermore, improving the institutional environment and promoting an entrepreneurial environment without excessive regulation and continual change should also allow these economies achieving more growth, by attracting more FDI.

Finally, we would like to stress the idea that aid is not the one and only instrument to achieve development objectives in terms of growth and poverty reduction. Other instruments, based on migration or trade policies are also as effective as aid, or maybe even more. We join in the debate regarding the necessity of articulating the implementation of development policies, by pointing out the importance of coordination between the objectives of development policies. By identifying the threshold above which aid and migration are substitutes ($7300 US per capita, in PPP 2000 prices), we have shown that generous aid policy, by increasing the income per capita in migrants' sending countries (i.e. aid recipients) is likely to drive rather than reduce migration for the countries below this threshold; for these countries, migration policy designed to reduce migration pressure is not likely to be effective. This underlines the importance of thinking about the potential shortcomings of these policies.

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Politiques d'aide dans les pays en transition: l'impact sur la croissance et la migration

**Résumé**

Cette thèse étudie la problématique de l'aide sous trois angles complémentaires: l'impact de l'aide sur la croissance (*chapitre 1*) , les critères de leur allocation, (*chapitre 2*) ainsi que la relation entre l'aide et la migration dans le cadre du débat sur la cohérence des politiques au services de développement. (*chapitre 3*). Cette thèse contribue également au débat sur la conditionnalité de l'aide en ce qui concerne la qualité des politiques macroéconomiques, et des reformes structurelles et institutionnelles. Ainsi, nos résultats montrent un impact positif de l'aide en termes de croissance, mais ils rejettent l'hypothèse de conditionnalité. La qualité de politiques économiques, et l'avancement des reformes n'est pas nécessairement un facteur d'efficacité de l'aide. Nos résultats montrent également que les conditions initiales joue un rôle important dans le processus d'ajustement macroéconomique, et affecte la croissance. De plus, il ressort que dans les pays avec des conditions initiales mauvaises, l'aide est plus efficace. Néanmoins, l'effet des conditions initiales diminuent avec le temps, lorsque la transition avance. Cette thèse contribue aussi au débat sur les déterminants de l'allocation de l'aide, en mettant en avant le rôle de la bonne gouvernance, considérée comme un signal de la manière efficace dont l'aide est utilisée et de l'amélioration des stratégies d'allocation d'aide de bailleurs de fonds. Cette thèse enfin, participe au débat sur la nécessité d'implémenter de façon cohérente des politiques au service du développement vis-à-vis des pays en développement, en étudiant la relation entre l'aide et la migration. Nous montrons dans ce contexte que l'aide et la migration sont des substitutes uniquement pour les pays receveurs dont le revenu par habitant dépasse un certain seuil ($7300 US PPP prix constant 2000). Pour les pays en dessous de ce seuil, une augmentation du revenu suite à un politique généreuse d'aide stimulerait plutôt la migration au lieu de la réduire. Nous soulignons ainsi l'importance d'implémenter de manière cohérente les politiques au service du développement et la nécessité de s'interroger sur les effets potentiellement contradictoires.
**Mots-clés** : Aide publique au développement, croissance économique, gouvernance, migration, économie de la transition, économétrie des données de panel, économies d'Europe Centrale et Orientale.

Aid policy in transition economies: impact on growth and migration

**Abstract**

This thesis addresses aid in transition economies with regard to its effectiveness in enhancing growth (*chapter 1*), the allocation criteria (*chapter 2*), as well as its relationship with migration in the context of the policy coherence for development (*chapter 3*). This thesis contributes to the debate on aid conditionality with respect to the quality of macroeconomic policies, and of structural policy and institutional reforms. We identify a positive impact of aid on growth, but reject the conditionality issue. Aid does not necessarily perform better in a sound policy environment. The same goes for structural policy reforms and institutions. Our results indicate that a recipient's initial conditions play an important role in the process of macroeconomic adjustment and restructuring; furthermore, it appears that in countries with bad initial conditions aid is more effective in enhancing growth. However, the effect of initial conditions seems to decrease over time. This thesis adds to the literature on the criteria of aid allocation and the issue of donors' motivations for providing aid, while stressing, amongst the aid allocation criteria, the role of governance, considered as a signal of aid being put to good use, and, consequently, of improving aid allocation patterns. Finally, this thesis takes part to the debate about the necessity of a joint implementation of development policies vis-à-vis developing countries, by studying aid in relation to migration. We show that aid and migration are substitutes above a threshold of about $7300 US per capita (PPP 2000 prices). For countries below this threshold, increases in income per capita, as a consequence of efficient aid policy, initially stimulate rather than dampen emigration; thus, for these countries, there is a trade-off between aid and migration policies. By identifying this threshold, we underline the importance of a coherent implementation of these policies, while considering their potential shortcomings.
**Discipline** : Economics
**Keywords** : Official Development Assistance, Economic Growth, Transition Economics, Governance, Migration, Panel Data Econometrics, Central and Eastern European economies.

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