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INTERNATIONAL POLITICAL ECONOMY : ON THE TRAJECTORIES OF POLICY-MAKERS AND REFORMS POLICIES

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Remarques préliminaires

Le chapitre 1 est adapté de l'article "Does Being an IMF Executive Board Member (Re-)Pay ? An Examination of IMF Loans and Repayments". Cet article est en révision pour le journal "The World Economy". Je suis le seul auteur de ce chapitre.
Le chapitre 2 est un working paper et je suis le seul auteur de ce papier.
Le chapitre 3 est adapté de l'article "Misplaced Childhood : When Depression Babies Grow Up As Central Bankers" soumis au "Canadian Journal of Economics" et co-écrit avec Etienne Farvaque et Piotr Stanek.
Le chapitre 4 est adapté de l'article "Windows of Opportunity ? Endogenous Beliefs and the Political Economy of Reforms in OECD Countries" soumis à "Polity and Politics" et co-écrit avec Etienne Farvaque et Mamadou Boukari.

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Contents

List of Tables

List of Figures

Introduction Générale

Mankiw et Taylor (2013) dans leur ouvrage « Principes de l'économie » ont identifié la prise de décision comme étant un principe très important des sciences économiques. Ils attestent que les individus sont toujours confrontés à des arbitrages en matière de décisions et doivent en permanence faire le choix entre des décisions efficaces et des décisions équitables.
Si nous considérons le cas des gouvernements par exemple, les hommes politiques doivent toujours trancher entre des décisions efficaces visant à la mise en politiques rigoureuses de sorte à accroitre les recettes fiscales et des décisions équitables pour une distribution équitable des richesses produites entre les différents membres d'une société. La prise de décision est donc l'essence même du processus de management qui s'avère être vital pour un meilleur fonctionnement de notre société. C'est la raison pour laquelle les sciences économiques s'intéressent particulièrement à la notion de prise de décision dans le but de permettre aux individus de prendre la meilleure décision possible en fonction des circonstances et de l'environnement. Cette importance stratégique de la décision nous amène à réfléchir et à nous poser les questions suivantes :

- Comment et par qui sont prises les meilleures décisions ?
- Quels éléments intrinsèques et/ou exogènes aux individus influencent leur décisions ?
- Quels facteurs pourraient entraver ou freiner les individus dans leur prise de décisions ?

Même si les individus sont confrontés à des arbitrages dans leur prise de décision, rien ne nous renseigne sur les décisions qu'il prendront ou devraient prendre. Dans ce travail de recherche, nous souhaitons apporter des éléments de réponse à ces questions au travers d'analyses économiques en combinant des outils méthodologiques à la fois théoriques et empiriques. Cependant dans cette thèse, nous ne nous intéressons pas aux conséquences de la prise de décision, mais nous nous intéressons en particulier à ce qui se passe en amont de cette prise de décision. En d'autres termes, nous analysons les facteurs pouvant influencer les décisions des individus.
Dans la mesure où cette étude concerne les individus et l'analyse de leurs décisions, il est important de poser le cadre d'analyse de cette étude en se questionnant sur les individus à analyser et l'environnement dans lequel leurs décisions sont prises. Nous nous référons pour cela à l'article de Diermeier et al. (2005). Ces auteurs analysent les trajectoires des décideurs politiques (le cas des membres du Congrès US) et l'influence de ces trajectoires sur leurs futures décisions que ce soit dans la politique ou en dehors de la politique.
Dans la littérature académique, l'analyse de la carrière politique des politiciens nationaux n'est pas un concept nouveau (Eggers and Hainmueller, 2009 ; Arnold et al., 2014, Stadelmann, 2017, etc). Comme Diermeier et al. (2005), ces auteurs ont montré que les choix de carrières des politiciens ont tendance à avoir un impact significatif sur leurs décisions futures.
L'ère du temps étant à la mondialisation et aux échanges à l'échelle planétaire, notre but est d'apporter une touche d'innovation dans ce travail de thèse en nous focalisant sur les décisions de portée internationale. Ce volet international portera particulièrement sur les bureaucrates qui siègent au sein des institutions internationales, dont le but est de servir les intérêts de

leur pays d'origine. S'intéresser particulièrement aux bureaucrates internationaux apporte une touche d'originalité à ce projet dans la mesure où très peu de chercheurs dans le domaine de l'économie politique se sont intéressés à ces bureaucrates internationaux.
Dans le cas des organisations internationales, les bureaucrates internationaux dont il est question dans cette thèse sont en réalité, les représentants des pays qui siègent au sein des organes de décisions de ces organismes internationaux et qui ont tendance à défendre les intérêts économiques, politiques et diplomatiques des pays qu'ils représentent (Thacker, 1999). Nous supposons que dans certains cas, les politiciens qui militent activement dans leur pays d'origine peuvent transiter par une grande institution internationale, dans le but d'être vu par leurs concitoyens défendant les intérêts de leur pays. Cette transition leur permettra d'augmenter leur popularité auprès de leurs concitoyens et aura sans doute un impact significatif sur leur électorat à leur retour dans la sphère politique national (Vaubel et al., 2012). Comme Arnold et al. (2014) le démontre pour les politiciens nationaux, nous supposons donc que les choix de carrière des bureaucrates internationaux ne sont pas toujours un pur hasard. Certains bureaucrates peuvent être amenés à faire des choix de carrière, mais aussi à poser des actions qui ont pour but de favoriser l'amélioration de leur carrière future. C'est la raison pour laquelle nous portons notre attention sur les bureaucrates des plus grandes institutions internationales dans la mesure où ces institutions internationales peuvent leur servir de vitrine auprès de leurs concitoyens. En d'autre termes, nous nous intéressons aux organismes internationaux comme le Fonds Monétaires International (FMI) ou l'Organisation de Coopération et de développement Économique (OCDE) ou encore aux Banques Centrales. Nous nous focalisons plus précisément sur bureaucrates internationaux qui travaillent au sein des instances de décisions de ces organisations comme le Conseil d'Administration (CA) par exemple. Notre objectif est donc d'étudier leurs parcours personnels, éducationnels et professionnels dans le but d'évaluer l'impact de ces trajectoires dans leurs prises de décision au sein des instances de décisions de ces organisations internationales, et dans les anticipations de mise en œuvre de politiques économiques.

Questions de recherche, conclusions et contributions

Dans cette section, nous présentons les principales questions de recherche qui sont étudiées dans cette thèse ainsi que les conclusions tirées des différents chapitres. Nous identifions également les contributions que chaque chapitre apporte à la littérature existante.

Le premier chapitre s'intéresse à l'effet d'une caractéristique des membres du CA du FMI qui est la nationalité sur deux prises de décision principale de l'organisation. En d'autres termes, nous voulons déterminer si la nationalité des membres du CA a une influence significative sur l'octroi de prêts du FMI et les remboursements des pays emprunteurs.
Les questions de recherche principales que nous nous posons sont :

1. Avoir un représentant au CA du FMI a t-il un impact sur la probabilité d'obtenir un prêt ou sur le montant du prêt accordé par le FMI au pays d'origine du représentant ?

2. Représenter son pays au sein du CA a-t-il un impact sur la probabilité de remboursement ou sur le montant de remboursement du pays emprunteur ?

L'un des résultats principaux de ce chapitre confirme l'importance des déterminants macroéconomiques et politiques traditionnels qui affectent les prêts et les remboursements comme le PIB, le niveau de réserves internationales des pays ou encore le dégré d'affinité entre avec les pays du G5 et les pays qui sollicitent les prêts. De plus, nous montrons que les montants de remboursements et de prêts sont significativement influencés par la présence d'un pays au sein du CA du FMI. La présence au CA d'un pays augmente d'environ 0,5 point le montant du prêt du pays d'origine et d'environ 0,2 point le montant de remboursement du pays emprunteur.
Deux contributions majeures ont été apportées dans ce chapitre à la littérature sur l'économie politique du FMI. La première est d'identifier la nationalité des membres du CA comme un nouveau déterminant à l'octroi de prêts. La seconde contribution est d'évaluer dans quelle mesure la nationalité impacte également le remboursement des pays emprunteurs. Il est important de préciser que la revue de littérature dans ce domaine n'a jamais fait état de cette seconde contribution.
Ce chapitre montre clairement que les membres du conseil d'administration du FMI ont un avantage considérable sur les autres pays à travers des réseaux informels qu'ils développent par leur simple présence aux réunions du conseil d'administration du FMI à Washington DC. Sachant que les pays qui siègent au conseil d'administration du FMI sont censés défendre les intérêts d'un groupe de pays qu'il représente, leur fournir plus de prêts n'est un avantage juste pour les autres pays du groupe.
Notre recommandation en terme de politique économique dans ce chapitre est que le fonctionnement et l'organisation du conseil d'administration du FMI pourrait être modifié. Un exemple pourrait être de limiter le nombre de mandats des pays au sein du CA comme la Banque Centrale Européenne le fait déjà, ou encore, mettre en place un système de vote rotatif qui pourrait être plus efficace que le système actuel.
Ce chapitre s'inscrit entièrement dans le cadre de cette thèse en montrant que la nationalité a un impact significatif sur les principales prises de décision au sein de l'une des instances de décisions principales du FMI.

Le second chapitre est une continuité du premier chapitre et s'intéresse dans un premier temps aux trajectoires de carrière des membres du Conseil CA du FMI avant et après leur poste au sein de cette institution avant de s'intéresser à l'influence de ces trajectoires de carrière sur les décisions de prêts et de remboursement du FMI. Les questions principales soulevées dans

ce chapitre sont :

1. Quelle est le parcours général des membres du CA du FMI avant et après leur poste au sein de cette organisation ?

2. Leur choix de carrière peuvent-il les permettre d'obtenir des montants de prêts élevés ou de meilleures modalités de remboursement de la part du FMI ?

A travers une base de données originale, construite à partir des curriculum vitae de ces membres entre 2009 et 2014, les conclusions de ce chapitre soulignent que les bureaucrates internationaux qui ont travaillé dans l'administration publique avant leur poste au sein du conseil d'administration ont tendance continuer leur carrière dans l'administration publique après leur mandat au FMI. Par contre, ceux qui ont travaillé dans les entreprises privées, ont tendance à se diriger vers l'enseignement et la recherche. Enfin, les membres du CA qui ont travaillé dans d'autres institutions internationales ou dans l'éducation et la recherche ont tendance à s'orienter également vers l'administration publique après leur position au FMI. Ce chapitre a également permis de dresser un profil de référence des membres du CA. En effet, ces hauts fonctionnaires sont en général des docteurs en économie, ont tendance à travailler dans l'administration publique pour une durée moyenne de 11 ans avant de rejoindre le FMI et tendent à retourner travailler dans le secteur public après leur mandat. Le conseil d'administration du FMI est donc essentiellement composé de hauts fonctionnaires de l'administration publique désignés par leur pays d'origine. Concernant l'impact de leur choix de carrière sur les décisions en matière de prêts et de remboursements, nous montrons que les membres du CA qui représentent les pays du continent africain ont tendance à recevoir des montants de prêts plus élevés comparé aux autres membres du CA. Logiquement donc, ces pays ont tendance à rembourser des montants de prêts plus élevés. De plus, nous montrons que les champs d'activité dans lesquels ont travaillé les représentants des pays au CA du FMI ont tendance a également influer sur les montants de prêts et de remboursements. Plus en détail, nous montrons à travers nos analyses économétriques que les Directeurs présents au CA du FMI, qui ont eu une carrière politique dans le passé avant leur poste au sein du conseil d'administration ont tendance à réduire le montant des prêts octroyés à leur pays d'origine par le FMI. Aussi, l'expérience au sein d'une organisation internationale permet aux membres du CA d'augmenter le montant de prêt octroyé à leur pays d'origine.
La contribution de ce chapitre est triple. La première est la construction d'une base de données originale à travers les curriculum vitae de ces bureaucrates internationaux entre 1999 et 2014 qui nous renseigne sur leurs trajectoires et qui n'a pas encore été réalisée au meilleur de nos connaissances dans cette littérature. La seconde est d'identifier une carrière de référence de ces bureaucrates dans l'optique de lever le voile sur l'idée reçue que les politiciens se servent des organisations internationales dans le but de relancer leur carrière politique. La troisième est de montrer que les carrières professionnelles passées de ces bureaucrates peuvent indirectement influer le montant des prêts et des remboursements octroyés aux pays emprunteurs.

Ce chapitre s'inscrit entièrement dans le cadre de cette thèse à travers une analyse descriptive de la trajectoire de carrière des bureaucrates internationaux qui siègent au conseil d'administration du FMI ainsi qu'au travers d'une analyse empirique de l'impact de ces trajectoires sur deux décisions majeures du FMI à savoir celui des prêts et des remboursements.

Le troisième chapitre de cette thèse porte sur une autre trajectoire que l'on qualifierait de « trajectoire de vie » des gouverneurs des banques centrales des pays de l'OCDE sur leur décision au sein de ces structures. L'hypothèse que nous formulons est de savoir si les années de récession connues par les Présidents des Banques Centrales des pays occidentaux sont en mesure d'influencer leur gestion de ces institutions. Plus exactement, nous nous posons la question de savoir si :

- Le nombre d'année de récession connu par les Présidents de Banques Centrales a-t-il un impact sur leur décision d'augmenter ou de baisser les taux d'intérêt de ces banques centrales ?

Sur un échantillon de 9 banques centrales de 1999 à 2015, les principaux résultats montrent que les déterminants standards (le taux d'inflation, les taux d'inflation ciblés des banques centrales, le taux de croissance) influencent les changements des taux d'intérêt. Plus intéressant, le nombre de récessions qu'a connu un banquier central au cours de ses 25 premières années de vie a un impact considérable sur sa probabilité à baisser les taux d'intérêt et donc à être averse au risque. Ces résultats restent robustes en testant d'autres hypothèses alternatives qui pourraient expliquer l'aversion aux risque de ces banquiers centraux.
Notre contribution dans ce chapitre est triple. Premièrement, un cadre théorique est développé à partir d'un modèle standard de politique monétaire (Gerlach, 2003 ; Surico, 2007) dans lequel nous incluons l'aversion d'un décideur à augmenter les taux d'intérêt. Notre seconde contribution est de tester empiriquement l'impact des antécédents personnels des Présidents sur les choix de politique monétaire. La dernière contribution de ce chapitre est d'utiliser une méthodologie d'estimation à choix discret permettant de mieux révéler l'effet des récessions du PIB dans les premières années de vie des banquiers centraux.
L'implication de ce chapitre en terme de politique économique est de conseiller aux gouvernements qu'avant de faire le choix d'un banquier centrale, il est important de tenir compte de ses compétences et de son parcours professionnel, mais il est également important de prendre en considération l'environnement économique du moment (période de crise ou pas) et de s'intéresser aussi à leur parcours de vie comme par exemple le nombre de récessions qu'ils ont connu au cours de leur 25 premières années de vie.
Ce chapitre atteste donc que le choix d'un banquier central ne doit pas seulement dépendre de ses compétences académiques et professionnelles, mais doit aussi dépendre de ses expériences au cours de ses premières années de vie.

Le quatrième chapitre clôt cette thèse en se questionnant sur :

- Quand est-ce que les gouvernement des pays de l'OCDE sont plus susceptibles de mettre en place des réformes de libéralisation de leur marché de biens et services ?

Ce chapitre propose un modèle d'économie politique des réformes en montrant l'importance que les syndicats des travailleurs peuvent avoir sur la mise en œuvre de reformes de la part des gouvernement de l'OCDE. Nous montrons que les transferts de richesse de la part du gouvernement vers la population au travers des dépenses sociales permettent de faciliter la mise en œuvre des réformes de la part du gouvernement. Plus précisément, nous montrons que les syndicats des travailleurs ont tendance à ralentir la mise en œuvre des réformes (en particulier sur le marché des biens et services), mais cette opposition tend à diminuer avec une augmentation du niveau des dépenses sociales. Nous montrons également contrairement à la littérature existente que sur la période d'étude considérée dans ce chapitre (1990-2013), il n'existe aucune fracture idéologique concernant la probabilité de mettre en œuvre des réformes de libéralisation du marché des biens et services.
Nous apportons 3 principales contributions dans ce chapitre. Dans un premier temps, nous développons un cadre théorique à partir du modèle de croyance endogène développé par Minozzi (2015) que nous adaptons à notre projet dans l'optique d'analyser les incitations d'un gouvernement de l'OCDE à initier des reformes en tenant compte de la confrontation avec les syndicats de travailleurs qui on tendance à être favorable à un statu quo. Dans un deuxième temps, nous testons empiriquement la validité de nos conclusions théoriques. Dans un dernier temps, notre échantillon couvre la période 1990-2013 permettant de vérifier si la grande récession de 2008 pourrait réduire les incitations des pays à réformer.
Ce chapitre tend à favoriser une réévaluation de la littérature sur les réformes et suggère en terme de politique économique de moins mettre l'accent sur les divisions idéologiques, mais plus sur les facteurs structurels à savoir les déterminants des processus de réforme (et notamment le poids des intérêts acquis).

Cette thèse en politique économique internationale analyse les facteurs influençant la prise de décision en se focalisant sur les trajectoires des décideurs. Nous montrons qu'à l'instar des décideurs nationaux qui ont tendance à influencer directement la vie économique des pays, les décideurs internationaux de par leurs histoires, leurs identités et leurs expériences de vie, peuvent également influencer la sphère économique des pays. Nous levons également le voile sur le jeu politique et économique qui survient entre les gouvernements des pays de l'OCDE et les défenseurs du statu quo représentés par les syndicats des travailleurs, lorsque ces gouvernement souhaitent mettre en place des réformes économiques. Nul doute que la mondialisation et la globalisation sont des facteurs clés de la bonne santé de l'économie mondiale et sont également de plus en plus au cœur des débats internationaux. S'intéresser donc aux décideurs internationaux, particulièrement aux motivations de leurs décisions, comme le cas de cette thèse, est un

excellent moyen pour les gouvernements nationaux de faire des anticipations en terme de politique économique nationale de sorte à mieux s'insérer dans ce dynamisme économique mondial.

Chapter 1

Does Being an IMF Executive Board Member (Re-)Pay? An Examination of IMF Loans and Repayments

This chapter analyses the political economy of IMF loans and repayments using data from 99 countries over the period 1984-2014. We bring two contributions to the literature, analyzing : (i) the impact of the presence of a country in the IMF Executive Board and (ii) the repayment behavior (and not only loan demands). We show evidence that loans from, and repayments to, the IMF are influenced by the presence of countries in the IMF Executive Board. In particular, the results indicate that a position on the Board increases the loan amount by approximately 0.5 point and the repayment amount by approximately 0.2 point.

1.1 Introduction

Developing countries and a number of emerging and developed countries which have economic and financial problems tend to have recourse to international institutions such as the International Monetary Fund (IMF) to resolve them. In the case of the IMF, developing countries are those which use the most its lending. As a proof, over the period 1984-2014, more than 90% of loans granted by the IMF went to developing countries.[1] Thus, to be in the heart of discussions on important issues, developing countries valorize the fact to have a representative on the day-to-day IMF decision making structure, the Board of Executive Directors. For example, when the Senegalese Daouda Sembène became, on November 1, 2016, the new executive director representing 23 sub-Saharan countries, the Senegalese people welcomed to have a representative in the IMF Executive Board more than 50 years after the last one. A prestigious local newspaper titled: "Nice shot and pride for the Senegal, our compatriot Daouda Sembène elected as IMF Executive Director".[2] This anecdotal insight raises the possibility that there may be political bias in the relationship between the IMF and its member countries. This context leads to ask a number of questions: is there an interest for developing countries to have a representative on the IMF Board as Director (or Alternate Director)? Is a representative on the IMF Board a sign of prestige? Or this hides a more particular interest concerning the Fund's activities?

This chapter focuses on the IMF which is one of the most powerful international institutions in history (Stone, 2002; Eichengreen and Woods, 2015). Its main goals are laid out in the Articles I of the Articles of Agreement of the IMF.[3] Since its creation in 1945, the main goals and the actions of the IMF have greatly evolved. Time and again, the institution has been the last resort lender to several of its member countries. Specially since the last financial crisis, Reinhart and Trebesch (2016) affirm that such an evolution is the only way to preserve the unique status and seniority of the IMF. Between 1984 and 2014, the IMF disbursed approximately 200 billion sdrs (Special Drawing Rights)[4] to 99 IMF member countries.[5]

It is well known that political connections play a role between international organizations and their member countries. For example, Novosad and Werker (2014) show that nationality plays an important role in decision-making in international or supranational organizations, such as the United Nations. This may also be the case for the IMF, and could explain why, a number

[1] Author's calculations from the database at their disposal.

[2] From the newspaper "Jotay", the November 7, 2016 edition: http://jotay.net/joli-coup-et-fierte-du-senegal-daouda-sembene-elu-administrateur-du-fmi/. Visited July 12, 2017.

[3] The purpose of the IMF stipulates that: (i) To promote international monetary cooperation [...], (ii) To facilitate the expansion and balanced growth of international trade [...], (iii) To promote exchange stability [...], (iv) To assist in the establishment of a multilateral system of payments in respect of current transactions between members [...], (v) To give confidence to members by making the general resources of the Fund temporarily available to them under adequate safeguards [...], (vi) [...] lessen the degree of disequilibrium in the international balances of payments of members."

[4] The sdr is the IMF's unit of account. Its value is calculated depending of a basket of major international currencies. Currently (as of July 27, 2017), 1 sdr equals $1.406040 (see: http://www.imf.org/external/np/fin/data/rms_sdrv.aspx).

[5] Authors' calculations from the database used for this chapter.

of borrowers have taken out loans that have largely exceeded their IMF quota, while others were under their recipients' quota share (Copelovitch, 2010). Additionally, we note that some member countries do not reimburse their loans at the given deadline but continue to negotiate loans from the IMF while, according to the Bretton Wood's charter, the Fund does not lend to member countries that do not repay their loans. The case of Greece illustrates this observation. On the 30th June 2015, Gerry Rice, the Director of Communications of the IMF confirmed that a loan of approximately €1.5 billion owed by Greece to IMF was not received by the Fund. The Executive Board was informed that Greece was in arrears and could only receive IMF financing once the arrears were cleared. Nevertheless, Greece is currently negotiating with its creditors, who include the IMF, the adoption of a third aid plan of over €80 billion for the next three years.[6]

In view of this experience, we formulate the hypothesis that having a representative on the IMF Executive Board can favour the representative's origin country, by positively influencing the loan amounts, repayment terms of the granted loans, as well as facilitating the access to various IMF initiatives. This would explain why a number of developing and developed countries invest a lot to keep a representative on the IMF's Executive Board, although they are not permanent members.[7]

The IMF's Executive Board is an ideal organ to test this assumption because the IMF decision to lend to a country depends on the Executive Board. Therefore, integrating the nationalities of the IMF's Executive Board members in a empirical analysis on the determinants of the IMF's loans and repayments would allow the clarification of the extent to which a representative's presence on the IMF Executive Board can affect loan and reimbursement decisions.

Our results show the importance of considering both macroeconomic and political factors on the IMF's decision to lend and on the country decisions to repay. The study confirms that the IMF logically focuses on a number of specific macroeconomic variables (namely level of the GDP, the GDP growth rate and the debt of members countries) to deliver loans. Additionally, we demonstrate that the repayment of loans granted by the countries depends of this same macroeconomic criteria. We also show that the IMF is a tool used by the G5, through their position as the IMF's largest shareholders, to achieve their personal interests. Furthermore and importantly, we provide evidence that IMF loan and repayment amounts are strongly influenced by the presence of countries on the IMF Executive Board, confirming our hypothesis.

This chapter is organised as follows: firstly, we detail the IMF operations and summarize the related empirical literature on the determinants of IMF lending. The following section is devoted to the data and the methodology used. In the fourth section, we present the empirical results and discuss the implications of these results, while the last section concludes.

[6]From the New York Time's edition of the 17th June 2016: http://www.nytimes.com/interactive/2016/business/international/greec debt-crisis-euro.html?_r=0. Visited the 6th September 2016.

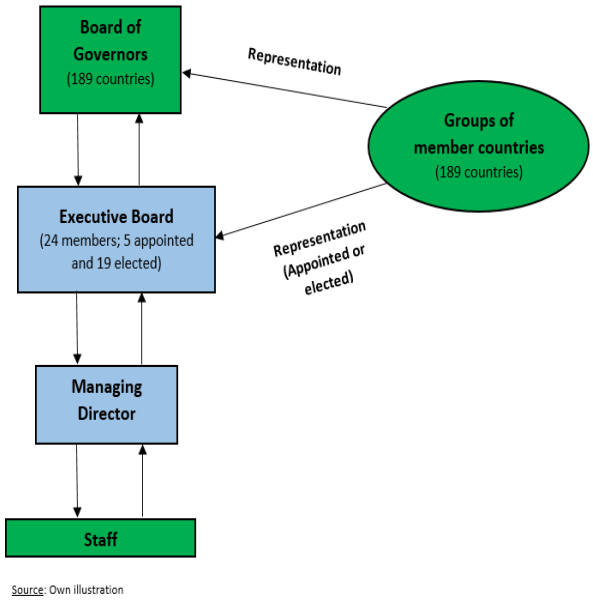
[7]For example, countries as Brazil, Egypt, Indonesia, Iran and Lebanon have succeeded in being inside the Board for more than 5 mandates.

1.2 IMF operations

1.2.1 Election of Executive Board at the IMF and Decision-making

Figure 1 illustrates the IMF governance structure and reveals the central role of the Executive Board (EB) in interaction with the Board of Governors, the Managing Director and the staff. The Board of Governors is the highest authority and meets once a year, and each member country appoints a Governor and an Alternate Governor.[8] The Board of Governors delegates all powers to the Executive Board for a number of decisions which are not exclusively reserved for the governors.

Figure 1.1: General view of IMF governance



The 24 members of the IMF Executive Board takes care of the daily business of the IMF on behalf of all its 189 member countries. The Board of Executive Directors decides on loan approval and grant proposals through simple majority voting. A number of economies (namely, the United States, Japan, Germany, France, the United Kingdom, China, Saudi Arabia and Russia) have their own seat at the table. These countries appoint representatives, generally a senior public servant, to represent them on the Board. These countries have the right to choose their own representatives because they hold the largest quotas within the institution. The 16 remaining Executive Board and Alternate Executive Board members are elected by the countries belonging to the group of country they represent. These countries are grouped into "constituencies" representing on average 11 countries. The geographical consideration is generally important in the formation of constituencies, but a number of constituencies have, traditionally, included both developed and developing countries and the choice of the Executive Director

[8] In this section, all information is drawn from the Articles of Agreement of the IMF, (Houtven, 2002), Kaja and Werker (2010) and the IMF current website (www.imf.org)

inside the constituencies is a matter that is left to member countries. In a number of constituencies, the seat may rotate among members, or a single developed country or regional domination may retain the directorship. For example, Canada and Ireland share the seat on the group of Caribbean countries, and South Korea, Australia and New Zealand share the directorship with a number of Oceanic and Asian countries. Elections of elective Executive Directors are conducted at intervals of 2 years at the IMF annual meetings. Each Executive Director appoints an alternate with full power to act when he/she is not present. A mandate of two years for the elected Executive Directors is probably too short to master the complexities of IMF policies and decision making, but in a number of constituencies, Executives Directors are re-elected to serve for more than two years.[9] Executive Directors have to represent the interests of the whole countries in each group. This point is precisely what motivates this empirical study: do Executive Directors use their temporary directorship for their countries' own purpose?

When an IMF's member country has difficulties regarding its balance of payments or any other economic difficulties, it has the right to request a loan from the IMF. Upon request by a member country, IMF resources are usually made available under a lending "arrangement", which may, depending on the lending instrument used, stipulate specific economic policies and measures that a country has agreed to implement to solve its economic problem.

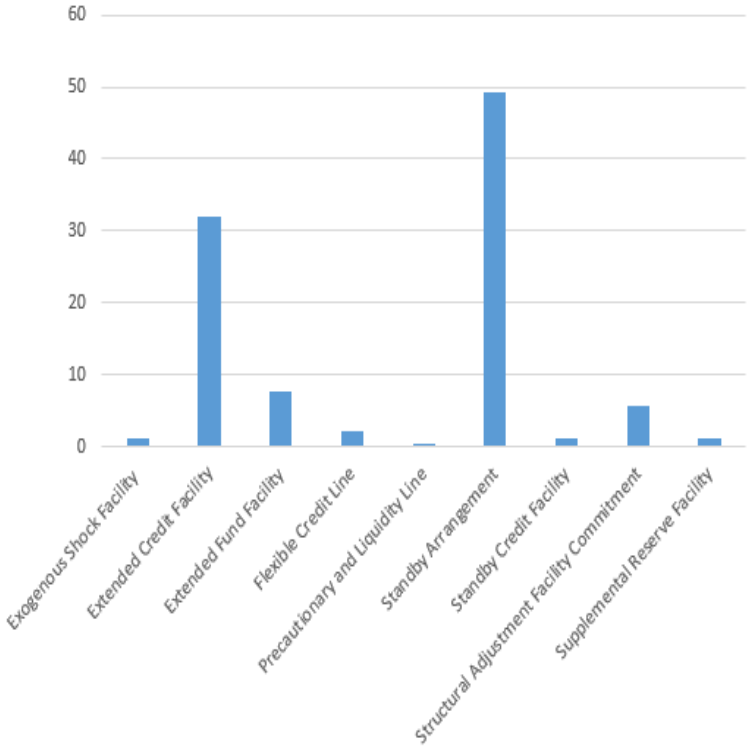
In order to benefit from this "arrangement", the concerned member country shall present a "Letter of Intent", in most cases presented to the Fund's EB. When the Executive Board meets, they decide at the simple majority, for loan approval exposed by the staff. Once an arrangement is approved, IMF resources are usually released in phased instalments. However, a number of "arrangements" enable developed countries to benefit immediately from a one time access to IMF resources without being forced to implement specific policies and measures.

Over the years, the IMF has created various loan instruments adapted to the specific conditions of its member countries. Concessional and non-concessional lending are among these loan instruments. Up to the end of 2016, the concessional loans were assorted with a zero interest rate and destined to extremely poor countries, while the non-concessional loans are are extended to middle-income countries that typically borrow on global financial markets. The non-concessional loans are subject to the IMF's market-related interest rate, known as the "rate of charge".[10] The non-concessional loans are essentially the Stand-By Arrangements (SBA), the Flexible Credit Line (FCL), the Precautionary and Liquidity Line (PLL) and the Extended Fund Facility (EFF: useful for the medium and the long term). As for concessional loans, there are the Extent Credit Facility (ECF), the Standby Credit Facility (SCF) and the Rapid Credit Facility (RCF: generally granted to the Low-Income Countries) (IMF, 2014). Figure 2 displays the different IMF loans allocated over the period 1983-2015. The SBA and EFF constitute the vast majority of the Fund's lending activities during the period under review.

[9] On average, the elected Executive Directors stay for approximately 9 years on the Board.

[10] The interest rate is not a variable that the politics in the IMF can influence, in so far as the interest rate is fixed according to each type of loan and the EB has no power on the variation of these interest rates.

Figure 1.2: Percentage of IMF loans allocated over the period 1983-2015



1.2.2 Literature Review: Determinants of IMF Lending

The literature on the IMF, more precisely on IMF lending has evolved over time. First, authors have highlighted a view of the IMF as a technocratic institution whose decisions are determined solely by macroeconomic criteria. Knight and Santaella (1997) study the factors leading to the approval of an IMF arrangement and confirm that countries with low holdings of international reserves, high external indebtedness and a deficit in the overall balance of payments will be more likely to obtain an IMF arrangement. McDowell (2013) confirms this result over the period 1984-1987. Joyce (2004) emphasizes that countries which participate in IMF programs usually show signs of external imbalance, for instance large current account deficits, low reserve levels, high debt burdens and an overvalued exchange rate. The first part of the literature demonstrates that countries with these imbalances have often utilised IMF assistance.

Then, other scholars have started to argue that the IMF is an instrument used by the United States (U.S.) and other powerful states to influence the other members of the organisation. Thacker (1999) studies the political factors influencing IMF lending. By developing and statistically testing a political explanation of IMF lending patterns, he identifies the reasons why politics affect IMF behaviour. He supports the idea that the U.S. has been able to use the IMF to further their own international political agenda. Oatley and Yackee (2004) present evidences that American interests influence the content of IMF conditionality agreements. They find that American policymakers use their weight in the IMF to pursue their financial and foreign policy. Dreher and Jensen (2007) explain that the IMF conditionality depends on the borrowing coun-

try's voting pattern in the UN General Assembly (UNGA). Thus, the US's closer allies of the United States (and of other Group of 7 [G7] countries) receive IMF loans with fewer conditions, especially prior to elections. This second strand of the literature shows that the IMF is controlled by the governments of powerful states.

Recent studies have shown that the IMF is also subject to a game of influences. Most studies focus their analyse on the Board of Governors which is the highest decision-making body of the IMF, where the member states' governments are represented. These studies (e.g., Copelovitch, 2010; Joyce, 2004; Dreher and Vreeland, 2014, and Dreher and Lang, 2016) emphasize the use of IMF lending for geopolitical and financial purposes by the G5 member countries.

Some other authors argue that IMF lending is based on the structure of political institutions in borrower countries and/or the IMF staff's bureaucratic incentives. Barro and Lee (2005) argue that IMF lending is biased by the preferences of its staff. They find that the number of nationals serving on the IMF staff is a positive predictor of IMF lending to their countries of origin across a variety of model specifications.[11] In the same context, Aldenhoff (2007) supports the hypothesis that the IMF staff try to legitimize the lending activities with overly optimistic forecasts and these forecasts may help incumbent governments to be re-elected. Copelovitch (2010) revealed three critical insights on the politics of IMF lending. First, the United States does not unilaterally control IMF lending; rather, the G5 countries as a group exercise substantial influence, and the heterogeneity of their preferences is a key determinant of IMF lending policies. Second, G5 governments' influence over IMF policymaking varies systematically across cases. The Fund staff exercises significant authority and autonomy in many IMF lending cases, in particular with regard to countries of lesser financial importance for the G5. Similarly, Nelson (2014) supports the idea that IMF policies reflect the ideational culture of its staff. Thus, a third part of the literature adds that the IMF is controlled by its bureaucracy.[12]

Here, we test the Board membership hypothesis, taking the case of the IMF and considering two dimensions, namely loans and repayments. Although we know that the IMF's EB is the authority responsible for the decisions to lend to a country, in our literature review, we did not find any studies testing the influence of the presence of a country in the IMF EB on loan and repayment decisions. However, some authors have confirmed our hypothesis in the case of other international institutions. Gehring and Schneider (2015) test this hypothesis with the European Union. They examine if having a Commissioner for Agriculture is correlated to an increase in the spending on agriculture for the respective country of origin. They find a significant impact of

[11] Hereafter, we will not control for this variable, because data on IMF staff is only available at 5-year frequencies, while we use annual observations. Moreover, as there are small variations of IMF staff's number over time for each country, it would almost amount to the inclusion of a fixed effect. Nevertheless, we have checked for the correlation between this variable and the Executive Board variables that will be used in our regressions, and its low level supports the fact that the latter captures the countries' presence on the Board and not other variables as the IMF staff.

[12] In another context, Novosad and Werker (2014) examine the nationality of the most seniors officials in the United Nations over the last sixty years. They show that if, in theory, the secretariat is to be staffed according to the competence and integrity of individual candidates, in practice, the top positions are highly implicated in a political process.

the commissioners' country of origin on the agricultural fund spending received by their home country during their term in office. Kaja and Werker (2010) show that developing countries serving on the board can expect more than twice the funding from the International Bank for Reconstruction and Development (IBRD), but they find no significant effect with regard to the International Development Association (IDA). Morrisson (2013) is more interested in the IDA and shows that IDA Board members used to derive informal power to tilt loans toward their own countries during the Cold War period, but over time and specially after the Cold War, this influence has been diminished.

The two latter papers are closely related to this chapter with a number of difference in empirical strategies, outcome variables and results. Kaja and Werker (2010) and Morrisson (2013) focus on the IBRD and IDA Board of Executive Directors, while this chapter focuses on the IMF Board members with also. Furthermore, Kaja and Werker (2010)'s data cover the period 1961-2005, while our study period is 1984-2014 because of a control variable which forces us to begin in 1984. Given the configuration of our data, with a number of countries which did not receive or repay loans, different empirical strategies than those of Kaja and Werker (2010) and Morrisson (2013) are used in this chapter. Besides to being interested in the loan behaviors, we are also interested in the repayment behaviors, a point that authors generally do not address. Thus, even if this chapter is closely related to Kaja and Werker (2010) and Morrisson (2013), this chapter brings a new contribution to this literature in terms of methods, set-up of the organizations and results.

1.3 Data and Empirical analysis

1.3.1 Data

To test the influence of the EB members on IMF lending and repayments, we analyse a panel of 1433 observations with 493 IMF loans (concessional and non-concessional IMF loans) and 846 repayments including 99 countries over the period 1984-2014.[13] [14] The logic behind the consideration of the loan repayment is that some member countries can use their position on the Board to influence the payout deadlines or to reduce repayment's amounts to each payout. The database includes the countries receiving at least one IMF loan disbursement, as well as countries which repaid loans at least one time over the considered period, but also countries which did not use IMF lending arrangements over the considered period.

[13]The sample starts in 1984 due to a number of important control variables. The Bank for International Settlements' data for G5 commercial bank exposure is not available before the 4th quarter of 1983. This constraint forces us to begin in 1984.

[14]The full dataset consists in 5963 observations and 191 countries over the period 1984-2014. This larger sample is used for the modelling of the propensity score matching and logistic estimations.

Dependent variables: Receipts and Repayments of an IMF loan

We first define two dependent dummy variables: *receipt* and *repayment of the IMF loans.* These dummy variables are built from the amount of IMF loan disbursements and repayments.[15] They are coded *"1"* if a country received or repaid an IMF loan in a given year, *0* if it did not. The reason why these two first dependent variables are measured in this way is that, in the case of the binary variable "receipt of an IMF loan", when the IMF EB receives a loan proposal from the IMF staff, the Board of Directors decides to authorize or not the loan. Consequently, there are two possibilities. This is why we choose this binary variable which represents these two possibilities. In the case of the binary variable "repayment of an IMF loan", when the Executive Board has decided to attribute the loan to a country, repayment terms and conditions are imposed to member countries. Sometimes, it is possible that a member country may not be able to repay the credit granted by the Fund. In this case, we assume that a country which has a representative on the Executive Board can negotiate other repayment deadlines due to his presence at IMF Board meetings in Washington DC. Thus, to better capture our assumption, the ideal dependent variable would be to consider a binary variable which take the value "1" if a country repaid after a payout deadline and "0" if not. Nevertheless, the repayment data from the IMF website does not specifically relates a repayment to its original loan, only reporting the repayment amount. Thus, instead of considering the repayment after a payout deadline, we consider a proxy variable through the binary repayment variable which takes the value "1" if a country made a reimbursement and "0" if not. Over the considered period, approximately 34% of countries received at least one IMF loan disbursement and 59% of countries reimbursed the IMF at least once over the whole sample (see Table 1).

The other dependent variables are the loan size and the repayment size. Concerning the loan size, we retain the variable *"disbursement amount in billions of sdr"* as preferred dependent variable. The *"disbursement amount in billions of sdr"* is the amount of a new IMF disbursement related to a previous loan approval, by a country i in year t. We also test two alternative dependent variables namely "*disbursement amount weighted to the country's quota"* and "*disbursement amount weighted to the country's gdp"*. Throughout the chapter, we note that when we talk of IMF loans, we refer to IMF disbursements in relation to a previous loan approval.[16] As regards the repayment size, we focus the analysis on the variable "*repayment amount in billions of sdr"* as preferred dependent variable. The "*repayment amount in billions of sdr"* is the repayment amount disbursed by a country i in year t. Two alternative dependent variables were also tested namely "*repayment amount weighted to the country's quota"* and

[15]This data is taken from the IMF financial data by topic, in the section IMF lending arrangement and the sub-section transactions with the Fund. See: http://www.imf.org/external/np/fin/tad/exfin2.aspx?memberkey1=15&date1Key=2016-03-31 (last accessed April 15, 2016).

[16]The IMF loan disbursement which is the loan effectively received by a IMF member country. This variable is chosen because it is very common that the IMF terminates the arrangement because the borrower does not respect the conditionality, or if the country stops to use its full arrangement. Sometimes a country utilizes an IMF program to build credibility.

repayment amount weighted to the gdp".[17]

Independent Variables

In describing the independent variables, we first explain the key independent variables - i.e., the Executive Board variables. For the measure of the IMF EB members' influence, we create a dummy variable *country presence on the board* coded *1* if a country *i* is present on the Board in a given year, *0* if not. This variable aims at testing if the simple presence on the IMF EB can impact the probability of granting or repaying loans. Between 1984 and 2014, the full database includes 60 nationalities as IMF Executive Directors.[18] [19] Table 2 lists of countries and the year in which they receive an IMF loan during their presence on the Board.

To also take into account the attendance time of Executive Directors which, from our point of view, can influence IMF loans and repayments, we control by the variable *effective presence on theoretical presence.* This variable is the ratio between the real presence of countries over the 31 study years and the presence that these countries should have acquired according the number of countries in each IMF group. This variable should control for the long presence of countries on the IMF Executive Board. A practical example such as the Cote d'Ivoire's case in 2006 allows us to better understand how this variable is built. Between 1984 and 2014 (31 years), Cote d'Ivoire was on the Board four times. Its real presence on one year is 0.129 (corresponding to 4/31). Considering the fact that Cote d'Ivoire is in a group of 23 countries, its theoretical presence on one year is 0.043 (corresponding to 1/23), if all countries of this group have equal chances to be in the Board.[20] Therefore, the ratio *effective presence on theoretical presence* for Cote d'Ivoire in 2014 is 3 (corresponding to 0.129/0.043). That means that Cote d'Ivoire was 3 times more on the Executive Board as Directors than the number of time it had to be in theory, according to the number of countries in each constituency.[21]

In addition, to account for the possibility that countries' previous engagements with the IMF can influence the loan and repayment disbursements, we include a dummy variable *past loan* in the regressions which is a variable which takes the value "1" if a country is still under an IMF program and "0" if not. This variable is standard in the literature.

[17]The gross amounts in billions of sdr have been preferred to the amounts weighted to the IMF country quotas or the GDP because these latter variables are directly or indirectly used as independent variables in the modellings. The use of the gross amount will avoid us an estimation bias due to the presence of IMF country quotas or GDP at the left and the right side of the estimation equation. However, for robustness checks to confirm our hypothesis, we use as alternative dependent variables the amount weighted to IMF country quotas and GDP.

[18]Data on the nationalities of IMF EB members come from the International Monetary Fund Annual Report over the period 1984-2014.

[19]Furthermore, to test our hypothesis with the Alternate Executive Directors (EDs), we construct the same variable enunciated above with the Alternate EDs. Our database includes 74 different nationalities as Alternate EDs.

[20]The theoretical case is considered in the sense where, in each constituency, all countries have the same power and in this case, all countries should be on the IMF Executive Board in the same proportions over the 31 study years.

[21]We remind that this variable is also built for the Alternate EDs.

We also consider other traditional determinants of IMF lending generally used in the literature. The second set of variables includes the macroeconomic factors identified as key determinants of IMF lending. We have considered: the *logarithm of the GDP* (expressed in sdr), the *annual GDP growth* as a percentage, and the *logarithm of international reserves in months of imports*. Data on macroeconomic criteria is taken from the World Development Indicators of the World Bank.[22] These macroeconomic factors might influence loan and repayment behaviours.

The database includes the dummy variable *currency crash* which take the value of "*1*" if a country had a "currency crash" in a given year. This variable has been built according the definition of Frankel and Rose (1996) who define a "currency crash" as a nominal depreciation of the currency by at least 25% which accounts for at least a 10% increase in the rate of depreciation. This variable aims at controlling for countries which receive or repay loans because of a crisis of their own currency. We have also incorporated into the database the *3-month London Interbank loan* which is the interest rate that banks charge to each other. This interest rate serves as a primary benchmark on the international capital markets. If the global interest rates are high, this could increase both a country's external debt service and new borrowing costs. Therefore, IMF loans and repayments can be influenced by this interest rate.
In order to take into account the influence of U.S. geopolitical policy interests, we follow the literature using the *voting affinity with the United States (U.S.) within the United Nation General Assembly* (Thacker, 1999; Stone, 2004). This indicator gives, as a percentage, the degree of affinity between the countries and the U.S. for the votes identified as important by U.S. State Department in the United Nations (Voeten, 2013).[23] This has been shown to be a good proxy for the foreign policy alignment between the United States and the other IMF member countries.

To measure the domestic financial interests of the powerful member states, we consider the banking statistics dataset of the G5 countries (the United States, the United Kingdom, Japan, Germany and France) which provide the quarterly data on their banks' foreign claims. Data on banks' foreign claims are taken from the Consolidated International Banking Statistics database. From this database, we calculate two sets of variables. The first set is the *logarithm of the mean of the G5 banks' foreign claims* and the second is the *growth rate of the share of total G5 international bank lending provided by banks of each individual G5 country to IMF member countries*, expressed as a percentage. We have kept in this analysis, the growth rate of the share for only 3 countries, namely the United States, the United Kingdom and France because the other two countries had a large number of missing values. These latter variables aim to control for the hypothesis that G5 countries have strong interest in lending to particular IMF borrower countries when these countries are the largest recipients of private capital flows from G5 lenders (Copelovitch, 2010).

[22]The variable *current account balance* was considered in this study, but this variable includes a large number of missing value (approximately 75% of observations). Considering this disadvantage, we do not take into account this variable.

[23]This variable was constructed using the raw UNGA dataset from the Erik Voeten Dataverse. See: https://dataverse.harvard.edu/dataset.xhtml?persistentId=hdl:1902.1/12379 (last accessed on September 15, 2015).

The last set of variables includes the political explanations of IMF loans and repayments. These variables are: *logarithm of the number of veto player* in a borrower country, *IMF liquidity ratio* and a dummy variable coded *1* for the year of *a IMF general quota review*. The first variable *logarithm of the number of veto player,* controls for the impact of domestic political institutions on IMF behaviour.[24] The variable *IMF liquidity ratio* is generated by dividing the sum of the Fund's outstanding loans used administrative resources by its total quota resources, then subtracting this value from 1 (Copelovitch, 2010). This variable controls for the lending and repayment behaviour of the Fund, based on the liquidity that it holds. As for the variable general quota reviews, it takes the value 1 if the IMF implements a general review of quotas and 0 if not. This variable tests the public choice argument on "hurry up" lending, which predicts that the staff will propose larger loans during quota reviews to generate pressure on the Board to approve quota increases. Overall, these variables control for the impact of domestic political institution on Fund behaviour and for the IMF staff's bureaucratic incentives (Aldenhoff, 2007). Finally, we add the explanatory variable *logarithm of the constant aids in billions of sdr* to control for the fact that all aids granted to an IMF member country can influence the lending decisions from the Executive Board.

The descriptive statistics of the variables enunciated above (summarized in the table 1) reveal that the average of the loan is approximately 145 millions of sdr while the standard deviation of approximately 839 millions of sdr. The statistics show a considerable variance between disbursements from one country to another country. Similarly, the average of the repayment expressed in sdr is 142 millions of sdr with a standard deviation of 699 millions of sdr. The variable *effective over theoretical presence* shows that, on average, countries are actually present on the Executive Board 2.8 times more than their theoretical presence according the number of countries in each IMF group.

1.3.2 Empirical Analysis

Our main estimation equation is :

$$Y_{it} = a_0 + X'_{it} * a_1 + a_2 * B_{it} + \alpha_i + \beta_t + \varepsilon_{it}$$

where Y_{it} represents the different dependent variables detailed above for a country i in a year t, X'_{it} is the vector of control variables for a country i in a year t, B_{it} is related variables to the IMF EB for a country i in a year t, α_i is the country fixed effects, β_t is the year fixed effects and ε_{it} is an error term distributed according to a normal distribution $\left(0, \delta^2\right)$.

The dichotomous nature of the dependent dummy variables *receipt of an IMF loan* and *repayment of the IMF granted loans* requires the use of a logit estimation. Logistic regression measures the relationship between the dependent variable and one or more independent vari-

[24]The number of veto player is different for each country and varies over time; this means that this variable is not captured by the fixed effects.

ables by estimating probabilities. Taking into account the geographical considerations which play an important role in the formation of the IMF's groups of countries, we also cluster our estimates by IMF's groups of countries for a robustness check.

For the loan size and the repayment amount, we use a tobit model left censored from 0. This means that observations of the dependent variable inferior or equal to zero are censored. The tobit specification is a statistical model that describes the relationship between a non-negative dependent variable and an independent variable. However, as the tobit estimates are inconsistent with fixed effects, we do not use fixed effects in this specification. The logarithm was not applied on *the loan* and *repayment amounts* because the use of logarithm for these two dependant variables involves to have a number of negative values while, the tobit specification censors observations whose the value are equal to 0 or negatives. In this configuration, the use of the logarithm on the loan and repayment size will lead to bias of estimations censoring a large number of observations. Furthermore, in order to address the problem of selection effects which is common in studies of IMF lending, we employ the propensity score matching (Abadie and Imbens, 2006). The selection problem in this study concern the fact that the countries which receive IMF program may be selected non randomly. The propensity score matching consists in a treatment evaluation by a logistic estimation of the average effects of a program or treatment (*receipt of an IMF loan* and *repayment of the IMF granted loans)* on the outcome of interest (*loan* and *repayment amounts*). There is a comparison of outcomes between treated and control observations. Thus, for each observation, is generated a propensity score between 0 and 1, which measures the predicted probability that a country can receive and repay an IMF loan given the observed values of covariates. The predicted probability that a country receives or repays an IMF loan generated taking into account "treated" and "control" observations is included in the loan and repayment amount modellings to resolve this selection issue (Copelovitch, 2010).

1.4 Results

1.4.1 IMF loans

Table 3 reports the results of the loan binary variable modellings, while Table 4 shows the loan amount regressions. In Table 3, models (1), (2) and (3) present the logistic analysis of the receipt of a loan with the main interest variable (the countries' presence on the Executive Board as Directors) successively with random fixed effects, country fixed effects and country and year fixed effects. In the 3 other models, we add to the main interest variable the control variables. Model (4) presents the results with country fixed effects, model (5) displays the results with country and year fixed effects removing country-invariant controls from the regressions and model (6) is a robustness check with year fixed effects and clustering by IMF groups of countries.

The presence of countries on the Executive Board, as shown by the results, is negatively and not significantly associated with the probability of receiving an IMF loan. The results are

not supporting the starting assumption in the case of the probability of receiving an IMF loan. This finding can be explained by the fact that, for most of the time, IMF Executive Board seats are held by large creditors who do not, or rarely, utilize the IMF's lending facilities. The GDP volume is, as could be expected, negatively and significantly associated with the probability to receive a loan from the Fund. Specifically, compared to the reference situation, *ceteris paribus*, countries which have a GDP higher than usually, have approximately 1 in 5 chances of having an IMF loan.[25] An increase of the international reserves and the aid volume is associated with a higher probability to receive an loan. First, this result shows that countries with international reserves higher than normal tend to have more loans from the IMF. This leads us to believe that the level of international reserves is a key indicator which allows to the Fund to gauge the solvency of countries to grant loans to them. Second, there is a positive correlation between the aid and the loan volume. This result is not surprising because it confirms that countries which are most in need tend to receive more loans from the Fund. Furthermore, a country already under an IMF program has approximately between 1 to 2 in 5 chances to receive a new IMF loan. The robustness check regression through model (6) confirm the latter findings and the results do not change qualitatively. The first results demonstrate that the probability of receiving a loan from the IMF does not depend of a country's presence on the Executive Board.[26]

In Table 4, model (1) presents the propensity score matching estimation of the probability to receive a loan and the remaining models display the results of the loan size regressions. Model (1) provides the logit analysis used to generate the propensity score included in the loan size regressions. Not surprisingly, the logit results show qualitatively the same results as in Table 3. The next model in Table 4 displays results of the loan amount (in billions of sdr) modellings with the main interest variable, i.e., country presence on the Executive Board. Here, we notice a positive and significant correlation between the loan size and the country presence on the Board. In more details, the presence of countries on the IMF Executive Board is associated with an increase of the loan amount on the order of 0.35 point. In order to correct the problem of selection bias, the predicted probability of getting an IMF loan in the form of a propensity score matching is added to the interest variable. In this model, the presence of country on the Board tends to increase the loan amount of 0.65%. An increase of the predicted probability of getting an IMF loan increases the loan amount by 2.4%. It is important to notice that correcting for the selectivity bias through the propensity score matching almost doubles the the coefficient of the interest variable. Model (4) and (5) add control variables to model (3) and the positive and significant correlation between the interest variable and the outcome variable is confirmed. The

[25] A second calculation is necessary to translate results into odds ratio. The coefficient of the variable *volume GDP (sdr), log* in the column (4) of the Table 3 is -1,517. We translate this coefficient in odds ratio from the formula $e^{x_i a} = e^{-1,517} = 0.219$, which is equivalent to approximately 1 chance out of 5. All interpretations of the logit estimates follow this same transformation.

[26] The effect of a country's presence as Alternate on the Executive Board on the probability to receive a loan was also been tested. The results show that the country's presence as Alternate on the Executive Board has also no influence on the probability to receive a loan. Results concerning the Alternate Executive Directors can be shown under request.

presence of a country in the IMF Executive Board increases the loan amount between 0.4 and 0.6 point. The US affinity rate, as could be expected, is positively associated with the loan size (although the coefficient here is only slightly significant). Additionally, an increase of the GDP growth of 1% decreases the loan amount of approximately 0.06 percent. As expected, countries that know currency crises tend to have a higher loan amount. In model (5) corresponds to an adding of the variable real presence over theoretical presence of Executive Directors to model (4) in order to control for the long presence of countries on the Board. We notice that the long presence on the Executive tend to decrease the loan amount though the coefficient of this variable is slightly significant. Moreover, the addition of this variable increases the coefficient and the significance of other variables of the model. For instance, in model (5), an increase of 1% of the number of veto player and countries already under an IMF program tend to increase successively the loan amount of approximately 0.3 and 2 percent, although these variables are not significant in model (4).[27]

Models (6) and (7) present the regressions of the loan amount weighted to the IMF country quotas and models (8) and (9) show the modellings of the loan amount weighted to the GDP. In these modellings the presence of countries on the Executive Board is positively and not significantly associated to the loan size. This is not surprising because, as noticed above, the weighted variables are directly or indirectly related to the independent variables of the model causing estimation biases.

In summary, these first results reveal that the countries' presence on the IMF Executive Board influences IMF loans. This explains why, beyond prestige-related reasons, countries battle to maintain a representative, and thus their influence, on the Board. Our results support the view that, even though their presence may not influence the loan decision, countries on the Board can use their lobbying power to increase the amount of the loan received.

1.4.2 Repayments of IMF loans

Table 5 displays the results of the probability to repay an IMF loan, while Table 6 shows the results on the repayment size. As for the loan binary regressions, models (1), (2) and (3) present the logistic analysis of the repayment of a loan with the main interest variable namely countries' presence on the Executive Board as Directors successively with random fixed effects, country fixed effects and country and year fixed effects. The 3 other models of Table 5 show the results of the full model, including the main interest variable and the controls variables. In all models of Table 5, the presence of countries on the Executive Board is negatively and non significantly associated to the probability to repay a loan. As in the case of the probability to receive a loan, countries on the Board have no effect on the probability to repay a loan. Concerning the control variables in model (4), the *mean volume of G5 bank exposure* is negatively associated with the

[27]The influence of Alternate Executive Board Directors on the loan amount has been tested and the results suggest that the presence of countries on the Board as Alternate does not affect significantly the loan amount. These results are available under request.

probability to repay. More exactly, countries which receive a mean of the volume of G5 bank exposure higher than normal tend to have approximately 1 in 2 chances to repay their loans to the Fund, compared to the initial situation. Furthermore, countries with a higher *volume of GDP* compared to normal, tend to have approximately 1 in 5 chances to repay a loan. As expected, countries with a high GDP volume tend to repay less IMF loans insofar as, as shown in the loan modellings, they borrow less. An unexpected results concerns the IMF liquidity ratio variable. The results present a stronger, positive and significant correlation between the IMF liquidity ratio and the probability to repay. This means that when the IMF has a higher liquidity ratio, more countries tend to repay their loans. Additionally, the aid granted to countries tend to increase the probability of repayment. This result can be justified by the fact that countries which receive an important level of aid tend to borrow more, as shown in the loan results, and logically, these countries have the tendency to repay more. Finally, the robustness check through model (6) confirms qualitatively the previous results, showing that the countries' presence on the IMF Executive Board has no effect on the probability of repayment.

Concerning Table 6, model (1) presents the propensity score matching estimation of the probability to repay a loan and the 8 remaining models display the results of the repayment amount regressions. In model (1), we display the results of the propensity score matching used to generate the predicted probability to repay an IMF loan in order to resolve the selection problem. Not surprisingly, the logit results show qualitatively the same results as in Table 5. Interestingly, model (2) displays positive and significant association between the repayment amount and the presence of countries on the Board. Adding to model (2), the predicted probability to repay an IMF loan, the results of model (3) show a positive and highly significant influence of the countries' presence on the Board on the repayment amount. Specifically, the presence of a country on the Executive Board increases the repayment amount of approximately 0.45 percent. Models (4) and (5) show the results of the repay amount modellings with the interest variable and all the control variables. Here again, the countries' presence on the Board tend to positively impact the repayment amount. Furthermore, in all the control variables, only the GDP volume and the propensity score matching have a significant action on the repayment amount. For example, an increase of 1% of the GDP volume tend increase the repayment amount of 0.13 percent.

Model (6) and (7) present the regressions of the repayment amount weighted to the IMF country quotas and model (8) and (9) show the modellings of the repayment amount weighted to the GDP. As in the case of loan amount modellings the presence on the Executive Board has no effect on the repayment amount. However, taking into account how this variable is measured, these estimates can only be taken with a pinch of salt.

The main results thus show that the countries' presence on the Board has not the same effect on the probabilities and amounts of repayment. We provide evidence that the presence on the Board increases the amount of loans and repayments, even though it has no influence on the probability of obtaining nor repaying loans. The original hypothesis of this chapter is thus

confirmed on amounts, and not on probabilities.

1.5 Conclusion and Discussions

This chapter shows the real political reasons which lead some IMF activities (namely, loans and repayments). Besides the fact that the IMF literature has shown the influence of G5 countries on the IMF activities, we confirm here that the IMF Executive Board has a place at the forefront of IMF activities in lending and repayment. Our initial assumption is to analyse the links between a country's particular interest in being on the IMF's Board and the possibility of obtaining more loans and/or better repayment modalities. The results of this study confirm the role of the traditional determinants of IMF loans and repayments (i.e., macroeconomic and political factors), but they also reveal that having a country representation on the EB plays an important role. We find that the presence of a country on the Board does not seem to influence the decisions related to loans and repayments. However, a position inside the Board tends to have an importance at the moment of the negotiation of loan amounts. We demonstrate that, when the Board decides to attribute a loan to a country, if this country is on the Board at the same moment, it seems that everything happens as if the country can use its networks with the other Board members to negotiate a larger loan. Moreover, we get the same conclusion on repayments: if a country has a position on the Board, this does not influence its probability of repayment but this influence the repayment amount.

Two possible interpretations seem to explain this conclusion. First, peer pressure from other EB's members can favour repaying of higher amount from IMF Executive Board debtor countries. Second, maybe debtor countries with the aim of keeping their seat on the IMF Executive Board play the role of a "model student" repaying high amounts. This chapter clearly shows that countries which are on the IMF Executive Board have an advantage on the other countries through the network effects that these countries develop by their presence at IMF Board meetings in Washington DC. The Executive Directors are supposed to represent the interests of constituencies that they represent, while our results show that they use their temporary influence to pursue their own interests. Since most countries do not serve on the Executive Board as Directors, providing higher loans to those who do is an unfair advantage. This advantage raises the crucial question of the loans' effectiveness.

If as this chapter shows, the presence on the Board influences the loan et repayment behaviours, it is clear that the effectiveness of the IMF lending can be challenged insofar as IMF's loans are supposed to provide assistance to the countries most in need and not to countries which use their networks inside the Executive Board. Our suggestion is that the IMF operation should be reformed, particularly the organisation of the Executive Board. For example, the number of successive mandates of countries on the Executive Board can be limited as in other institutions (among which the European Central Bank for example), or a rotating system of votes that could prove more efficient than the present system.

Tables

Table 1.1: Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Receipt of an IMF loan (binary)	1433	.344	.475	0	1
Volume of loan disbursement in billions (sdr)	1433	.145	.839	0	12.635
Volume loan size/Quotas	1433	.177	.575	0	10.3
Volume loan size/GDP	1433	.005	.039	0	1.009
Repayment of an IMF loan (binary)	1433	.59	.492	0	1
Volume repayment IMF loan in billions (sdr)	1433	.142	.699	0	16.117
Volume repayment size/Quotas	1433	.18	.442	0	5.92
Volume repayment size/GDP	1433	.005	.024	0	.653
Log G5 bank exposure	1433	6.157	2.024	-1.204	11.102
FR share bank exposure (%)	1433	.329	.282	0	1.817
GB share bank exposure (%)	1433	.298	.234	-1.085	.994
US share bank exposure (%)	1433	.373	.257	.002	.983
US affinity rate (%)	1433	32.72	19.434	0	100
Volume GDP (sdr), log	1433	23.636	1.693	18.735	29.309
Annual GDP growth (%)	1433	4.108	4.307	-17.146	33.736
International reserves in months of imports, log	1433	1.056	1.072	-5.597	3.605
Currency crash	1433	.148	.355	0	1
IMF liquidity ratio (%) [t-1]	1433	.272	.103	.045	.459
General quota reviews	1433	.11	.313	0	1
Log of number of veto player	1433	.942	.607	0	2.89
Constant aids in billions of sdr, log	1433	-1.234	1.423	-8.653	2.881
Past loan dummy	1433	.345	.476	0	1
Presence of countries on the Executive Board as Director	1433	.133	.34	0	1
Real over theoretical presence of Executive Directors	1433	2.814	11.246	0	221
Presence of countries on the Executive Board as Alternate Director	1433	.147	.354	0	1
Real over theoretical presence of Alternate Executive Directors	1433	2.513	7.248	0	120

Obs = number of observations, Mean = average, Std. Dev. = standard deviation, Min = minimum, Max = maximum.

Table 1.2: List of countries that receive loans during their presence on the Executive Board

Countries	Numb. of loans received	year of arrangements
Argentina	8	1985,1986, 1989,1990 1993,1994,1997,2001
Brazil	11	1984,1988,1992,1998(2) 1999,2001,2002,2002,2003
Chile	3	1984,1987,1988
China	1	1986
Cote d'Ivoire	3	1995,1996,1998
Gabon	1	2000
Gambia	1	2013
Indonesia	4	1987,2001,2002,2003
India	4	1991(2),1992,1993
Kenya	3	1988,1988,2007
South Korea	1	2010
Lesotho	4	1991,1992,2011,2012
Mexico	4	1987,1988,1999,2000
Niger	4	1984,1985,1986(2)
Russia	7	1993,1994,1995,1996,1997,1998,1999
Rwanda	3	2007,2008,2009
Rwanda	3	2007,2008,2009
Sierra Leone	2	2009,2010
Togo	1	2011
Thailand	1	1999
Tanzania	3	1986,2005,2006
Uruguay	1	1992
Venezuela	3	1989,1990,1996
Congo Democratic Republic	3	1987, 1987,1989
Zimbabwe	3	1998

Table 1.3: Receipt of an IMF Loan Estimates - Logit Specification

Model	(1)	(2)	(3)	(4)	(5)	(6)
Variables	Loan (binary)	Loan (binary)	Loan (binary)	Loan (binary)	Loan (binary)	Loan (binary)
Presence of countries on the Executive Board as Director	-0.164 (0.303)	-0.105 (0.326)	-0.073 (0.338)	-0.057 (0.350)	0.015 (0.356)	0.217 (0.251)
Real over theoretical presence of Executive Directors				-0.008 (0.008)	-0.003 (0.008)	-0.001 (0.009)
Log G5 bank exposure				0.185 (0.124)	0.273** (0.131)	0.166 (0.124)
Growth rate US share (%)				-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Growth rate FR share (%)				-0.000 (0.000)	-0.000 (0.000)	-0.000** (0.000)
Growth rate UK share (%)				-0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
US affinity rate (%)				0.003 (0.005)	-0.000 (0.008)	-0.001 (0.007)
Volume GDP (sdr), log				-1.517*** (0.274)	-1.601*** (0.372)	-0.678*** (0.184)
Annual GDP growth (%)				-0.020 (0.019)	-0.015 (0.019)	-0.023 (0.026)
International reserves in months of imports, log				0.293** (0.121)	0.283** (0.127)	0.136 (0.194)
Currency crash				0.332 (0.234)	0.351 (0.241)	0.582*** (0.218)
IMF liquidity ratio, lag				-0.328 (0.807)		
General quota reviews				-0.087 (0.242)		
Log of number of veto player				0.341* (0.176)	0.210 (0.186)	0.247 (0.286)
3-month London Interbank				-0.022 (0.038)		
Constant aids US$ in billions, log				0.585*** (0.147)	0.669*** (0.159)	0.630** (0.253)
Past loan dummy				1.037*** (0.356)	1.327*** (0.386)	1.630*** (0.389)
Countries fixed effects	NO	YES	YES	YES	YES	NO
Year fixed effects	NO	NO	YES	NO	YES	YES
Observations	1433	1175	1175	1175	1175	1433

Table 1.4: IMF Loan Amount Estimates - Tobit Specification.

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Variables	Loan dummy	Loan amount	Loan amount	Loan amount	Loan amount	Loan amount/quota	Loan amount/quota	Loan amount/gdp	Loan amount/gdp
Presence of countries on	0.204	0.346**	0.650***	0.424**	0.592***	0.119	0.085	0.000	0.008
the Executive Board as Director	(0.225)	(0.151)	(0.159)	(0.190)	(0.214)	(0.119)	(0.159)	(0.007)	(0.010)
Real over theoretical	-0.006				-0.011*		-0.005		-0.000
presence of Executive Directors	(0.006)				(0.007)		(0.005)		(0.000)
Log G5 bank exposure	0.097*			0.074	0.133*		0.105**		0.010***
	(0.054)			(0.061)	(0.071)		(0.052)		(0.003)
Growth rate US share (%)	-0.000			-0.000	-0.000		-0.000		0.000
	(0.000)			(0.000)	(0.000)		(0.000)		(0.000)
Growth rate FR share (%)	-0.000*			-0.000	-0.000*		-0.000		-0.000
	(0.000)			(0.000)	(0.000)		(0.000)		(0.000)
Growth rate UK share (%)	-0.000			0.000	-0.000		-0.000		0.000
	(0.000)			(0.000)	(0.000)		(0.000)		(0.000)
US affinity rate (%)	0.006			0.007*	0.010**		0.005		0.000
	(0.004)			(0.004)	(0.004)		(0.003)		(0.000)
Volume GDP (sdr), log	-0.293***			-0.001	-0.157		-0.142		-0.017**
	(0.077)			(0.142)	(0.171)		(0.126)		(0.008)
Annual GDP growth (%)	-0.033**			-0.053***	-0.071***		-0.043***		0.000
	(0.015)			(0.019)	(0.022)		(0.016)		(0.001)
International reserves	-0.005			-0.038	-0.036		0.004		0.001
in months of imports	(0.063)			(0.053)	(0.053)		(0.039)		(0.002)
Currency crash	0.817***			0.666*	1.143**		0.720**		0.015
	(0.174)			(0.404)	(0.495)		(0.365)		(0.022)
IMF liquidity ratio, lag	0.058			-0.007	0.123		-0.136		-0.048**
	(0.640)			(0.534)	(0.538)		(0.393)		(0.024)
General quota reviews	-0.182			-0.228	-0.332*		-0.149		-0.007
	(0.203)			(0.182)	(0.192)		(0.141)		(0.009)
Log of number of veto player	0.180*			0.194	0.282**		0.148		0.007
	(0.107)			(0.121)	(0.133)		(0.098)		(0.006)
3-month London Interbank	0.024			0.013	0.032		0.024		0.001
	(0.025)			(0.022)	(0.025)		(0.018)		(0.001)
Constant aids US$ in billions, log	0.247***			0.090	0.215		0.127		0.007
	(0.062)			(0.112)	(0.135)		(0.100)		(0.006)
Past loan dummy	1.320***			1.055	1.917**		1.056*		0.016
	(0.174)			(0.696)	(0.866)		(0.638)		(0.038)
psmatch2: Propensity Score			2.408***	-0.440	-3.284	2.104***	-1.160	0.153***	0.071
			(0.285)	(2.295)	(2.854)	(0.206)	(2.107)	(0.012)	(0.127)
Observations	1433	1433	1433	1433	1433	1433	1433	1433	1433
Uncensored observations		493	493	493	493	493	493	493	493

Notes: (i) No fixed effects, (ii) * p<0.1, ** p<0.05, *** p<0.01, (iii) Intercept not reported

Table 1.5: Repayment (Binary) Estimates - Logit Specification

Model	(1)	(2)	(3)	(4)	(5)	(6)
Variables	Repay (binary)	Repay (binary)	Repay (binary)	Repay (binary)	Repay (binary)	Repay (binary)
Presence of countries on the Executive Board as Director	-0.381 (0.278)	-0.391 (0.295)	-0.364 (0.352)	-0.316 (0.343)	-0.287 (0.360)	-0.060 (0.355)
Real over theoretical presence of Executive Directors				-0.006 (0.007)	0.001 (0.008)	0.003 (0.008)
Log G5 bank exposure				-0.781*** (0.159)	-0.678*** (0.166)	-0.387** (0.160)
Growth rate US share (%)				-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Growth rate FR share (%)				-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Growth rate UK share (%)				-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
US affinity rate (%)				0.009 (0.006)	-0.000 (0.008)	0.001 (0.008)
Volume GDP (sdr), log				-1.489*** (0.297)	-1.363*** (0.409)	0.113 (0.212)
Annual GDP growth (%)				0.014 (0.020)	0.001 (0.022)	0.005 (0.027)
International reserves in months of imports				0.081 (0.137)	0.253* (0.152)	0.043 (0.191)
Currency crash				-0.471* (0.270)	-0.540* (0.288)	-0.171 (0.424)
IMF liquidity ratio, lag				3.145*** (0.868)		
General quota reviews				0.397 (0.266)		
Log of number of veto player				0.264 (0.220)	0.190 (0.237)	0.238 (0.230)
3-month London Interbank				-0.008 (0.043)		
Constant aids US$ in billions, log				0.307** (0.131)	0.307** (0.140)	0.276** (0.118)
Past loan dummy				1.508*** (0.430)	1.833*** (0.457)	2.667*** (0.675)
Year fixed effects	NO	YES	NO	YES	NO	NO
Observations	1433	1254	1254	1254	1254	1433

Table 1.6: IMF Repayment Amount Estimates - Tobit Specification.

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Variables	Repay dummy	Repay amount	Repay amount	Repay amount	Repay amount	Repay amount/qta	Repay amount/qta	Repay amount/gdp	Repay amount/gdp
Presence of countries on	0.238	0.360***	0.451***	0.205**	0.205**	0.054	-0.038	-0.002	0.003
the Executive Board as Director	(0.212)	(0.080)	(0.083)	(0.097)	(0.100)	(0.055)	(0.067)	(0.003)	(0.003)
Real over theoretical	-0.002				-0.000		-0.001		-0.000
presence of Executive Directors	(0.007)				(0.003)		(0.002)		(0.000)
Log G5 bank exposure	-0.152***			0.002	0.002		0.023		0.006***
	(0.057)			(0.028)	(0.028)		(0.018)		(0.001)
Growth rate US share (%)	-0.000			0.000	0.000		-0.000		-0.000
	(0.000)			(0.000)	(0.000)		(0.000)		(0.000)
Growth rate FR share (%)	0.000			-0.000	-0.000		-0.000		0.000
	(0.000)			(0.000)	(0.000)		(0.000)		(0.000)
Growth rate UK share (%)	-0.001**			-0.000	-0.000		-0.000		-0.000
	(0.000)			(0.000)	(0.000)		(0.000)		(0.000)
US affinity rate (%)	0.009**			0.000	0.000		0.000		0.000
	(0.004)			(0.002)	(0.002)		(0.001)		(0.000)
Volume GDP (sdr), log	0.089			0.130***	0.130***		0.017		-0.009***
	(0.077)			(0.034)	(0.034)		(0.022)		(0.001)
Annual GDP growth (%)	0.003			0.001	0.001		0.007*		0.001***
	(0.015)			(0.007)	(0.007)		(0.004)		(0.000)
International reserves	-0.247***			-0.027	-0.028		-0.006		0.002
in months of imports	(0.077)			(0.037)	(0.037)		(0.025)		(0.001)
Currency crash	0.503***			-0.048	-0.048		0.031		0.002
	(0.193)			(0.096)	(0.096)		(0.064)		(0.003)
IMF liquidity ratio, lag	4.146***			0.308	0.311		0.248		-0.025
	(0.667)			(0.498)	(0.502)		(0.334)		(0.017)
General quota reviews	0.051			-0.124	-0.125		-0.033		0.002
	(0.209)			(0.089)	(0.089)		(0.059)		(0.003)
Log of number of veto player	0.239**			0.040	0.039		0.001		0.002
	(0.112)			(0.057)	(0.057)		(0.038)		(0.002)
3-month London Interbank	0.122***			-0.013	-0.013		0.006		-0.000
	(0.027)			(0.016)	(0.016)		(0.011)		(0.001)
Constant aids US$ in billions, log	0.084			-0.043	-0.043		-0.002		0.003***
	(0.054)			(0.028)	(0.028)		(0.019)		(0.001)
Past loan dummy	1.952***			-0.049	-0.048		0.030		-0.005
	(0.193)			(0.210)	(0.210)		(0.140)		(0.007)
psmatch2: Propensity Score			0.873***	1.328**	1.327**	0.768***	0.775**	0.049***	0.057***
			(0.120)	(0.571)	(0.571)	(0.079)	(0.380)	(0.004)	(0.019)
Observations	1433	1433	1433	1433	1433	1433	1433	1433	1433
Uncensored observations		846	846	846	846	846	846	846	846

Notes: (i) No fixed effects, (ii) * p<0.1, ** p<0.05, *** p<0.01, (iii) Intercept not reported

Chapter 2

The Trajectory of IMF Executive Board Directors and IMF Loans and Repayments

When contemplating potential influences of the IMF Executive Board (EB) member trajectories on IMF loans and repayments, the question arose regarding how the life choices of policy makers may have influenced the IMF decisions. As a result, this chapter analyses the career trajectories of international bureaucrats, examining their personal, educational and professional background. The chapter discovers that the typical trajectory of these bureaucrats involves having a PhD in Economics, an average of 11 years experience in public administration and the research shows that, following the completion of their mandate in the IMF, the policy makers return to public administration posts. Furthermore, the results reveals that African countries tend to receive a higher amount of loan and logically, they tend to repay more. Countries represented in the EB by Directors who worked in politics tend to receive lower IMF amount of IMF loans. In addition, EB Directors who have experiences in international institution obtained loan to their country and logically, they tend to repay more IMF loan.

2.1 Introduction

After showing in the chapter 1 to what extent the presence of countries in the International Monetary Fund (IMF) Executive Board (EB) can influence the loan and repayment decisions, this following chapter focuses on the IMF Executive Board (EB) members' professional careers. The main objective of this chapter is to evaluate to what extent personal, educational, professional and other factors can influence the IMF decisions in term of loans and repayments. A number of researchers have examined the national careers of politicians and the effect of these careers on decision-making, demonstrating the significance of the politicians' political (professional) careers. Diermeier et al. (2005) quantify the returns of gaining a seat in the Congress of the United States. They show that a politician's wage in each sector (public and private) depends of the congressional experience. Moreover, they highlight that the probability of winning an election after a congressional experience and the post-congressional pay-offs depend of the (unobserved) skills and (observed) characteristics. By the same reasoning, Eggers and Hainmueller (2009) estimate the returns to serving in the British Parliament. They find that serving in office almost doubles the wealth of Conservative Members of Parliament (MPs), but has no financial returns for Labour MPs. They also show that a seat in the British Parliament more than triples the probability that a Conservative MPs later serves as a director of a public trade firm. Taking the case of Germany, Arnold et al. (2014) find that the outside earnings of Federal MPs lead to a reduction in the less important and less visible Parliament activities, such as oral contributions, interpellations, and group initiatives. When investigating the professional private background, Li et al. (2006) find that private entrepreneurs are more likely to participate in politics where there is a less-developed market and a more-regulated local government, and where the informal tax burden is heavier, and the legal system is weaker. Moreover, they highlight that entrepreneurs' human and political capital positively contribute to their political participation.

These authors highlight the significance of career choices, specially those of politicians, that choose strategic political positions with the aim of getting re-elected or increasing their future pay-off. As politicians, the professional career of bureaucrats can be chosen according to their future job and also this professional career can help them in their responsibilities in terms of decision-making.

Moreover, some papers highlight the importance of the politicians' educational background on the national political area. Dreher et al. (2009) confirm that the educational and professional backgrounds of heads of government play an important role in the implementation of market-liberalization reforms. They support that politicians with a certain educational background may be more likely than others to have a leadership role. Besley et al. (2005) use the case of South India to demonstrate that differences in the performance of Indian village politicians are linked to a politician's education and conclude that more educated politicians are seen as better. Furthermore, Besley et al. (2011b) emphasise the importance of education in the political

sphere showing, for a sample of 1654 leaders in the years 1875-2004, that the departure of an educated leader leads to a 0.7 percent point reduction in growth per annum. Thus, the growth reduction is due to the loss of a highly educated leader. Similarly, Cohen and Malloy (2010) show the significance of the alumni networks in the political sphere. They support that politicians use school ties to influence voting behaviour in United States, showing the magnitude of these alumni networks, affecting roughly 60% of state-level considerations. Highlighting, the importance that professional and educational backgrounds have on the politician choices, Braendle (2014) asserts that the occupational background is an important quality dimension of politicians because, first, it determines the personal socio-economic conditions that influence an individual's decision to run for office and, second, it shapes the private economic interests influencing the politicians' behaviour once elected.

It is clear, that the educational background is a significant characteristic to consider when examining the relationship between a person's trajectory and policy-making.

There is a body of literature which questions the selection mode of policymakers and its dependency on the policy-makers career path. Snyder and Ting (2011) find that primary elections can help to improve voter choice by adding an added opportunity for valences to be revealed. They also conclude that primary elections are more likely to be adopted in relatively extreme districts where a clear party exists. Gagliarducci and Nannicini (2013) show the effect of wage on political selection and performances. They stress that a higher wage attracts better educated candidates and that better paid politicians improve efficiency. Furthermore, this selection process is, on one hand, a way for voters to choose a competent politician for an adequate political position and, on another hand, a way for high quality politicians to run for office. Overall, the literature regarding the wage effect on the politician selection is divided. A number of papers predict that a higher salary should increase, on average, the quality of politicians (Caselli and Morelli, 2004; Besley, 2004). However, other papers are opposed to this idea and support that higher remuneration has the indirect effect of encouraging "low-quality" candidates to run. Mattozzi and Merlo (2008) affirm that, a salary increase decreases, on average, the quality of politicians and decreases the proportion of politicians who have political careers. Equally, Serra (2013) finds that longer and harder competition during primary elections increases the amount of information revealed about the quality of candidates. More recently, Galasso and Nannicini (2017) support that politicians' selection depends on the share of swing voters in the entire electorate. They show that a majoritarian system with only a few competitive districts is less capable of selecting good politicians than a proportional system. Thus, it is demonstrated that the selection mode of voters is entirely or partially influenced by the politicians' trajectories. This strand of the literature focuses on the selection mode and how bureaucrats' selection mode can also be a key determinant in their policy-making.

In our review of the literature, studies on the careers of international institutions' leaders were not found. Generally, information on politicians professional and educational careers is not well known and, a fortiori, those of international policy-makers. This is an important motivation to

investigate the careers of international bureaucrats and evaluate to what extent international bureaucrats use international institutions as a tool re-launch their political careers at home after their mandate in an international institution. A hypothesis can be that a transition in an international organisation can be a way for politicians' to be seen by everybody, defending their country interests within an institution, in order to come back to their country after their mandate(s) and pick up important political positions (Vaubel et al., 2012). There are a number of examples which illustrates this argument, with most recently, the case of the current IMF managing director. Christine Lagarde had a political career in France as Minister of Economy and Finance between 2007 and 2011. She will certainly come back to the French politics after her mandate to the IMF insofar as her name was cited among the potential Prime Ministers of the Macron government. There is also the example of the current president of the Cote d'Ivoire since 2011, who was deputy managing director of the IMF from 1994 to 1999. A last example is the case of the Togolese Kossi Assimaidou who is currently Minister for the Development Planning since July 2015, but who was on the IMF Executive Board during 8 years just before his position in the Togolese government.

As examples show, in order to come back in their country and maybe pick up important political positions after their terms, international bureaucrats will tend to defend interests of their countries and favour their country in the activities and decision of institutions they work for. Concretely, our idea is that IMF Executive Board members will use their experiences of career trajectory to influence formally or informally IMF decisions in terms of loans and repayments to their own country. For this, background information on the IMF senior officials and the Executive Board members is examined. The IMF was chosen because it is one of the biggest global institutions and because a number of senior officials and/or Executive Board members have had political careers before or after their position in this institution. The examples cited in the literature above demonstrate that the IMF is an institution which can be used by politicians to pursue political objectives.

To achieve this goal, we formulate the following research questions:

- What is the career trajectory of the key leaders[1] of international institutions before and after their position in these institutions?
- Have the IMF EB careers influence loan and repayment decisions?

To reply to these questions, this chapter is organised as follows: first, we describe the data and detail their sources, second, we provide descriptive statistics on data and the empirical strategy used. In a third section, we show the results and in the final section concludes.

2.2 Data sources and description

The curriculum vitae (CV) of IMF leaders were used to collect data. However, the collection of useful information for the study was rather difficult as:

[1]The IMF Executive Board members and IMF senior officials represent the key leaders.

1. There is a lack of overall information on leaders before the current mandate. For example, finding the name of leaders of these institutions over the last twenty years is difficult.

2. Finding an official and complete version of the Curriculum Vitae of these leaders is rare. Sometimes brief biographies are available on the IMF website but the majority of the information available in these biographies does not provide sufficient information to develop a full and correct database.

3. To have useful and supplementary information on leaders, the information given by the unofficial website 'Who's Who', newspaper articles, professional network websites etc. had to be taken into account.

In spite of these constraints, 160 observations on the key leaders of the IMF over the period 2009 to 2014 was collected, with some missing variables due to the difficulty in finding data. From these data, we merged this database with the database of the first chapter that includes loan and repayment variables as well as political and economic determinants of loan and repayment behaviours, and Executive Board characteristics.

A number of personal information was considered for this research specifically: name, gender, age, nationality, the marital status and the number of children. We assume that the international bureaucrats' intrinsic information can deeply influence the loan and repayment decisions.

Moreover, we take into consideration variables on their educational background namely level of education and field of study insofar as several researchers show the importance of the educational trajectory in the national political sphere (cf. Besley et al., 2005 and Dreher et al., 2009). Thus, we consider the hypothesis that the educational background could be a means used by the EB Directors to better negotiate with the other EB Directors higher loan amounts and better repayment modalities for their own country.

The professional activities before and after the position held on the IMF are fundamental to this study as this information describes the main professional activity done by the IMF board members before and after their term. As a result the following data is collected: fields of activity before the position, number of years in each field of activity, position held after leaving the IMF, field of activity after the position and the number of years in each field of activity after the position. Furthermore, we consider information concerning the position held within the IMF, namely: position held, situation (elected or appointed), date of nomination and date of departure, and number of mandates. This information is important as it can evaluate the weight of each member in the IMF decisions in terms of loans and repayments taken over the considered period.

Among these variables, a number of them contain several modalities. For example, the field of study includes: economics, law and others.[2] The level of education also includes: Master and

[2]Others include: management sciences, philosophy, political sciences, public affairs and social sciences. All these fields of study grouped because they represent a small proportion of the field of study of these bureaucrats.

PhD. The field of activity includes: research and education[3], private firm, public administration and international organisation.[4]

2.3 Statistics

2.3.1 Global summary statistics

Dependent variables

To test the main assumption of this chapter namely if personal, educational, professional and other annex factors can influence the IMF decisions in term of loans and repayments, we consider as dependent variables, the loans and repayments. As in chapter 1, we consider the binary variables: receipt and repayment of the IMF loans as well as loan and repayment amounts.[5] The descriptive statistics in Table 2.1 display that approximately 18% of the database have received IMF loans and approximately 21% of observations have reimbursed an IMF loan. In addition, countries from the database received a loan amount in average approximately 3 millions of sdr and repay approximately 607 thousands of sdr over the considered period.

Table 2.1: Summary statistics of of the IMF loan and repayment's traditional variables

Variable	Obs	Mean	Std. Dev.	Min	Max
Receipt of an IMF loan (binary)	115	.183	.388	0	1
Volume of loan disbursement in billions (sdr)	115	.003	.01	0	.078
Repayment of an IMF loan	115	.209	.408	0	1
Volume repayment IMF loan in billions (sdr)	115	.001	.002	0	.009

Independent variables

Table 2.2 provides the summary statistics of the quantitative variables and Table 2.3 displays the correlation and the level of significance of each correlation between the dependent variables and the quantitative variables. The leaders' average age is approximately 61 years old with the oldest among them being 77 years and the youngest 46 years.

[3]The research and education are two branches of activity which have been merged because they are very close fields.

[4]In this chapter, we reserve us the right do not integrate in the modellings all control variables used in chapter 1. The low number of observations in this database constraints us to not use these control variables and to limit the independent variables only on assumptions we want to test in this chapter.

[5]These variables have been constructed in the same way as in Chapter 1. For further information about these dependent variables, see the subsection "data and dependent variable" in chapter 1.

Before their position on the IMF, the average number of years in the public administration is the highest of all the fields of activity with approximately 11 years and a maximum of 36 years assigned to Michael Horgan, an Executive Board member representative of Canada, Ireland, Jamaica etc. The average number of years spent in an international organisation is approximately 5 years, in domestic politics approximately 1 year and in private sector approximately 3 years. The lowest average number of years is spent in Non-Governmental Organisations (NGO) at less than 1 year.
Having left the IMF, the leaders spend on average respectively, approximately 4 and 3 years in their first and second new positions.

Table 2.3 shows the level of correlation between the dependent variables and the quantitative variables. In general, the correlation between the quantitative variables and the dependent variable is low and non significant. A priori, there is an absence of correlation between all the quantitative variables of the IMF bureaucrats' trajectories and the dependent variables.

Table 2.2: Summary statistics of quantitative variables

Variables	Obs	Mean	Std. Dev.	Min	Max
Age	59	60.627	7.928	46	77
Number of years in education Bef. the Board	110	2.966	5.558	0	20
Numb. of years in the public Bef. the Board	121	10.912	8.724	0	36
Numb. of years in the private Bef. the Board	127	2.653	5.712	0	23
Numb. of years in an intern. org. Bef. the Board	130	5.447	10.167	0	46
Numb. of years in a NGO Bef. the Board	126	.143	.624	0	4
Numb. of years in research Bef. the Board	26	.385	1.134	0	4
Numb. of years in politics Bef. the Board	127	.748	2.278	0	11
Numb. of years in 1st position aft. the Board	23	3.245	1.227	1	5
Numb. of year in 2nd position aft. the Board	9	2.701	2.389	.58	8

Table 2.3: Correlation between dependent variables and quantitative variables

Variables	Obs.	Loan(bin.)	Loan size	Repay.(bin.)	Repay. size
Age	19	-0.318	-0.172	-0.318	-0.431
		(0.185)	(0.481)	(0.185)	(0.065)
Nb. of years in education Bef. EB	38	0.106	0.131	0.046	-0.0002
		(0.524)	(0.433)	(0.784)	(0.999)
Nb. of years in the public Bef. EB	41	-0.132	-0.142	-0.132	-0.086
		(0.411)	(0.373)	(0.411)	(0.593)
Nb. of years in the private Bef. EB	50	0.080	0.173	0.048	-0.047
		(0.579)	(0.229)	(0.740)	(0.746)
Nb. of years in an intern. org. Bef. EB	50	0.021	0.0984	-0.004	-0.069
		(0.885)	(0.497)	(0.978)	(0.634)
Nb. of years in a NGO Bef. EB	46	-0.103	-0.088	-0.117	-0.095
		(0.493)	(0.559)	(0.438)	(0.531)
Nb. of years in research Bef. EB	9	-0.250	-0.212	-0.250	-0.222
		(0.516)	(0.583)	(0.516)	(0.566)
Nb. of years in politics Bef. EB	44	-0.059	-0.052	-0.059	-0.054
		(0.703)	(0.736)	(0.703)	(0.727)
Nb. of years in 1st position aft. EB	9	0.089	0.309	0.089	-0.238
		(0.820)	(0.418)	(0.820)	(0.537)
Nb. of year in 2nd position aft. EB	6	0.983	0.983	0.983	0.983
		(0.0004)	(0.0004)	(0.0004)	(0.0004)

In parenthese: p-value for the significance level of the correlation.

Table 2.4 displays the descriptive statistics of the qualitative variables. The IMF Board includes 91% of men and only 9% of women. The most represented continent is Europe with 38% of representatives followed by Asia and America with respectively 29% and 25% of representatives. The most under-represented continent is Oceania with only 2 representatives. Furthermore, 69% of the key leaders are elected and 30% are appointed.[6] The majority of the leaders have a PhD (approximately 68%) while 32% have a Master. More than 75% of leaders studied Economics, following by the other fields of study with approximately 12% of leaders. Law is under-represented as a field of study at 11%.

When examining the main activity field before the position, Table 2.4 shows that, more than half of the leaders worked in public administration and 23% among them worked in education and research. Moreover, a significant percentage of leaders have worked in an international organisation and in private firms (respectively 12% and 11%). For the complementary fields of activity, we notice a predominance of public administration and education and research. It is important to signal that politics appears as a second or a third field of activity and only 21% of leaders had a political career before joining the IMF.

[6]The appointed members are those whose the countries have their own representative because they hold the largest vote shares within the institution while the elected members are elected by the countries belonging to the group of country they represent.

Table 2.4 shows also that after leaving their position in the IMF, on average, the leaders return to work in public administration (approximately 57%) and also, less proportionally, return to private firms or education and research (approximately 17% and 14%).

Table 2.5 shows the dependence level between the qualitative variables and the binary dependent variables namely receipt and repayment of an IMF loan. Here again, there is in general a low correlation between the dependent variables and the qualitative variables. Only, the continent, the other fields of activity 2 and 3 have a high and significant dependence with the binary dependent variables. However the level of dependence between the other fields of activity 2 and 3 and the 4th field of activity can be taken with a pinch of salt taking because of the low number of observations in these two variables.

Table 2.4: Summary statistics qualitative variables

Variables	Modalities	Freq.	Percent
Gender			
	Man	145	90.63
	Woman	15	9.38
Continent			
	Africa	10	6.25
	America	40	25.00
	Asia	47	29.38
	Europe	61	38.13
	Oceania	2	1.25
Situation			
	Appointed	50	31.25
	Elected	110	68.75
Level of education			
	Master	44	32.12
	PhD	93	67.88
Field of study			
	Economics	104	77.04
	Law	15	11.11
	Others	16	11.85
Main activity field			
	Education and research	33	23.08
	Private firm	17	11.89
	Public administration	75	52.45
	International organisation	18	12.59
Other field of activity 1			
	Education and research	20	16.26
	NGO	3	2.44
	International organisation	30	30
	Domestic politics	4	3.25
	Private firm	19	15.45
	Public administration	47	38.21
Other field of activity 2			
	Education and research	28	43.75
	NGO	2	3.13
	International organisation	13	20.31
	Domestic politics	13	20.31
	Private firm	4	6.25
	Public administration	4	6.25
Other field of activity 3			
	Education and research	10	33.33
	NGO	6	20
	International organisation	6	20
	Private firm	5	16.67
	Public administration	3	10
1st position after leaving			
	Education and research	5	13.51
	International organisation	4	10.81
	NGO	1	2.70
	Private firm	6	16.22
	Public adm.	21	56.76
2nd position after leaving			
	Education and research	1	10
	International org.	3	30
	NGO	3	30
	Private firm	1	10
	Public adm.	2	20

Table 2.5: Khi-2 association test between dependente variables and qualitative variables

Variables		Loan (binary)	Repay (binary)
Gender	Pearson Chi2(1)	0.433	0.775
	Prob.	0.510	0.379
	Remarks	Independance	Independence
Continents	Pearson Chi2(3)	23.724	38.625
	Prob.	0.000	0.000
	Remarks	dependence	dependence
Situation	Pearson Chi2(1)	0.798	1.426
	Prob.	0.372	0.232
	Remarks	Independance	Independence
Level of education	Pearson Chi2(1)	0.106	0.110
	Prob.	0.744	0.744
	Remarks	Independence	Independence
Field of study	Pearson Chi2(2)	0.291	0.546
	Prob.	0.865	0.761
	Remarks	Independance	Independence
Main activity field	Pearson Chi2(3)	3.696	0.248
	Prob.	0.296	0.969
	Remarks	Independance	Independence
Other field of activity 1	Pearson chi2(3)	1.998	5.709
	Prob.	0.573	0.127
	Remarks	Independance	Independence
Other field of activity 2	Pearson chi2(5)	14.850	14.850
	Prob.	0.011	0.011
	Remarks	dependence	dependence
Other field of activity 3	Pearson chi2(3)	10.00	10.00
	Prob.	0.019	0.019
	Remarks	dependence	dependence
1st position after leaving	Pearson chi2(2)	2.100	2.100
	Prob.	0.350	0.350
2nd position after leaving	Pearson chi2(3)	6.000	6.000
	Prob.	0.112	0.112
	Remarks	Independance	Independence

Statistics before the position on the Board

Table 2.6 provides the cross-statistics between gender and the main field of activity before gaining a position on the Board. This table shows a strong predominance of both genders in public administration. However, there is also a significant share of women in education and research and private firms, while there are fewer men.

Table 2.6: Summary statistics between the gender and the main field of activity bef. the Board

Gender	Educ. and res.	Private firm	Public adm.	Intern. org.
Man	21.88	10.16	53.91	14.06
Woman	33.33	26.67	40.00	0.00

Table 2.7 displays the cross-statistics between continents and the main field of activity before having a position on the Board. In almost all continents, the key leader comes mostly from public administration. However, on the American continent, the representatives come from almost all sectors of activity with a net dominance for the education and research sector.

Table 2.7: Summary statistics between the continent and the main field of activity bef. the Board

Continent	Educ. and res.	Private firm	Public adm.	Intern. org.
Africa	22.22	11.11	66.67	0.00
America	36.84	23.68	26.32	13.16
Asia	20.51	5.13	46.15	28.21
Europa	16.36	9.09	70.91	3.64
Oceania	0.00	0.00	100.00	0.00

In table 2.8, public administration dominates all the other sectors of activity. Leaders with any level of study worked in majority in the public sector. There is a considerable proportion of international bureaucrats with a PhD and a Master who worked in the education and research sector.

Table 2.8: Summary statistics between the level of study and the main field of activity bef. the Board

Level of educ.	Educ. and res.	Private firm	Public adm.	Intern. org.
Master	27.27	15.91	56.82	0.00
PhD	22.58	10.75	47.31	19.35

Table 2.9 provides the cross-statistics between the field of study and the main field of activity before having a position on the Board. Leaders who studied economics and law generally worked in public administration while leaders who studied other subjects mostly worked in education and research.

Table 2.9: Summary statistics between the field of study and the main field of activity bef. the Board

Fields of study	Educ. and res.	Private firm	Public adm.	Intern. org.
Economics	23.08	10.58	53.85	12.50
Law	0.00	26.67	73.33	0.00
Others	56.25	12.50	31.25	0.00

Statistics after leaving the Board

In table 2.10, the first position after leaving the Board for Europeans and Africans is principally in public administration, while for Americans and Asians, it is the education et research sector.

Table 2.10: Summary statistics between the continent and the 1st position after leaving the organisation

Continent	Educ. and res.	Inter. org.	NGO	Private firm	Public adm.
Africa	0.00	0.00	33.33	0.00	66.67
America	42.86	0.00	0.00	28.57	28.57
Asia	66.67	00.00	0.00	0.00	33.33
Europa	0.00	18.18	0.00	18.18	63.64
Oceania	0.00	00.00	0.00	0.00	100.00

Table 2.11 provides the cross-statistics between the level of study and the first position after leaving the institution. The descriptive statistics show that leaders from the ENA work exclusively in the public sector after leaving the IMF. Leaders with a Master and a PhD also tend to work in the public sector after leaving the IMF. In addition, approximately 50% of leaders with a Master degree work in an international organisation and in the private sector and approximately 12% of those with a PhD work in education and research.

Table 2.11: Summary statistics between the level of study and the 1st position after leaving the organisation

Level of educ.	Educ. and res.	Inter. org.	NGO	Private firm	Public adm.
Master	9.52	19.05	4.76	19.05	47.62
PhD	18.75	00.00	0.00	12.50	68.75

Table 2.12 provides the cross-statistics between the field of study and the first position after leaving the institution. The majority of Leaders who studied economic and law tend to move towards the Public sector (respectively 53% an 50%).

Table 2.12: Summary statistics between the field of study and the 1st position after leaving the organisation

Field of study	Educ. and res.	Inter. org.	NGO	Private firm	Public adm.
Economics	10.34	13.79	3.45	13.79	58.62
Law	25.00	0.00	0.00	25.00	50.00

Table 2.13 summarizes the important matrix of the leaders' trajectory. Table 2.13 displays the cross-statistics between the main professional career before and after the position in the IMF. Leaders who worked in private firms before their position work primarily in education and research after leaving their position. Those who have worked in education and research tend to

move towards the public sector while leaders who worked in the public sector stay in this sector (approximately 55%).

Table 2.13: Summary statistics between the main activity field and the 1st position after leaving the institution

Main activity field	Educ. and res.	Inter. org.	NGO	Private firm	Public adm.
Educ. and res.	0.00	0.00	0.00	16.67	83.33
Private firm	60.00	0.00	20.00	20.00	0.00
Public adm	10.00	20.00	0.00	15.00	55.00

Table 2.14 and 2.15 show the cross-statistics between the complementary professional careers of leaders and the first position after leaving the institution. This matrix supports that leaders from international organisations tend to come back in public administration after their mandate to the IMF Executive Board. Moreover, we notice that leaders who had have a political career before the Board tend to return either to the research and education sector or to private firms.

Table 2.14: Summary statistics between the other field of activity 1 and the 1st position after leaving the institution

Other field of activity 1	Educ. and res.	Inter. org.	NGO	Private firm	Public adm.
Educ. and res.	0.00	0.00	14.29	57.14	28.57
NGO	100.00	0.00	0.00	0.00	0.00
Intern. org.	12.50	25.00	0.00	0.00	62.50
Private firm	0.00	0.00	0.00	100.00	0.00
Public adm	0.00	0.00	0.00	10.00	90.00

Table 2.15: Summary statistics between the other field of activity 2 and the 1st position after leaving the institution

Other field of activity 2	Educ. and res.	NGO	Private firm	Public adm.
Educ. and res.	0.00	0.00	33.33	66.67
Inter. org.	27.27	9.09	0.00	63.64
Dom. politics	50.00	0.00	50.00	0.00
Private firm	0.00	0.00	0.00	100.00
Public adm	0.00	0.00	0.00	100.00

Figure 2.1 gives a global picture of the cross-statistics commented above. Figure 2.2 summarises these results, illustrating the Board member trajectories before and after their position on

the Board. In this figure, the thickness of the arrows is proportional to the weight of the trajectory from one activity to another. Figure 2.3 simplifies figure 2.2 keeping the most representative trajectories of the key leaders.

Figure 2.1: Summary statistics of the IMF key leaders between 2009 and 2014

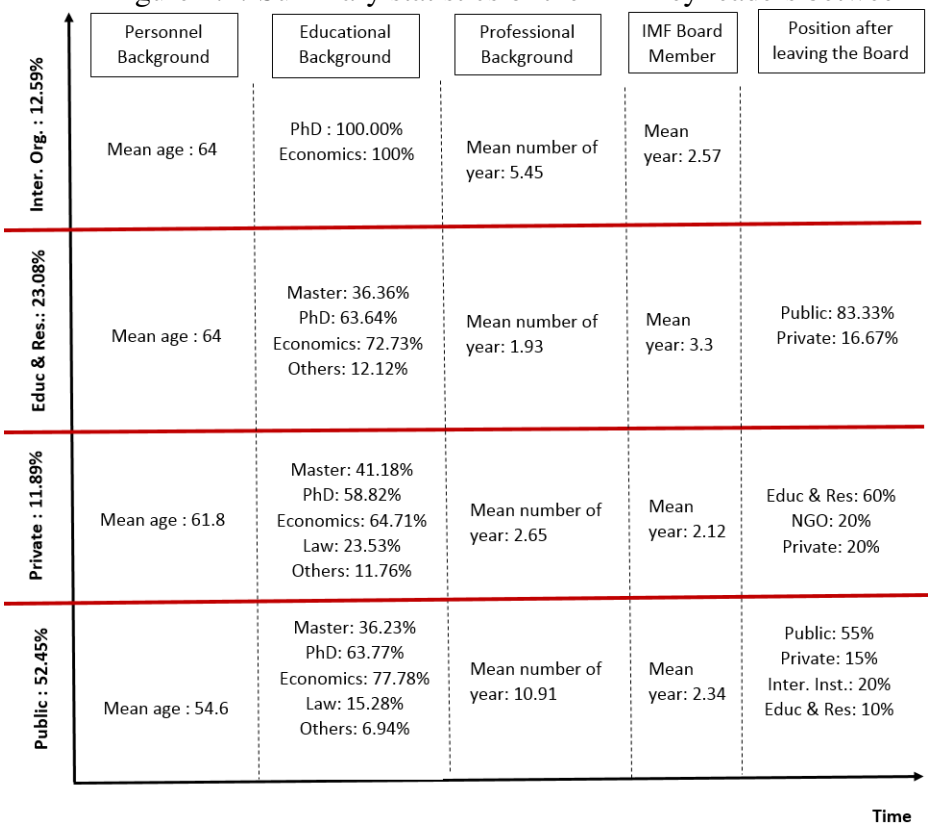


Figure 2.2: Detailed trajectories of the IMF key leaders between 2009 and 2014

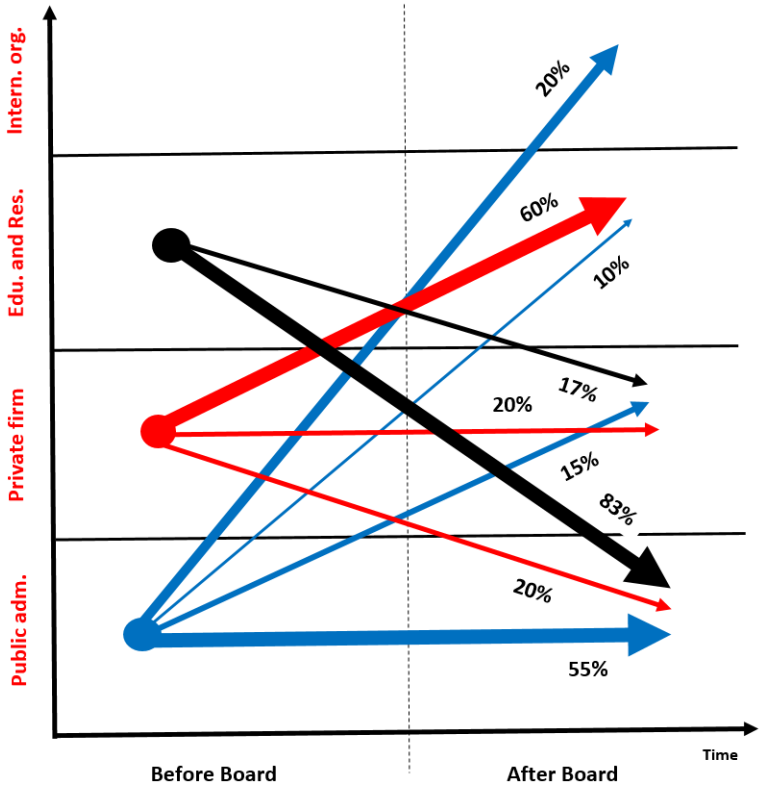
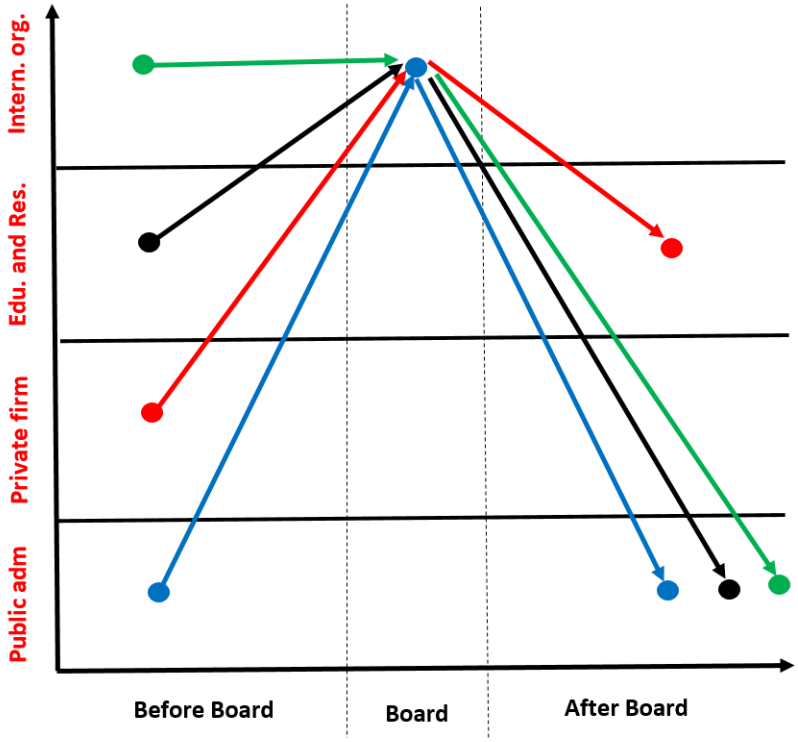


Figure 2.3: Simplified trajectory of IMF key leaders between 2009 and 2014



2.3.2 Empirical strategy

The estimated equation is given by the following structure:

$$Y_{it} = a_0 + X'_{it} * a_1 + a_2 * Z_{it} + \alpha_i + \beta_t + \varepsilon_{it}$$

where Y_{it} represents the different dependent variables detailed above for a country i in a year t, X'_{it} is the vector for personal, educational, professional variables for a country i in a year t, Z_{it} is related variables to the traditional determinants of loans and repayments for a country i in a year t, and ε_{it} is an error term distributed according to a normal distribution $\left(0, \delta^2\right)$.

The specification used is an Ordinary Least Squares (OLS) for panel data with year effects. Note that we do not include country fixed effects in the regressions. Taking into account the low number of observations, there is a weak variability of independent variables. Thus, the insertion of the fixed effects in the modelings will capture all effects that we want to explain.[7]

2.4 Results

Table 2.16 and 2.17 show the results of the loan size's empirical analysis. Table 2.16 reports the baseline regressions of the loan size. In Model (1) to (7) of Table 2.16, we integrate successively the characteristics of the IMF EB members, while in Model (8), we add in the same modelling all the characteristic variables of the IMF EB members.[8] [9] Model (1) tests the influence of to be a woman compared to be a man in the EB. Compared to be a man, there is not a significant association between the IMF loan amount and to be a woman. In Model (2), the results show that, compared to Europe, there is not a significant difference between EB directors from Africa, Asia and America. Models (3) and (4) show the results of the situation and the level of study the modellings. Here again, the IMF loan size does not depend of the situation and the level of study of EB Directors. Model (5) considers the main field of activity of EB directors and Model (6) and (7) report the results of the other field of activity before their position on the Board. We notice that there is not a significant association between the main field of activity of EB directors and the IMF loan size, but one of the secondary field of activity influence the IMF loan size. As expected, EB Directors who have already worked in an international organisation before their position on the EB tend to increase significantly the loan amount to their own country. This is an interesting result that shows that EB members who have already experiences in international organisations tend to use this experience in their favour in order to increase the amount of loan to their home country.

[7] The tobit model was not considered in this chapter as in chapter 1 because the tobit model fails to converge insofar as the number of uncensored observations on which the tobit estimates is done is quite small.

[8] Note that in each modelling, the reference modality for each variable is the modality that holds the more important frequency.

[9] We do not report the results of the dependent variable loan (binary) and repayment (binary) because the logit model fails to converge with these two dependent variables.

Adding in the same modelling several variables of the EB characteristics, the quality of the estimates tend to improve. Model (8) shows an significant association between the loan size and the gender, the continent and the field of activity. Precisely, women in the IMF EB tend to have lower amount of loan and, compared to Europe, EB directors from Africa tend to have higher amount of loan. As expected, the IMF tends to allocate more loans to African countries.

Moreover, EB Directors who worked in the Education and Research sector tend to have higher amount of loan, while EB Directors from politic sector tend to have lower amount of loan. A plausible explanation of this latter result can be that, insofar as African countries tend to get higher amount of loan from the IMF and African politicians are mainly responsible of economic problems in African countries, we could say that the IMF tend to sanction these politicians reducing the loan amount to their country.

In Table 2.17, we test a synthetic grouping of the fields of activity generating a binary variable coded 1 if the EB Director has an experience in each field of activity and 0 if not. Thus, Table 2.17 tend to confirm the first loan size modelling showing that African countries tend to have higher amount of loan, while EB Directors who have an experience in the politic sector tend to have lower amount of loan. In addition, we notice new findings namely EB directors who have experiences in public and private sector tend to use this experience to increase the loan amount to their country.

Table 2.18 displays the results of the baseline regressions of the repayment size. As expected, the continent is significantly correlated with the repayment amount. Model (8) shows that African countries tend to repay more IMF loans that the other countries. This is a logical result insofar as, African countries tend to borrow more than the other countries, they in return repay more to the IMF. Moreover, Model (7) in Table 2.18 shows that countries represented by EB Directors which have experience in international organisations before their position on the IMF board tend to repay higher amounts of loan. However, considering the low number of observations, the results related to these last estimates can be taken with a pinch of salt.

Table 2.19 follows the same logic than previously in Table 2.17. Here again, the results confirm that African countries and EB directors who have experience in public sector tend to repay higher amounts of loan (even if the estimates are slightly significant).

2.5 Conclusion

Using the IMF database constructed for the years 2009 to 2014, this chapter puts the career trajectories of the key leaders of an international institution, before their position in the institution, into perspective. This chapter also tests the influence of intrinsic characteristics of EB directors on the loan and repayment amounts. The descriptive statistics shows that the leaders' trajectory depends on the main field of activity they had before their position in the IMF. International bureaucrats who worked in public administration have been demonstrated to stay in this field of activity after their mandate(s) on the Board. Leaders' who worked in private firms before

their mandate in the IMF tend to work in the research and education sector after their term(s). Moreover, leaders who worked in the research and education sector and in an international organisation have a tendency to work in public administration in their origin country after leaving the IMF Board.
Furthermore, the descriptive statistics show that the reference trajectory of IMF key leaders is: achieve a PhD in economics, work in public administration for an approximate average of 11 years, and after their mandate(s), return in public administration.

Furthermore, the results of loans and repayments' modellings show that African countries tend to receive a higher amount of loan and logically, they tend to repay more. Countries represented in the EB by Directors who worked in politics tend to receive lower IMF amount of IMF loan. In addition, EB Directors who have experiences in international institution tend to have increase the loan to the country and logically, they tend to repay more IMF loan.
Dreher et al. (2009) also worked on the first part of this study using a panel data covering profession and education of more than 500 national political leaders from 72 countries over the period 1970-2002. Our study focuses on more than 100 international bureaucrats (and potential political leaders) from 36 nationalities over the period 2009-2014. Contrary to our database dominated by senior public servants, the biggest group (more than one-third) of the Dreher et al. (2009) sample is professional politicians. Concerning the education, approximately half of the their sample studied law and politics while the IMF Executive Board members studied economics at university. Furthermore, Besley et al. (2011b) worked on 1654 political leaders in 197 countries between 1848 and 2004. Their sample includes only 17% of post-graduate qualification and they do not precise in their study the field of activity of politicians.
Comparing this study to these 2 papers, it becomes evident that the IMF Executive Board members' educational and professional career trajectories are completely different to the typical national political leader. This new finding leads to new possibilities for future researches, especially, as according to literature reviewed during this study, there is a lack of research on the life trajectories of international bureaucrats.
However, taking into account the limited number of observations, further research is necessary in order to draw definitive conclusions from the results found in the in this chapter. The next steps for further investigation include, extending the database over a longer period (20 years), and adding other international organisations such as the World Bank, the World Trade Organisation (WTO) and the World Health Organisation (WHO).With this extended database, it will be possible to conduct a more robust and relevant econometric study with precise and relevant political implications.

Regression Tables

Table 2.16: Loan size regressions

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	Loan size	Loan size	Loan size	Loan size	Loan size	Loan size	Loan size	Loan size
Woman	-0.001							-0.006**
	(0.003)							(0.003)
Africa		0.007						0.019***
		(0.006)						(0.004)
Asia		0.001						0.002
		(0.006)						(0.003)
America		0.000						0.005
		(0.006)						(0.004)
Appointed			-0.000					-0.003
			(0.002)					(0.002)
Master				0.001				0.001
				(0.002)				(0.002)
Main activity: Education					0.001			0.003
and Research sector					(0.002)			(0.003)
Main activity: Interna-					0.000			0.006*
tional Institution sector					(0.002)			(0.004)
Main activity:					0.003			0.005*
Private sector					(0.002)			(0.003)
Other activity 1: Educa-						-0.000		0.007**
tion and Research sector						(0.003)		(0.003)
Other activity 1: Interna-						-0.005		-0.001
tional Institution sector						(0.005)		(0.004)
Other activity 1:						-0.003		-0.009**
Politic sector						(0.009)		(0.004)
Other activity 2: Interna-							0.012***	
tional Institution sector							(0.004)	
Other activity 2:							0.000	
Politic sector							(0.005)	
Other activity 2:							-0.000	
Private Sector							(0.004)	
Other activity 2:							0.001	
NGO sector							(0.005)	
Constant	0.002	-0.001	0.002	0.002	0.002	0.005	-0.000	-0.008**
	(0.002)	(0.005)	(0.002)	(0.002)	(0.002)	(0.003)	(0.004)	(0.004)
Observations	65	65	65	53	55	45	27	45
R^2	8.07	14.72	7.80	5.41	16.33	2.85	49.42	74.40
Country fixed effects	No	No	No	No	No	No	No	No
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 2.17: Loan size regressions with a synthetic grouping of the fields of activity.

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	Loan size	Loan size	Loan size	Loan size	Loan size	Loan size	Loan size	Loan size
Exp. in public sector	-0.002						-0.003	0.008***
	(0.002)						(0.003)	(0.003)
Exp.in private sector		0.002					0.005	0.006**
		(0.003)					(0.004)	(0.002)
Exp. in Inter. Inst.			-0.001				-0.002	0.000
			(0.002)				(0.003)	(0.003)
Experience in Educ. and Res.				-0.000			0.002	0.004
				(0.001)			(0.002)	(0.003)
Experience in politics					0.002		-0.001	-0.007**
					(0.003)		(0.004)	(0.003)
Experience in NGO						-0.003	-0.006	-0.008
						(0.003)	(0.005)	(0.006)
Woman								-0.002
								(0.003)
Africa								0.013***
								(0.004)
Asia								0.005
								(0.005)
America								0.003
								(0.004)
Appointed								-0.007**
								(0.003)
Master								-0.003
								(0.003)
Constant	0.003	0.001	0.002	0.002	0.001	0.002	0.004	-0.012***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.004)
Observations	65	65	65	65	65	65	65	53
R^2	3.81	8.33	5.14	7.19	7.29	9.19	6.30	56.98
Country fixed effects	No	No	No	No	No	No	No	No
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 2.18: Loan size regressions

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	Rep. size	Rep. size	Rep. size	Rep. size	Rep. size	Rep. size	Rep. size	Rep. size
Woman	-0.000							-0.000
	(0.001)							(0.001)
Africa		0.001						0.004**
		(0.001)						(0.002)
Asia		0.000						0.000
		(0.001)						(0.001)
America		-0.000						0.000
		(0.001)						(0.002)
Appointed			-0.000					-0.002*
			(0.001)					(0.001)
Master				-0.000				-0.001
				(0.001)				(0.001)
Main activity: Education					0.001			0.000
and Research sector					(0.001)			(0.002)
Main activity: Interna-					0.000			0.001
tional Institution sector					(0.001)			(0.002)
Main activity:					-0.001			-0.001
Private sector					(0.001)			(0.001)
Other activity 1: Educa-						-0.001		-0.000
tion and Research sector						(0.001)		(0.002)
Other activity 1: Interna-						-0.002		-0.001
tional Institution sector						(0.001)		(0.002)
Other activity 1:						0.001		-0.002
Politic sector						(0.002)		(0.002)
Other activity 2: Interna-							0.002***	
tional Institution sector							(0.001)	
Other activity 2:							0.000	
Politic sector							(0.001)	
Other activity 2:							0.000	
Private Sector							(0.001)	
Other activity 2:							0.000	
NGO sector							(0.001)	
Constant	0.002***	0.001	0.002***	0.002***	0.002**	0.003***	-0.000	0.002
	(0.000)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)
Observations	65	65	65	53	55	45	27	45
R^2	10.69	18.97	11.06	7.84	9.77	18.06	50.01	45.43
Country fixed effects	No	No	No	No	No	No	No	No
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 2.19: Repayment size regressions with a synthetic grouping of the fields of activity.

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	Rep. size	Rep. size	Rep. size	Rep. size	Rep. size	Rep. size	Rep. size	Rep. size
Exp. in public sector	0.001*						0.001	0.002*
	(0.001)						(0.001)	(0.001)
Exp. in private sector		-0.000					-0.001	-0.000
		(0.001)					(0.001)	(0.001)
Exp. in Inter. Inst.			0.001				0.001	0.001
			(0.001)				(0.001)	(0.001)
Exp. in Educ. and Res.				0.000			-0.000	0.000
				(0.000)			(0.001)	(0.001)
Exp. in politics					0.000		0.000	-0.001
					(0.001)		(0.001)	(0.001)
Exp. in NGO						0.000	0.001	-0.000
						(0.001)	(0.001)	(0.003)
Woman								-0.001
								(0.001)
Africa								0.003*
								(0.002)
Asia								0.001
								(0.002)
America								0.001
								(0.002)
Appointed								-0.002
								(0.001)
Master								-0.001
								(0.001)
Constant	0.001	0.002***	0.001**	0.002***	0.002***	0.002***	0.001	-0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.002)
Observations	65	65	65	65	65	65	65	53
R^2	12.10	11.61	9.61	9.04	11.53	10.53	13.11	33.61
Country fixed effects	No	No	No	No	No	No	No	No
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Chapter 3

Misplaced Childhood: When Depression Babies Grow Up As Central Bankers

We examine how much an early – i.e., childhood – experience of recession influences the behavior of central bankers. We first develop a model of decision by a committee whose leader exhibits recession-aversion due to her personal experience and, second, analyze the determinants of the interest rate setting by central banks in a discrete-choice modeling framework, augmented by the chairperson's experience characteristics. The model reveals that recession aversion could lead to a reluctance of the policymaker to increase policy rates (in empirical terms, the more recession averse will be the policy-maker, the higher should the proportion of "cuts" be, relatively to "hikes"). In a panel multinomial logit model for nine major central banks analyzed over the period 1999-2015, we verify that growing-up in a recession indeed matters. Central bankers' early personal experiences of recessions thus shape the policy reactions at the head of their institutions, with policy-relevant magnitudes. The results are robust to the tests of alternative behavioral hypotheses.

3.1 Introduction

What could influence individual central bankers decisions? Where do their preferences come from? Are they innate, directly inherited, or acquired by some more oblique transmission channels? If a good part of our preferences can be shaped by the individual internalization of cultural norms and values, the intra-family transmission, the influence of one's experiences through early life, is it also the case for the central bankers?

Pixley (2004) said: "A former Bank of England informant said: You learn from the past. There is something else. Knowledge is made up of training and experience. For example, I often used to divide the members of the Monetary Policy Committee over whether they had been involved in some of the great policy disasters of the United Kingdom. If you had been involved in those policy disasters you had a very different take on life. (12 March 2002)".

It has been shown that personal experiences also matter, especially in the early life. Dohmen et al. (2011), for instance, show a large influence of parental attitudes towards risk-taking on children's own behavior. As Emmenegger et al. (2017) explain, early-life experiments can "scar" people, and young-age unemployment spells can have a lasting impact on future political interest. Closer to the point we make in this chapter, Malmendier and Nagel (2011) show, that the individuals who have experienced low stock market returns throughout their lives report lower willingness to take financial risk, and are more pessimistic about future stock returns. Those "depression babies", as Malmendier and Nagel (2011) have called them, have different risk-taking attitudes, and this is confirmed by Giuliano and Spilimbergo (2013), who show that those who experienced a recession when young believe that success in life depends more on luck than effort, support more government redistribution, and tend to vote for left-wing parties. But what happens when depression babies grow-up as policy-makers? Do they also suffer from such scars, and do they grow more risk-averse, and more recession-averse in particular? So far, the literature has not dealt with this question.[1] Therefore, in this chapter, we focus on central bankers and intend to analyze if the "depression baby effect" is also effective when agents are at the helm of a central bank. In other words, we aim at verifying if central bankers who have been through recession(s) in their early life[2] develop a greater recession-averse behavior than their counterparts.

[1] Although one can sometimes find some hints or anecdotes that can be revealing. For instance, an academic exception is Malmendier et al. (2017), who consider that subjective beliefs and preferences of the Fed's FOMC members are formed using the lifetime inflation experiences each member has known. In other words, they consider that, when forming theirs beliefs about future inflation, individuals overweight realizations of (experienced) past (i.e., lifetime) inflation. They thus use the same definition of inflation aversion as in Malmendier and Nagel (2016), where they consider not only policymakers of the American central bank, but a large panel of citizens surveyed through the Reuters/Michigan Survey of Consumers. However, they do not explore the reasons that can explain the behavior they study. They show the lifetime experiences of FOMC members significantly affect their tendency to cast dissenting votes and, as a more subtle expression of their policy leanings, the hawkish or dovish tone in their speeches. Although Malmendier and Nagel (2016) and Malmendier et al. (2017) analyses can be considered as close to the present study, they focus on one country, and look at inflation aversion, while we consider recession aversion.

[2] The first 25 years in the case of this study.

The common sense intuition that leadership matters is supported more and more. For instance, Besley et al. (2011a) or Hayo and Neumeier (2012) analyses confirming that leaders' background matters in macroeconomic developments. This line of thoughts applies to central bankers as well, and it has been shown that the votes of the Federal Reserve's Federal Open Market Committee (FOMC) members are significantly affected by their educational and professional achievements (Chappell et al., 2005; Eichler and Lahner, 2013). Results from larger samples indicate that central bankers' occupational background, as well as their education, can be an important determinant to consider (Farvaque et al., 2014; Gohlmann and Vaubel, 2007; Lebaron and Dogan, 2016; Farvaque et al., 2011). This shows that leadership matters in central banking. However, the literature so far has not considered the issue raised by Malmendier and Nagel (2011), and this is the aim of this study. More precisely, if the "depression childhood effect" implies a lower degree of risk-taking, it could induce a reluctance to increase policy rates and a bias towards the reduction of policy rates. Hence, we test the "depression childhood effect" in a discrete-choice modeling, which is more adapted to capture the effect, if it is present insofar as this modeling take into consideration the nature of the policy rate (what really interests us) instead the extend of this policy.

The study by Eichengreen et al. (1985) is one of the first to use discrete-choice modeling in a related context, taking into account the nature of the policy rate when studying the Bank of England's discount rate policy in the interwar gold standard period. For more recent periods, Dueker (1999) considers the FOMC (Federal Open Market Committee) decisions, and measures the policy rate inertia, while Hamilton and Jorda (2002) focus on the size of rate changes for the same central bank. Hu and Phillips (2004) also study the FOMC and, after controlling for non-stationarity, show that reactions to economic shocks by the FOMC are delayed (i.e., the Fed does not react immediately to a shock, but with a one-period lag). The latest studies additionally attempt to control for novel variables such as time-varying risk premium (Nourzad et al., 2012), utilize combination of forecasts (Vasnev et al., 2011) and (Bayesian) model averaging (Hauwe et al., 2013) for the Fed decisions.

Among the studies that have used discrete choice modeling of monetary policy decisions for other (individual) central banks, Gerlach (2007) focused on the European Central Bank, Smales (2013) on the Reserve Bank of Australia, Torres and Shepherd (2013) on the Bank of Mexico, whereas Kim et al. (2015) analyzed South Korea. In a multi-country setting, Dolado et al. (2005) considered four central banks' decisions, whereas Nojkovic and Petrovic (2015) investigated six Central and Eastern European monetary authorities. Thus, interest rate setting analysis under discrete choice framework does not only better reflect the reality of monetary decisions, but also allows to assign probabilities to moves of the policy rates in different directions. This, in turn, means considering explicitly behavioral asymmetries that can be important if central bankers are "recession-averse" (Cukierman and Muscatelli, 2008), as they could be if the "depression baby effect" is present.

Here, we adopt a multinomial logit modelling of determinants of policy changes, with an emp-

hasis on the leadership effects and, in particular, on the impact of the recession(s) experienced in the first 25 years on the policy behavior of central banks chairmen.[3] Our main contribution is thus to take into account the influence of central bankers' chairmen different backgrounds on monetary policy decisions.

This aims at focusing on the role that chairmen have played in the normal times, as well as during the financial crisis of 2008. Generally, a strong leadership has to be built in normal times, so as to allow enforcing otherwise hard-to-take decisions when circumstances need it (see, Bligh and Hess, 2007; Axilrod, 2009; Shagi and Jung, 2015, for different types of account revealing the importance of the Fed's chairmen, for example). Among diverse characteristics of the chairmen, we thus take into account early life experience of recession, as this might have important consequences for individual preferences. A second contribution is that we make use of discrete choice models, where the effects of backgrounds can be revealed in a more precise way, and notably by taking into account asymmetries in deciders' reaction functions.

It has to be signaled, that, even though our period covers the most recent years, we nevertheless focus on interest rate changes for three related reasons. First, less than half of the central banks in our sample have used quantitative easing measures, meaning that interest rate changes are a central policy tool for a large part of decision-makers, and offering a way of comparing decision-makers' attitudes. Second, even in a world where central bankers have had to rely on quantitative measures, these were implemented as complementary instruments, and with an understanding that interest rate changes are the main tool of monetary policy, even though temporarily ineffective. Moreover, central bankers implementing quantitative easing have had to give some guidance about their (future) behavior. Third, our modeling strategy is precisely aimed at taking into account the fact that most of central bankers' decisions are, in fact, no-change decisions. This is even truer when policy rates hit the zero lower bound (ZLB), justifying our empirical approach.

Results from our multinomial logit estimates reveal that, if the standard determinants (inflation, the inflation gap for inflation targeting central banks, the output gap) have an influence, leadership effects, and central bankers' backgrounds also have an impact on interest rate changes. There is a depression baby effect for central bankers, and we reveal that its size is significant. In other words, growing-up in a recession influences central bankers as much as other agents. Moreover, the results resist to several alternative, or placebo, hypotheses that could be emitted but are not supported by the data.

The remainder of the chapter is thus organized as follows: Section 2 introduces the theoretical model. Section 3 describes the data and methodology we use, while Section 4 presents the results. Section 5 contains our conclusions and suggestions for further research.

[3] Volens nolens, we have to accept that our sample only contains male monetary policy-makers. The committees they chair sometimes do contain women and, by way of consequence, if there is a gender effect in central banking (see Farvaque et al., 2014, 2011), it cannot be observed here (or, it would be a purely "Yellen effect"). All in all, this reflects the bias against women in central banking (Chartély et al., 2017).

3.2 Theory

We first review the origins of the behavioral trait we look at. We then detail the benchmark standard model of monetary policy, include a recession aversion policymaker, and finally analyze to what extend this could impact the monetary policy committee decisions.

3.2.1 Where does recession aversion come from?

One can conceive two ways of explaining an individual's preferences. They can either be received (i.e., transmitted by parents or other role-models), or they can be built, and they can evolve, through personal experience. Obviously, the distinction between the two mechanisms is more pedagogical than realistic, and the reality is generally an idiosyncratic combination of the two, but the distinction has given birth to two related literatures, each focused on one aspect.

The transmission of preferences has been explored in many contexts, and the literature generally differentiates between a first channel, called "vertical", that captures the transmission of beliefs within the family, and a second, termed "oblique", that seizes influence(s) arising outside the family (see, e.g., the survey by Bisin and Verdier, 2010). In this case, whatever the channel, preferences are inherited, and it is the experience(s) of parents and role models that will matter. Here, we focus on recession aversion, considering that it emerges during the forming years, i.e., the first 25 years an individual (in our case, a central banker) has lived through. We thus rely on the second literature, the one that looks at the building of preferences through personal experiences, and that shows the defining impact the first years of an individual have on her behaviour. The fact is now empirically backed (see, e.g., Giuliano and Spilimbergo, 2013) and its general macroeconomic consequences have been explored, by, for example, Alesina and Fuchs-Schuendeln (2007). For what concerns the influence on each and every agent's behavior, the study by, for instance, Cogley and Sargent (2008) - making use Friedman and Schwartz (1963) account of the way successive recession shape individuals' assessment - shows how depressions and recessions can alter confidence in a 'normal' set of beliefs, rendering agents more pessimistic, with induced consequences on their utility function. Huang et al. (2016) show that such preferences can define "cohort preferences", with particularly strong impact on asset pricing cycles.

From this literature, we conclude that recession aversion comes from a personal experience of a situation that induces a form of risk aversion. In other words, experience brings prudence (Kimball, 1990), a form of higher-order risk attitude (Noussair et al., 2014). Technically, recession aversion is thus a kind of downside risk aversion (Crainich and Eeckhoudt, 2008). As such, it can be modelled and inserted in an otherwise standard macroeconomic model, in which the policymaker's utility function exhibits loss aversion. This has notably been shown by Cukierman and Muscatelli (2008), and done by Gerlach (2003) or Geraats (2006). In what follows, we will make use of the functional form proposed by Surico (2008).

3.2.2 The Economy and the Central Banker's Benchmark Loss Function

We adapt the model proposed by Gerlach (2003) or Surico (2008). The economy is summarized by the following Phillips curve and rational expectation process, respectively:

$$y_t = \theta\left(\pi_t - \pi_t^e\right) + u_t, \tag{3.1}$$

$$\pi_t^e = E_{t-1}\pi_t, \tag{3.2}$$

where π_t denotes the inflation rate at time t, π_t^e the expected inflation rate at time t, E the expectations operator, y_t the output gap at time t, θ a positive parameter, and u is an i.i.d. shock.

We add to this model a traditional IS-type curve, representative of the demand side of the economy:

$$y_t^d = \phi\left(i_t - \pi_t\right) + v_t, \tag{3.3}$$

where i_t is the nominal interest rate and v_t is an i.i.d. demand shock.

The central banker's loss function in the benchmark case is a standard text-book one:[4]

$$L_t = \frac{1}{2}\left[\left(\pi_t - \pi^*\right)^2 + \lambda y_t^2\right] \tag{3.4}$$

where λ is the relative weight given by the central banker to the stabilization of output objective, and π^* denotes the target inflation rate.

Standard optimization of this loss function in the discretionary case and under the constraints imposed by the economy's behavior deliver the following values for inflation, output, and the interest rate:

$$\pi_t = \pi^* - \left(\frac{\theta\lambda}{1+\theta^2\lambda}\right)u_t$$

$$y_t = \left(\frac{1}{1+\theta^2\lambda}\right)u_t$$

$$i_t = \pi^* - \frac{1}{\phi}v_t + \frac{1-\phi\theta\lambda}{\phi\left(1+\theta^2\lambda\right)}u_t$$

The expected value of the social loss function in this standard case is thus the following:

$$\tilde{L}_t \equiv E\left(L_t\right) = \frac{1}{2}\left[\pi^{*2} + \sigma_u^2\left(\frac{\lambda}{1+\theta^2\lambda}\right)\right]$$

where a tilde indicates a computed value and σ_u^2 is the variance of the shock.

[4] See, e.g., Walsh (2010)

3.2.3 The Recession-Averse-Central Banker's Loss Function

We still focus on a discretionary regime and, following Surico (2008), we suppose that the central banker attempts to minimize an instantaneous loss function of the following form:

$$L_t^A = \frac{1}{2}\left[(\pi_t - \pi^*)^2 + \lambda\left(\frac{exp(\gamma y_t) - \gamma y_t - 1}{\gamma^2}\right)\right], \tag{3.5}$$

where $\gamma < 0$ represents the asymmetric preference on output stabilization, reflecting the recession-averse preference of the policy-maker, and where A indicates the recession-averse case. We do not explicitly model the origin of this recession-aversion. However, based on the literature reviewed above, the parameter is a function of the policymaker's past experience, which itself comes - theoretically speaking - as an endowment (Kimball, 1990; Crainich and Eeckhoudt, 2008). Hence, we have $\gamma \equiv \gamma(\bar{\omega})$, where $\bar{\omega}$ summarizes the experience of the policymaker, and notably the recessions through which she has lived.
The minimization of (3.5) yields a solution of the form:

$$(\pi_t - \pi^*) + E_{t-1}\left(\frac{\lambda\theta}{\gamma}\left[exp(\gamma y_t) - 1\right]\right) = 0,$$

which can be approximated by:

$$E_{t-1}(\pi_t) \simeq \pi^* - \frac{\lambda\theta\gamma}{2}\sigma_y^2.$$

where σ_y^2 is the variance of the output gap.
The interest rate decision rule followed by the central banker is now:

$$i_t^A = \pi^* - \frac{1}{\phi}(v_t - u_t) + \theta\lambda\gamma\left(\frac{\phi + \theta}{2\phi}\right)\sigma_y^2.$$

Given this, the value of the one-period loss function, $\tilde{L}_t$ becomes:

$$\tilde{L}_t^A = \frac{1}{2}\left(\frac{\lambda\theta\gamma}{2}\sigma_y^2\right)^2 + \frac{\lambda\gamma^2}{2}\sigma_y^2.$$

3.2.4 The committee decision

We do not ignore that central banking is a collective activity nowadays (and this is true for the central banks that our empirics will cover).[5] However, our focus is not on modeling the behavior of the monetary-policy-making committee, but analyzing the influence of the childhood experience on the Chairman's behavior. We thus summarize the bargaining process inside the monetary policy committee as delivering the following decision-making rule:

$$i_t^C = \alpha i_t + (1 - \alpha) i_t^A$$

where $(1 - \alpha)$ is the relative power of the recession-averse policy-maker inside the committee

[5] See Hao and Suen (2009).

and the subscript C denotes the committee decision. This can either reflect a Chairman dominance effect (as coined by Riboni and Ruge-Murcia, 2010) or the issue of the bargaining inside the committee (as in Hayo and Meon, 2013), or of the voting rule process (as in Farvaque et al., 2009, for instance).

Substituting with the above results, we obtain a decision rule of the following type:

$$i_t^C = \pi^* - \frac{1}{\phi} v_t + \left[\alpha \left(\frac{1 - \phi\theta\lambda}{\phi\left(1+\theta^2\lambda\right)} \right) + (1-\alpha)\frac{1}{\phi} \right] u_t - (1-\alpha)\theta\lambda\gamma \left(\frac{\phi+\theta}{2\phi} \right) \sigma_y^2, \tag{3.6}$$

which defines the way the interest rate will evolve in reaction to economic and (potentially) preference shocks.

From this expression, we can derive the following comparative statics results:

$$\frac{\partial i_t^C}{\partial(1-\alpha)} = \left(\frac{\theta\lambda(\phi+\theta)}{\phi\left(1+\theta^2\lambda\right)} \right) u_t - \theta\lambda\gamma \left(\frac{\phi+\theta}{2\phi} \right) \sigma_y^2, \tag{3.7}$$

$$\frac{\partial i_t^C}{\partial\gamma} = -(1-\alpha)\theta\lambda \left(\frac{\phi+\theta}{2\phi} \right) \sigma_y^2, \tag{3.8}$$

$$\frac{\partial^2 i_t^C}{\partial(1-\alpha)\partial\gamma} = -\theta\lambda \left(\frac{\phi+\theta}{2\phi} \right) \sigma_y^2. \tag{3.9}$$

Given that $\gamma < 0$, the sign of the first derivative is positive, while the sign of the last two is negative. Hence, the relative power of the recession averse decision-maker in the committee decision (i.e., $(1-\alpha)$) has an positive impact on the interest rate rule followed by the committee. This result is reminiscent of the one obtained, e.g., by Riboni and Ruge-Murcia (2010) under dominance, and signals that chairmen can use an agenda-setting position to increase their relative power and move interest rates further than what the median member of the committee would choose. However, the recession aversion parameter has a negative impact on the interest rate. As revealed by the last equation, the cross derivative with regard to both the recession aversion and the Chairman's relative power do weigh negatively on the policy rate. In other words, the recession-aversion parameter has an even stronger influence on policy rates than the relative power of the Chairman. As a consequence, the more recession-averse the policy-maker, and the larger his influence in the committee, the smaller the interest rate, ceteris paribus.

This stylized model thus reveals that recession aversion could lead to a reluctance from the Chairman to increase interest rates. In empirical terms, the more recession averse will be the policy-maker, the larger the impact of his recession aversion experience on the proportion of "cuts" on interest rates, relatively to the proportion of "hikes". Or, the larger the impact of the experience of recessions on a policy-maker, the more reluctant she should be to behave hawkishly. We now investigate if this theoretical result is supported by the data.

3.3 Empirics

In this section, we empirically test the "depression childhood" hypothesis for 9 central banks. Here, our assumption is that the "Depression Baby" effect revealed by Malmendier and Nagel (2011) is also relevant for policymakers, and that we could write $\gamma \equiv \gamma(\bar{\omega})$, where$\bar{\omega}$ is the childhood experience (i.e., the number of years of recession a central banker has lived through during his first 25 years in the case of this study). We consider the standard determinants of a policy change, to which we add several variables related to the Chairman's background, and more particularly its childhood experience of economic depression periods.

3.3.1 Data

Our dependent variable is the decision taken by central bankers, i.e., the (change of the) policy rate. However, central banks interest rate decisions raise an economic issue with econometric consequences, because central banks do not necessarily adjust their rate and, when they do so, they change it through small steps (generally 25-basis points, sometimes, but more rarely, 50-basis points). Table 1 offers another way to look at the data, revealing that, on average for the 9 central banks we survey over the period 1999Q1 – 2015Q4, policy rates were not modified more than half of the time (58.5%). If Japan is a clear outlier, as policy rates were not changed more than 90% of the time (92.65% to be precise), even in Sweden 38.24% of the observations are of a no-change decision. The second part of the Table 1 also shows that the crisis has only reinforced (and not dramatically altered), this feature. Only in Sweden has the proportion of "no-change" decisions been reduced, whereas it has increased in all the other countries surveyed in our sample. Such an inspection of the data therefore convinces that a discrete choice modeling is an adequate approach to explain its variations (or lack of it), if one wants to take into account the features of the whole period. Moreover, given that the theoretical modeling suggests that recession-aversion should impact policy rates, this is also more consistent.

We will consider two groups of independent variables. First, we consider macroeconomic variables: the GDP growth rate and the inflation rate. These two variables are commonly used (for example, in Taylor-like rules' estimates) and do not necessarily attract further comments.[6] We also account for the impact of the Great Recession (aka, the Great Financial Crisis) by adding a dummy variable taking the value 1 if a country has known a negative rate of its (quarterly) GDP growth between 2008 and 2009. Finally, we include a dummy equal to 1 if the central bank has an official inflation target, and a dummy equal to 1 when the target is met, to take into account the framework in which the decisions are taken and the potential influence of missed targets

[6]Note that we have run robustness checks introducing also the real exchange rate. Given that some of the countries considered here are among the main exporters and importers, this variable could in particular capture the impact of trade relations. In addition Dong (2013) shows that the Bank of Canada, the Reserve Bank of New Zealand, and the Bank of England do not adjust interest rates in response to exchange rate movements since the adoption of inflation targeting. However, even using exchange rates in modelings, the results are qualitatively similar.

on these decisions. These last two variables are obviously related and will only be introduced successively. These macroeconomic variables will deliver our baseline estimates.

The second group of variables we consider are the ones that should reflect the "depression childhood effect". In the spirit of Malmendier and Nagel (2011), to capture how their individual experiences of macroeconomic shocks affect the central bankers' degree of risk aversion, we include variables capturing the context in which the chairpersons included in our sample grew up. First, we include the number of continuous (i.e., successive) years of recession a Chairman has known during his first 25 years. To confirm that this risk aversion that we are trying to capture in this chapter is not the effect of only one or two Chairmen, Table 2 shows an average turnover of 3 in central banks. As can be seen from Table 3, this variable has a mean equal to 4.65, and a maximum value of 11 years (Alan Greenspan, Chairman of the Federal Reserve of United State over the period 1999-2005). Hence, we also consider a dummy variable, whose value is 1 if the number of continuous recession years of the Chairman is superior to 4 (4 years and 8 months being on average the number of continuous recession years). In our sample, more than one-third of the chairmen considered have lived through such periods (see Table 3), which may have even more strongly influenced their behavior than for the other central bankers. Then, we take into account the maximum number of successive recessions years known by a central banker. This captures the maximum length of any recession the central banker has lived through (this variable has a mean equal to 1.85 and a maximum value equal to 5). Another variable that could induce recession-aversion is the minimum value of the GDP growth rate that the central banker has experienced. This is intended to capture the depth of the recessions the central banker experienced during his formative years. The mean here is equal to -9.77, a relatively low value which reflects that the central bankers we survey have gone through very deep recessions, and thus reinforces the possibility that such dramatic periods may have impacted their preferences. Finally, we include a dummy variable equal to 1 if a central banker is born before World War II, to check if our results could be driven by a generational effect. Thus, approximately 20% of Chairmen are born before World War II.

Concerning the Chairman, we control for the relevant career effects. More than half of the chairmen we consider come from either the Academia (11% of the sample) or the Central bank itself (42%), see Table 3. These professional backgrounds are taken into account through two dummy variables (equal to 1 if the feature is met, 0 otherwise). In the literature, these variables have been shown to be significant in explaining the decision taken by central banks, (see, e.g., Chappell et al., 2005), therefore we also include them in our specifications.

Finally, we include two control variables that are now currently used in the literature on decision-making by committees. These aim, both, at controlling for the sheer fact that the chairperson is not alone in taking decision, even if her agenda-setting power means that a "dominance" is probably present, especially in monetary policy committees (see for example, Riboni and Ruge-Murcia, 2010; or Johnson et al., 2012), and for the dynamics that can take place inside the committee. First, we include the Chairman age gap (i.e., the difference between the age

of the Chairperson and the average age of the committee excluding himself), to include for generational, educational and, potentially, behavioral differences between the leader and its committee. A relatively similar variable (gap between the age of the oldest and the youngest committee member) has been shown as influential in the literature on committees and, for monetary policy, in Farvaque et al. (2014). Second, the professional heterogeneity of the members of the committee is included, to control for the variety of opinions a Chairman can benefit from. That is, it accounts for the "two heads are better than one" effect (see Blinder and Morgan, 2005). The high variance related to this variable (see Table 3) could reveal important tensions inside a board, according to the literature on board management. More precisely, we measure heterogeneity of the committee by Herfindahl indices (hence, the closer to 1 is its value, the more homogeneous is the group). As can be seen from Table 3, there is a comparatively large degree of heterogeneity for this variable in our sample, with a mean equal to 0.36.

3.3.2 Methodology

The specification we use for the central banks' policy rate decisions considers the target interest rate, $i*$, for the central banker as a latent variable, chosen to maximize the decider's utility, and whose determinants are X, a vector of macroeconomic variables, W, which refers to each central bank's Chairman characteristics, and Z, which contains control variables for the features of the committee headed by the Chairman heads. Hence, we have:

$$i_t^* = \alpha + \beta X_t + \gamma W_t + \lambda Z_t + \varepsilon_t \tag{3.10}$$

where ε_t is an i.i.d. error term.

The determinants of the changes in the target rate decision are considered using a triple-choice specification for the discrete choice (multinomial logit) model :

$$y_i = 0 \; if \; i_t^* = i_t$$
$$y_i = 1 \; if \; i_t^* < i_t$$
$$y_i = 2 \; if \; i_t^* > i_t$$

Put another way, our dependent variable is $y_t = [0, 1, 2]$ (0 denoting status quo, 1 a cut, and 2 a hike in interest rates).

The determinants of the direction of changes in the central banks policy rate decisions are considered using a triple-choice specification for the discrete choice model. We thus estimate equation (10) above in a multinomial logit model. The multinomial logit model provides a convenient form for the modeling of choice probabilities without requirement for multivariate integration.[7] Therefore, choice situations characterized by many alternatives can be treated in a

[7] A multinomial logit model with fixed effects Central Bank was considered to take into account the fact that the individual background of Chairmen that we are trying to capture is not related to their country's experiences. We

convenient manner (see Hausman and McFadden, 1984).

3.4 Results

3.4.1 Recession-aversion impact

Table 4 reports the results of the baseline models, while Table 5 shows the marginal effects of the baseline models. Tables 6 and 7 provide the results of successive robustness checks.
First, Table 4, model 1, displays the results of the baseline model, which includes only the macroeconomic variables. GDP growth is, as could be expected, positively associated with the probability of a hike of the policy rate and negatively with a cut in the policy rate (although the coefficient here is only slightly significant). Additionally, an increase in inflation is associated with a higher probability of an increase in the policy rate (although not correlated with the probability of decreasing the rate). The coefficient of the dummy variable associated with the Great Recession period is not significant. Finally, the results associated with the dummies inflation targeting regime (model 1) and inflation target respected (model 2) are interesting. The first is positively related to a reduction in policy rates, while the second is positively related to hikes. Hence, the theoretical properties of an inflation target are confirmed by the data (see, for example, Walsh, 2010): first, the adoption of inflation targeting leads to lower inflation, which allows a reduction in interest rates and, second, once the inflation target is respected, expectations are anchored, which facilitates policy rate changes. Therefore, our baseline models lie in conformity with the generally accepted explanations of policy rates changes. In other words, this first set of results is compatible with a representation of central banks reacting according to a Taylor-rule (or, in this framework, a variation of the Taylor-rule, see, e.g., Smales, 2013; Torres and Shepherd, 2013), which allows us to follow up by focusing on our variables of interest, i.e., the variables capturing the childhood experience of the chairmen.
The next models in Table 4 add, successively, our recession variables. Most of them cannot be included at the same time, for colinearity reasons, so we have to deal with them one by one. As can be seen from models 3 to 6, they are all significant, although with differing degrees of significance, but the general lesson that emerges is that they clearly influence, positively, the probability of cutting interest rates (almost without impacting the probability of augmenting them). These results are thus supporting the theoretical model, which shows a reluctance to increase interest rates (and, thus, a “taste for cuts”). More precisely, it appears that, respectively, the variable denoting if a central banker has lived through more than four continuous recession years, and the variable number of maximum successive recession’s years, are the most influential, with high degrees of significance and relatively large coefficients. Model 6 shows a positive

finally give up the modeling with fixed effects because of the high level of colinearity between the Central Bank fixed effects and one of the independent variables, namely "inflation targeting dummy". However, the results with fixed effects are qualitatively similar and can be provided on request.

and slightly significance of the lowest rate of GDP growth on the likelihood of central bankers to cut the interest rate. In model 7, we look at the impact of both the maximum number of successive recession years and the lowest rate of GDP growth a central banker has known. Both variables are strongly significant, weighting quite heavily on the probability of reducing interest rates.

Given the impact of WWII on the GDP of many countries which have suffered from destruction, we test, in model 8, if central bankers born before this period are susceptible to have a higher degree of recession aversion, and thus to show a reluctance to increase interest rates. As model 8 shows, this expectation is verified. However, this same variable could imply that what we consider as recession aversion could only be a generational effect. Hence, in model 9, we introduce our favorite indicator of recession aversion (the maximum number of successive recession years) and the birth cohort variable. The latter is now no longer significant, which we interpret as revealing that recession aversion is in fact more than a pure age-cohort effect.

Finally, in model 10, we introduce the variables related to the central bankers' career and to the features of the committee they manage. The results reveal that the one of significant variables in this more complete model is related to recession aversion, hence confirming the importance of this effect in decision-making. All in all, this set of results is, to our knowledge, the first confirmation of the fact that the "Depression babies" behavioral trait is also present when considering monetary policy-makers.

The policy relevance of the results is easier to catch by considering the marginal effects, provided in Table 5. The magnitude of the marginal effects is relatively large, which reveals the strong policy relevance of the variables that capture the central bankers' degree of recession aversion. In a nutshell, it appears that recession childhood periods make any central banker in our sample much more dovish. More precisely, as can be seen in Table 5, the probability of a cut is largely increased, especially when compared to the probability of a status quo.[8] Globally, the recession aversion effect, considered in isolation, is 4 to 7 times larger than the probability of a status quo. The policy relevance of the childhood generated recession aversion effect is thus important.

In Table 6 and 7, we provide two robustness checks. The first limits the period of observation to the pre-crisis era, that is based on the period 1999-2007. Although we lose almost half of the observations, the striking thing is that the recession aversion variables keep their significance, and that the thrust of our results is conserved.

The second robustness check considers Japan as an outlier, given that its central bank has almost not modified its policy rates over the period (see Table 1). Hence, in Table 7, we drop Japan from the sample and run our estimates on 8 countries, for the period 1999Q1-2015Q4. Here again, most of the results are kept, and they are consistent with the recession aversion hypothesis. The

[8]The probability of the status quo is given by the formula: $Proba - Status - quo = \frac{1}{1+e^{cst1}+e^{cst2}}$. With $cst1$, the constant value of the hike's estimates and $cst2$, the constant value of the cut's estimates. In our case, all constants are significant, which means that the probability of status quo is also significant.

main difference, however, is that the age-cohort effect becomes more robust than the maximum number of successive recession years.

3.4.2 Placebo tests

In order to confirm that the recession years effect on the recession aversion of central bankers captured in the previous section is not a pure statistical artefact, we run a number of placebo tests, introducing other variables that could have a behavioral influence on policymakers. Table 8 contains the descriptive statistics of these alternative hypotheses, while the results from these estimates are displayed in Table 9.

From the literature, we derive a certain number of hypotheses that may also be considered as nurturing a large degree of recession aversion. The reluctance to increase policy rates and, so doing, to engineer a recession may be caused by other, even more personal, factors. Namely, family, political tendency and educational backgrounds could also be related to the behavior we have highlighted above. In this section, we verify if these alternative assumptions can do better in explaining the policymakers' attitudes we consider.

First, concerning the family background, we build on Black et al. (2017) - and the literature therein -, who identify peer effects within the family, and study how birth order influences the amount of time which a child spends in early childhood with their siblings, and provide evidence that sibling spillovers exist, which are working at least in part through the relative exposure to parental time and financial resources. In our context, siblings spillover could impact the behavior of central bankers. To test this hypothesis, we include a number of variables related to the family situation of the central bankers in our sample: the number of siblings, the rank in the brotherhood, and a dummy variable equal to 1 if the Chairman is a single child, as well as and the number of children of the parents.[9,10] The assumption here is that either a single child or the last in line of the children may be more cared about, which may induce more recession averse behavioral traits.

Second, with regard to the political tendency and the educational background, we consider two dummy variables, one related to an officially acknowledged political tendency for Left wing parties (Labour, Social Democrats, etc.) and indicating if a central banker has completed a PhD

[9]Among these variables, we had also considered the fact that the parents of the Chairmen worked in a public job, which means that these central bankers will tend to decrease the interest rate because of the job security of their parents. We finally removed this variable of the estimates because of the small number of observations and also because the results of this variable is led by 1 or 2 central bankers, precisely after the Great Financial Crisis. Thus, not to generalize this result on the whole of the observations, we removed this variable among the placebo tests.

[10]The sources of the variables considered throughout this section come from very varied sources, as the biographical information of the website of the considered central banks do not generally provide adequate information. Hence, we have used Who's Who (world, European and Asian editions), Wikipedia pages, biographical notices in local newspapers, central bankers' speeches, etc. Help from colleagues who have searched through websites in local languages is to be acknowledged. However, despite our efforts, the number of observations is reduced compared to the balanced dataset used in the previous section.

in an institution that has a reputation for a Keynesian leaning.[11] This intellectual background could also induce recession aversion in a central banker's attitude with regard to policy-making and thus provide a useful alternative to our behavioral assumption.

As can be seen from Table 8, on average, the chairmen have 2 brothers and sisters, and around 10% of them are single children. Furthermore, around 40% of them have Left political affiliations and only 11% have completed their PhD in a Keynesian-oriented institution (nevertheless, the small number of observations for the latter variable can only induce one to be cautious with regard to the interpretation of the results related to this variable).

Table 9 displays the results for these alternative modelings. As can be seen, the model is stable, as the control variables keep their significance and their signs. Turning to the variables related to the placebo tests, we note that almost all of these variables have not a significant influence on the behavior of the Chairman (neither on the probability of a "cut" nor on a "hike"). The only significant result comes from the variable "PhD completed in a Keynesian institution". This variable has a negative and significant influence on the probability to increase the policy rate, compared to the reference situation (except when we exclude the Great Recession from the sample period, where this variable has a positive impact on the probability of a cut). These results lie in conformity with what could be expected from a Keynesian intellectual background. This section clarifies that the impact of the recession years is not an artefact, and our assumption of recession aversion is really the only effect that influences the probability of a "cut" by Chairmen.

Table 10 and 11 provide the robustness checks of the alternative modelings, by resticting the sample, respectively, before the Great Financial Crisis and without Japan. In these robustness checks, the results do not change qualitatively, although we lose the number of observations sometimes shrinks dramatically. More precisely, in Table 10, the only significant variable is to be a single child, and a Keynesian PhD. They tend to increase significantly the probability of a "cut" in the policy rate. In Table 11 (i.e., without Japan), to be a single child significantly increases the probability of a "cut", while the rank in brotherhood decreases the probability of a "cut". In parallel, to have completed a PhD in a Keynesian institution tends to significantly decrease the probability of a "hike". However, considering the low number of observations, the results related to these last estimates can only be taken with a pinch of salt.

Table 12 displays the results integrating into the estimates both the number of maximum successive recession's years of the Chairman and the significant alternative variables. The model without any restriction (model 1) shows that the insertion of the placebo variable "PhD completed in a Keynesian institution" does not affect the significance of the recession variable, and that the number of maximum successive recession's years of the Chairman always positively and significantly influence the probability of cutting the interest rate. Running the same robustness as before (i.e., observations before Great Financial Crisis and without Japan), the results remain qualitatively the same and the recession variable is always more significant than the placebo

[11] In some cases, we have also been able to trace the advisor as being a leading Keynesian thinker.

variables. These results confirm the important weight of our interest variable, and confirm that the significance of the recession variables captured in the previous section is not an artificial one, either related to an omitted variable bias or to a statistical artefact. The recession aversion effect is thus robust to the falsification tests.

3.5 Conclusion

In this chapter we analyze the interest rate setting behavior of nine major central banks within the framework of discrete choice modeling augmented with chairmen influence, testing for an early (childhood) depression influence.

We test and confirm the importance of the traditional determinants of monetary policy, i.e., inflation rate and economic growth. We also point out that inflation targeting central banks might be tempted to fine-tune the economy once the inflation target is met, but we also detect a recession-averse behavior, intensified by the early life experience of recessions by chairmen. This confirms the presence of a "depression baby" effect, revealed for policy-makers.

Additionally, we detect some experience-driven attitudes of the chairmen (more hawkishness with an increasing number of mandates) as well as increasing with the age (as related to the committee mean) degree of conservativeness. Finally, the homogeneity of the committee is associated with somewhat higher degree of reactiveness, especially on the dovish side. Overall, our results are generally robust to alternative specifications and inclusion (or not) of the Great Recession period.

The implication of this chapter in term of economic policy is that, to choose a central bankers, it is important to take into account the current economic situation (crisis or growth period) and the number of recession experienced by this central banker in his childhood. For instance, this brings up the issue about whom should be chosen to manage monetary policy in 30 years from now, as choosing a central banker who born during the financial crisis of 2008 would have far-reaching consequences.

Tables

Table 3.1: Descriptive Statistics - Policy rates

	Overall period (1999-2015)			Period 2008-2015		
	No change	Hike	Cut	No change	Hike	Cut
Australia (AUS)	52.94%	25%	22.06%	50%	15.63%	34.38%
Canada (CAN)	50%	23.53%	26.47%	71.88%	6.25%	21.88%
Euro Area (ECB)	54.41%	22.06%	23.53%	62.50%	9.38%	28.13%
Japan (JPN)	92.65%	2.94%	4.41%	96.88%	0.00%	3.13%
New Zealand (NZL)	50%	29.41%	20.59%	59.38%	15.63%	25%
Sweden (SWE)	38.24%	29.41%	32.35%	37.50%	21.88%	40.63%
Switzerland (SWI)	63.24%	19.12%	17.65%	84.38%	0.00%	15.63%
United Kingdom (UK)	61.76%	17.65%	20.59%	87.50%	0.00%	12.50%
United States (USA)	63.24%	20.59%	16.18%	87.50%	3.13%	9.38%
Whole Sample	58.50%	21.08%	20.42%	70.83%	7.99%	21.18%

Table 3.2: Central banker turnovers

Country	Turnover	Central Bankers	Number of years
Australia (AUS)	2	Macfarlane	7.75
		Stevens	9.25
Canada (CAN)	4	Carney	5.5
		Dodge	7
		Poloz	2.5
		Thiessen	2
Euro Area (ECB)	3	Draghi	4.25
		Duisenberg	4.75
		Trichet	8
Japan (JPN)	4	Fukui	5.5
		Hayami	4.25
		Kuroda	2.75
		Shirakama	4.5
New Zealand (NZL)	3	Bollard	10.5
		Brash	3.25
		Wheeler	3.25
Sweden (SWE)	3	Böckström	4
		Heikenstein	3
		Ingves	10
Switzerland (SWI)	4	Hildebrand	2
		Jordan	3.75
		Meyer	2
		Roth	9
United Kingdom (UK)	3	Carney	2.5
		George	4.5
		King	10
United States (USA)	3	Bernanke	8
		Greenspan	7
		Yellen	2

Table 3.3: Descriptive Statistics - Recessions, chairpersons and committees

Variable	Obs	Mean	Std. Dev.	Min	Max
Number of continuous recession's years of the Chairman	612	4.655	2.73	0	11
Number of maximum successive recession's years of the Chairman	612	1.851	1.018	0	5
Minimum value of the GDP per capita growth of the Chairman	612	-9.77	13.923	-49.374	1.309
Number of continuous recession years of the Chairman superior to 4 years	612	.382	.486	0	1
Chairman from academia dummy	612	.109	.312	0	1
Insider Chairman dummy	612	.425	.495	0	1
Committee age gap	543	3.694	8.013	-14.167	23.111
Committee professional heterogeneity	612	.365	.252	.097	1
Chairman born before World War II	612	.194	.396	0	1

Table 3.4: Baseline Models

	Model 1		Model 2		Model 3		Model 4		Model 5	
Variables	Hike	Cut	Hike	Cut	Hike	Cut	Hike	Cut	Hike	Cut
GDP growth rate	0.682***	-0.120*	0.661***	-0.0824	0.657***	-0.151**	0.668***	-0.144**	0.667***	-0.156**
	(0.0919)	(0.0637)	(0.0920)	(0.0631)	(0.0925)	(0.0655)	(0.0926)	(0.0648)	(0.0923)	(0.0657)
Inflation rate (variation)	0.377***	-0.0451	0.425***	-0.0465	0.379***	-0.0407	0.377***	-0.0368	0.375***	-0.0418
	(0.0960)	(0.0716)	(0.0985)	(0.0732)	(0.0960)	(0.0719)	(0.0959)	(0.0718)	(0.0958)	(0.0727)
Global Financial Crisis	0.0110	0.560	0.0216	0.673*	0.0382	0.548	0.0427	0.588	0.0168	0.573
	(0.563)	(0.357)	(0.559)	(0.351)	(0.562)	(0.361)	(0.563)	(0.362)	(0.563)	(0.361)
Inflation targeting dummy	0.206	0.745***			0.279	0.809***	0.245	0.824***	0.336	1.027***
	(0.237)	(0.228)			(0.243)	(0.232)	(0.240)	(0.232)	(0.269)	(0.249)
Inflation target met dummy			0.945***	0.280						
			(0.321)	(0.377)						
Number of continuous recession's years of the Chairman					0.0742*	0.0993**				
					(0.0421)	(0.0418)				
Number of continuous recession years of the Chairman superior to 4 years							0.282	0.608***		
							(0.235)	(0.226)		
Number of maximum successive recession's years of the Chairman									0.146	0.382***
									(0.120)	(0.117)
Constant	-3.144***	-1.402***	-3.117***	-1.067***	-3.481***	-1.844***	-3.241***	-1.646***	-3.456***	-2.226***
	(0.329)	(0.213)	(0.317)	(0.178)	(0.389)	(0.291)	(0.340)	(0.237)	(0.435)	(0.345)
Log-likelihood	148.65	148.65	146.03	146.03	155.95	155.95	156.28	156.28	159.40	159.40
Pseudo R-sq	12.57	12.57	12.35	12.35	13.19	13.19	13.21	13.21	13.48	13.48
Observations	612	612	612	612	612	612	612	612	612	612

	Model 6		Model 7		Model 8		Model 9		Model 10	
GDP growth rate	0.679***	-0.127**	0.655***	-0.182***	0.687***	-0.137**	0.688***	-0.156**	0.716***	-0.123*
	(0.0921)	(0.0644)	(0.0926)	(0.0678)	(0.0936)	(0.0647)	(0.0947)	(0.0657)	(0.106)	(0.0729)
Inflation rate (variation)	0.380***	-0.0327	0.378***	-0.0173	0.376***	-0.0536	0.380***	-0.0454	0.389***	-0.0545
	(0.0960)	(0.0725)	(0.0957)	(0.0747)	(0.0958)	(0.0729)	(0.0958)	(0.0732)	(0.112)	(0.0828)
Global Financial Crisis	-0.0142	0.485	-0.0327	0.422	0.00790	0.674*	-0.0449	0.607*	0.314	0.642
	(0.565)	(0.360)	(0.564)	(0.369)	(0.566)	(0.363)	(0.570)	(0.365)	(0.592)	(0.400)
Inflation targeting dummy	0.155	0.586**	0.279	0.808***	0.202	1.008***	0.320	1.065***	0.402	1.024***
	(0.267)	(0.244)	(0.284)	(0.258)	(0.259)	(0.256)	(0.270)	(0.257)	(0.291)	(0.265)
Minimum value of the GDP per capita growth of the Chairman	0.00471	0.0167*	0.00965	0.0309***						
	(0.0106)	(0.00949)	(0.0116)	(0.0114)						
Number of maximum successive recession's years of the Chairman			0.190	0.505***			0.300*	0.307**	0.0693	0.300**
			(0.128)	(0.125)			(0.181)	(0.156)	(0.139)	(0.127)
Chairman born before World War II					0.0123	0.817***	-0.531	0.289		
					(0.312)	(0.304)	(0.466)	(0.413)		
Chairman from academia dummy									0.206	-0.110
									(0.412)	(0.375)
Insider Chairman dummy									-0.305	-0.397
									(0.280)	(0.254)
Committee age gap									0.0232	-0.00139
									(0.0185)	(0.0161)
Committee professional heterogeneity									-0.00786	2.263**
									(1.086)	(0.987)
Constant	-3.058***	-1.135***	-3.375***	-1.979***	-3.156***	-1.711***	-3.700***	-2.171***	-3.505***	-2.593***
	(0.382)	(0.254)	(0.449)	(0.346)	(0.338)	(0.251)	(0.494)	(0.349)	(0.529)	(0.457)
Log-likelihood	152.07	152.07	168.60	168.60	155.95	155.95	161.61	161.61	152.78	152.79
Pseudo R-sq	12.86	12.86	14.26	14.26	13.19	13.19	13.36	13.36	14.72	14.72
Observations	612	612	612	612	612	612	612	612	543	543

Table 3.5: Baseline Models - Marginal effects

	Model 1			Model 2			Model 3			Model 4			Model 5		
Variables	Status quo	Hike	Cut	Status quo	Hike	Cut	Status quo	Hike	Cut	Status quo	Hike	Cut	Status quo	Hike	Cut
Probability of the status quo	0.301			0.289			0.312			0.308			0.318		
GDP growth rate		1.977***	0.887*		1.936***	0.920		1.929***	0.860**		1.950***	0.865**		1.948***	0.855**
		(0.182)	(0.056)		(0.178)	(0.058)		(0.178)	(0.056)		(0.180)	(0.056)		(0.180)	(0.056)
Inflation rate (variation)		1.458***	0.0956		1.530***	0.954		1.460***	0.960		1.458***	0.964		1.454***	0.959
		(0.140)	(0.068)		(0.150)	(0.070)		(0.140)	(0.068)		(0.140)	(0.069)		(0.139)	(0.070)
Global Financial Crisis		1.011	1.750		1.021	1.960*		1.039	1.729		1.043	1.800		1.017	1.773
		(0.569)	(0.624)		(0.571)	(0.688)		(0.584)	(0.624)		(0.587)	(0.651)		(0.572)	(0.640)
Inflation targeting dummy		1.228	2.106***					1.077	2.245***		1.277	2.279***		1.399	2.791***
		(0.290)	(0.481)					(0.045)	(0.521)		(0.306)	(0.530)		(0.376)	(0.695)
Inflation target met dummy					2.571***	1.323									
					(0.825)	(0.061)									
Number of continuous recession's years of the Chairman								1.077*	1.104**						
								(0.045)	(0.046)						
Number of continuous recession years of the Chairman superior to 4 years											1.325	1.837***			
											(0.311)	(0.192)			
Number of maximum successive recession's years of the Chairman														1.157	1.465***
														(0.139)	(0.171)
Constant		0.043***	0.246***		0.044***	0.344***		0.030***	0.158***		0.039***	0.192***		0.031***	0.107***
		(0.014)	(0.052)		(0.317)	(0.178)		(0.011)	(0.046)		(0.013)	(0.045)		(0.013)	(0.037)
Log-likelihood		148.65	148.65		146.03	146.03		155.95	155.95		156.28	156.28		159.40	159.40
Pseudo R-sq		12.57	12.57		12.35	12.35		13.19	13.19		13.21	13.21		13.48	13.48
Observations		612	612		612	612		612	612		612	612		612	612

	Model 6			Model 7			Model 8			Model 9			Model 10		
Probability of the status quo	0.292			0.314			0.309			0.318			0.322		
GDP growth rate		1.971***	0.881**		1.925***	0.833***		1.987***	0.872**		1.990***	0.855**		2.045***	0.884*
		(0.181)	(0.056)		(0.178)	(0.056)		(0.186)	(0.056)		(0.188)	(0.056)		(0.216)	(0.064)
Inflation rate (variation)		1.461***	0.968		1.460***	0.983		1.456***	0.948		1.462***	0.955		1.476***	0.947
		(0.140)	(0.070)		(0.140)	(0.073)		(0.139)	(0.069)		(0.140)	(0.070)		(0.165)	(0.078)
Global Financial Crisis		0.985	1.624		0.968	1.524		1.007	1.961*		0.956	1.835*		1.368	1.900
		(0.556)	(0.585)		(0.546)	(0.254)		(0.570)	(0.712)		(0.544)	(0.671)		(0.810)	(0.759)
Inflation targeting dummy		1.167	1.797**		1.321	2.242***		1.223	2.741***		1.377	2.901***		1.495	2.785***
		(0.312)	(0.438)		(0.375)	(0.579)		(0.317)	(0.701)		(0.371)	(0.744)		(0.435)	(0.737)
Minimum value of the GDP per capita growth of the Chairman		1.004	1.017*		1.009	1.031***									
		(0.010)	(0.009)		(0.012)	(0.011)									
Number of maximum successive recession's years of the Chairman					1.209	1.656***					1.350*	1.358**		1.071	1.350**
					(0.154)	(0.207)					(0.244)	(0.212)		(0.148)	(0.171)
Chairman born before World War II								1.012	2.264***		0.588	1.335			
								(0.316)	(0.689)		(0.274)	(0.550)			
Chairman from academia dummy														1.229	0.896
														(0.507)	(0.336)
Insider Chairman dummy														0.737	0.672
														(0.206)	(0.170)
Committee age gap														1.023	0.999
														(0.018)	(0.016)
Committee professional heterogeneity														0.992	9.609**
														(1.077)	(9.488)
Constant		0.047***	0.321***		0.034***	0.138***		0.042***	0.180***		0.025***	0.114***		0.030***	0.075***
		(0.017)	(0.254)		(0.015)	(0.346)		(0.014)	(0.045)		(0.012)	(0.040)		(0.016)	(0.034)
Log-likelihood		152.07	152.07		168.60	168.60		155.95	155.95		161.61	161.61		152.78	152.79
Pseudo R-sq		12.86	12.86		14.26	14.26		13.19	13.19		13.36	13.36		14.72	14.72
Observations		612	612		612	612		612	612		612	612		543	543

Table 3.6: Robustness check - Before the Great Financial Crisis

	Model 1		Model 2		Model 3		Model 4		Model 5	
Variables	Hike	Cut	Hike	Cut	Hike	Cut	Hike	Cut	Hike	Cut
GDP growth rate	0.605***	-0.328***	0.609***	-0.167	0.615***	-0.324***	0.617***	-0.323***	0.599***	-0.371***
	(0.111)	(0.116)	(0.111)	(0.106)	(0.113)	(0.116)	(0.113)	(0.117)	(0.113)	(0.119)
Inflation rate (variation)	0.282**	-0.242*	0.307**	-0.239*	0.288**	-0.226*	0.290**	-0.215	0.284**	-0.232*
	(0.122)	(0.132)	(0.123)	(0.136)	(0.122)	(0.132)	(0.122)	(0.133)	(0.121)	(0.136)
Inflation targeting dummy	0.161	1.008***			0.136	1.101***	0.150	1.038***	0.190	1.614***
	(0.278)	(0.333)			(0.289)	(0.343)	(0.280)	(0.337)	(0.350)	(0.388)
Inflation target met dummy			0.345	-0.297						
			(0.400)	(0.566)						
Number of continuous recession's years of the Chairman					-0.0143	0.0742				
					(0.0479)	(0.0540)				
Number of continuous recession years of the Chairman superior to 4 years							-0.0894	0.657**		
							(0.271)	(0.301)		
Number of maximum successive recession's years of the Chairman									0.0268	0.480***
									(0.142)	(0.139)
Constant	-2.469***	-0.631**	-2.444***	-0.427	-2.409***	-1.109**	-2.458***	-1.017***	-2.519***	-1.905***
	(0.387)	(0.292)	(0.381)	(0.278)	(0.457)	(0.458)	(0.399)	(0.348)	(0.516)	(0.481)
Log-likelihood	76.84	76.84	68.54	68.54	79.22	79.22	82.67	82.67	89.69	89.69
Pseudo R-sq	10.79	10.79	9.62	9.62	11.12	11.12	11.61	11.61	12.60	12.60
Observations	342	342	342	342	342	342	342	342	342	342

	Model 6		Model 7		Model 8		Model 9		Model 10	
GDP growth rate	0.573***	-0.369***	0.554***	-0.420***	0.646***	-0.330***	0.619***	-0.372***	0.676***	-0.377***
	(0.112)	(0.119)	(0.113)	(0.121)	(0.114)	(0.117)	(0.115)	(0.120)	(0.135)	(0.135)
Inflation rate (variation)	0.269**	-0.254*	0.268**	-0.245*	0.302**	-0.242*	0.307**	-0.222	0.339**	-0.177
	(0.122)	(0.132)	(0.121)	(0.137)	(0.122)	(0.133)	(0.122)	(0.137)	(0.140)	(0.147)
Inflation targeting dummy	-0.385	0.394	-0.238	0.936**	-0.197	1.151***	0.151	1.454***	0.133	1.342***
	(0.348)	(0.397)	(0.387)	(0.436)	(0.320)	(0.389)	(0.358)	(0.392)	(0.404)	(0.440)
Minimum value of the GDP per capita growth of the Chairman	0.0332**	0.0328**	0.0332**	0.0427***						
	(0.0137)	(0.0129)	(0.0141)	(0.0151)						
Number of maximum successive recession's years of the Chairman			0.0992	0.552***			0.498**	0.791***	-0.116	0.645***
			(0.147)	(0.146)			(0.218)	(0.209)	(0.190)	(0.197)
Chairman born before World War II					-0.772**	0.277	-1.584***	-1.140**		
					(0.338)	(0.359)	(0.521)	(0.546)		
Chairman from academia dummy									0.628	0.704
									(0.595)	(0.603)
Insider Chairman dummy									-0.455	-0.239
									(0.368)	(0.410)
Committee age gap									0.0145	-0.0698**
									(0.0284)	(0.0318)
Committee professional heterogeneity									-0.362	0.550
									(1.197)	(1.351)
Constant	-1.677***	0.227	-1.905***	-1.035*	-2.160***	-0.810**	-3.043***	-2.072***	-2.226***	-1.908***
	(0.480)	(0.431)	(0.561)	(0.551)	(0.410)	(0.370)	(0.597)	(0.503)	(0.634)	(0.644)
Log-likelihood	88.06	88.06	102.99	102.99	84.17	84.17	102.55	102.55	100.54	100.54
Pseudo R-sq	12.37	12.37	14.46	14.46	11.82	11.82	14.40	14.40	15.87	15.87
Observations	342	342	342	342	342	342	342	342	304	304

Table 3.7: Robustness Check - Without Japan

	Model 1		Model 2		Model 3		Model 4		Model 5	
Variables	Hike	Cut	Hike	Cut	Hike	Cut	Hike	Cut	Hike	Cut
GDP growth rate	0.665***	-0.199***	0.636***	-0.170**	0.644***	-0.226***	0.656***	-0.220***	0.658***	-0.235***
	(0.0978)	(0.0727)	(0.0980)	(0.0718)	(0.0993)	(0.0745)	(0.0988)	(0.0739)	(0.0986)	(0.0752)
Inflation rate (variation)	0.391***	-0.0214	0.439***	-0.0189	0.391***	-0.0192	0.391***	-0.0177	0.390***	-0.0168
	(0.0981)	(0.0759)	(0.100)	(0.0772)	(0.0979)	(0.0761)	(0.0981)	(0.0760)	(0.0977)	(0.0773)
Global Financial Crisis	-0.0869	0.315	-0.0785	0.413	-0.0795	0.280	-0.0795	0.315	-0.0992	0.300
	(0.573)	(0.378)	(0.568)	(0.374)	(0.571)	(0.383)	(0.573)	(0.383)	(0.572)	(0.383)
Inflation targeting dummy	0.0165	0.562**			0.0660	0.595**	0.0412	0.621**	0.0628	0.845***
	(0.246)	(0.239)			(0.253)	(0.241)	(0.250)	(0.242)	(0.287)	(0.264)
Inflation target met dummy			0.840***	0.185						
			(0.322)	(0.378)						
Number of continuous recession's years of the Chairman					0.0499	0.0817*				
					(0.0442)	(0.0440)				
Number of continuous recession years of the Chairman superior to 4 years							0.163	0.476**		
							(0.242)	(0.232)		
Number of maximum successive recession's years of the Chairman									0.0566	0.330***
									(0.124)	(0.116)
Constant	-2.873***	-0.944***	-2.926***	-0.674***	-3.086***	-1.289***	-2.928***	-1.130***	-2.985***	-1.676***
	(0.351)	(0.236)	(0.339)	(0.200)	(0.405)	(0.306)	(0.362)	(0.256)	(0.455)	(0.363)
Log-likelihood	135.28	135.28	136.12	136.12	139.24	139.24	139.51	139.51	143.37	143.37
Pseudo R-sq	12.35	12.35	12.43	12.43	12.71	12.71	12.74	12.74	13.09	13.09
Observations	544	544	544	544	544	544	544	544	544	544
	Model 6		Model 7		Model 8		Model 9		Model 10	
GDP growth rate	0.637***	-0.218***	0.635***	-0.236***	0.669***	-0.239***	0.679***	-0.237***	0.699***	-0.198**
	(0.0992)	(0.0738)	(0.0991)	(0.0752)	(0.102)	(0.0752)	(0.104)	(0.0754)	(0.115)	(0.0850)
Inflation rate (variation)	0.390***	-0.0248	0.392***	-0.0177	0.390***	-0.0315	0.394***	-0.0341	0.419***	-0.0235
	(0.0981)	(0.0763)	(0.0976)	(0.0774)	(0.0979)	(0.0780)	(0.0984)	(0.0782)	(0.116)	(0.0897)
Global Financial Crisis	-0.0588	0.301	-0.0692	0.301	-0.104	0.396	-0.118	0.409	0.162	0.388
	(0.570)	(0.383)	(0.568)	(0.383)	(0.574)	(0.386)	(0.577)	(0.388)	(0.608)	(0.423)
Inflation targeting dummy	0.272	0.836***	0.229	0.885***	0.0256	0.842***	0.0800	0.819***	0.149	0.918***
	(0.306)	(0.280)	(0.312)	(0.285)	(0.266)	(0.259)	(0.290)	(0.267)	(0.319)	(0.287)
Minimum value of the GDP per capita growth of the Chairman	-0.0276	-0.0354**	-0.0334	-0.0110						
	(0.0178)	(0.0170)	(0.0215)	(0.0211)						
Number of maximum successive recession's years of the Chairman			-0.0751	0.283**			0.0965	-0.0669	-0.0112	0.282**
			(0.152)	(0.144)			(0.216)	(0.188)	(0.141)	(0.124)
Chairman born before World War II					0.126	1.274***	-0.0802	1.434***		
					(0.347)	(0.330)	(0.588)	(0.557)		
Chairman from academia dummy									0.126	-0.242
									(0.410)	(0.373)
Insider Chairman dummy									-0.115	-0.288
									(0.297)	(0.272)
Committee age gap									0.0295	0.00769
									(0.0189)	(0.0164)
Committee professional heterogeneity									-0.808	0.957
									(1.109)	(1.057)
Constant	-3.141***	-1.295***	-3.004***	-1.680***	-2.905***	-1.256***	-3.120***	-1.146***	-2.908***	-1.858***
	(0.400)	(0.300)	(0.461)	(0.365)	(0.353)	(0.260)	(0.582)	(0.400)	(0.563)	(0.502)
Log-likelihood	140.81	140.81	145.80	145.80	150.08	150.08	150.52	150.52	132.20	132.20
Pseudo R-sq	12.86	12.86	13.31	13.31	13.70	13.70	13.74	13.74	13.88	13.88
Observations	544	544	544	544	544	544	544	544	475	475

Table 3.8: Descriptive Statistics - Alternatives variables

Variable	Obs	Mean	Std. Dev.	Min	Max
Number of siblings	234	1.859	1.503	0	6
Rank of brotherhood	234	1.662	1.359	0	6
Single child	234	.081	.274	0	1
Number of children of the parents	486	2.019	1.139	0	4
PhD Keynesian school	543	.105	.307	0	1
Left's political tendency of chairmen	71	.38	.489	0	1

Table 3.9: Placebo Tests

	Model 1		Model 2		Model 3	
Variables	Hike	Cut	Hike	Cut	Hike	Cut
GDP growth rate	0.707***	-0.266*	0.665***	-0.262*	0.797***	-0.257*
	(0.206)	(0.140)	(0.195)	(0.141)	(0.206)	(0.143)
Inflation rate (variation)	0.637***	0.214	0.613***	0.219	0.662***	0.244
	(0.194)	(0.145)	(0.190)	(0.147)	(0.196)	(0.151)
Global Financial Crisis	0.851	1.404*	0.886	1.435**	0.745	1.491**
	(1.249)	(0.720)	(1.243)	(0.718)	(1.284)	(0.720)
Inflation targeting dummy	1.698*	1.496	1.720*	1.895*	1.941**	1.687
	(0.992)	(1.006)	(0.947)	(0.993)	(0.970)	(1.050)
Chairman from academia dummy	-0.287	0.0678	-0.330	0.247	-0.0885	0.00453
	(0.988)	(0.785)	(0.984)	(0.787)	(0.976)	(0.823)
Insider Chairman dummy	-0.954	-0.754	-0.564	-0.589	-1.080*	-1.055*
	(0.611)	(0.595)	(0.729)	(0.669)	(0.624)	(0.583)
Committee age gap	0.140**	0.0994*	0.135**	0.132**	0.168***	0.107*
	(0.0595)	(0.0580)	(0.0536)	(0.0537)	(0.0579)	(0.0579)
Committee professional heterogeneity	2.904	3.616*	1.772	3.891*	5.828*	1.284
	(2.430)	(2.198)	(2.660)	(2.265)	(3.446)	(2.943)
Number of Siblings	-0.0649	-0.312				
	(0.210)	(0.190)				
Rank of Brotherhood			-0.385	-0.249		
			(0.421)	(0.229)		
Single Child					-1.092	1.443
					(1.100)	(0.917)
Constant	-5.219***	-2.379*	-4.401***	-2.945**	-6.556***	-2.448*
	(1.669)	(1.259)	(1.706)	(1.196)	(1.698)	(1.256)
Log-likelihood	93.46	93.46	92.37	92.37	94.58	94.58
Pseudo R-sq	22.87	22.87	22.60	22.60	23.14	23.14
Observations	234	234	234	234	234	234
	Model 4		Model 5		Model 6	
GDP growth rate	0.797***	-0.0766	0.718***	-0.0848	0.318	-0.322
	(0.118)	(0.0786)	(0.106)	(0.0700)	(0.262)	(0.241)
Inflation rate (variation)	0.376***	-0.0727	0.402***	-0.0589	1.405***	-0.0323
	(0.130)	(0.0900)	(0.116)	(0.0821)	(0.514)	(0.390)
Global Financial Crisis	0.367	0.713*	0.353	0.710*		
	(0.607)	(0.400)	(0.598)	(0.395)		
Inflation targeting dummy	0.241	0.784***	-0.0380	0.933***	7.971*	-5.081
	(0.304)	(0.260)	(0.319)	(0.291)	(4.660)	(6.539)
Chairman from academia dummy	0.181	-0.104	1.207**	-0.126	-3.008	-16.88
	(0.417)	(0.383)	(0.576)	(0.432)	(2.796)	(1.894)
Insider Chairman dummy	-0.271	-0.240	-0.265	-0.477*		
	(0.318)	(0.289)	(0.276)	(0.253)		
Committee age gap	0.00822	0.0108	0.0125	0.00783	0.346*	-0.196
	(0.0196)	(0.0170)	(0.0179)	(0.0159)	(0.187)	(0.259)
Committee professional heterogeneity	0.332	2.239**	-0.795	2.896***	-10.74	0.661
	(1.233)	(1.063)	(1.128)	(1.007)	(8.941)	(12.32)
Number of Children of the parents	-0.171	0.105				
	(0.144)	(0.138)				
PhD Keynesian school			-2.176**	0.108		
			(0.855)	(0.502)		
Left's political tendency of Chairmen					7.087	-1.392
					(4.419)	(6.010)
Constant	-3.175***	-2.237***	-2.873***	-2.220***	-6.363**	3.361
	(0.530)	(0.493)	(0.498)	(0.463)	(3.216)	(3.747)
Log-likelihood	136.90	136.90	155.44	155.44	36.98	36.98
Pseudo R-sq	14.57	14.57	14.97	14.97	24.68	24.68
Observations	486	486	543	543	71	71

Table 3.10: Robustness check of Placebo tests - Before the Great Financial Crisis

	Model 1		Model 2		Model 3	
Variables	Hike	Cut	Hike	Cut	Hike	Cut
GDP growth rate	0.990***	-0.601**	0.797***	-0.547**	0.876***	-0.546**
	(0.296)	(0.238)	(0.258)	(0.240)	(0.269)	(0.228)
Inflation rate (variation)	0.702***	0.129	0.563**	0.157	0.611**	0.134
	(0.265)	(0.212)	(0.236)	(0.217)	(0.242)	(0.215)
Inflation targeting dummy	4.776*	3.427	3.056	4.656*	2.468	2.704
	(2.524)	(2.743)	(2.858)	(2.697)	(2.297)	(1.780)
Chairman from academia dummy	0.750	1.532	0.452	2.032	0.484	1.053
	(1.572)	(1.398)	(1.609)	(1.437)	(1.536)	(1.438)
Insider Chairman dummy	-4.345**	-2.605	-3.439	-3.777	-2.681	-2.290**
	(1.864)	(1.864)	(2.969)	(2.515)	(1.970)	(0.985)
Committee age gap	0.125	0.0676	0.0570	0.111	0.0643	-0.00662
	(0.0893)	(0.108)	(0.0767)	(0.0916)	(0.0773)	(0.0958)
Committee professional heterogeneity	1.410	1.466	0.527	3.150	2.421	-5.929
	(3.083)	(3.085)	(3.679)	(3.606)	(4.379)	(4.795)
Number of Siblings	0.606	-0.0593				
	(0.385)	(0.334)				
Rank of Brotherhood			0.197	0.265		
			(0.704)	(0.534)		
Single Child					-1.023	2.844**
					(1.250)	(1.413)
Constant	-5.967**	-0.678	-3.897	-2.079	-4.466*	1.428
	(2.494)	(2.290)	(2.604)	(2.468)	(2.285)	(2.112)
Log-likelihood	59.15	59.15	56.16	56.16	62.60	62.60
Pseudo R-sq	23.24	23.24	22.06	22.06	24.59	24.59
Observations	126	126	126	126	126	126

	Model 4		Model 5		Model 6	
GDP growth rate	0.709***	-0.244*	0.669***	-0.411***	0.382	-0.304
	(0.145)	(0.135)	(0.134)	(0.138)	(0.268)	(0.242)
Inflation rate (variation)	0.318*	-0.187	0.340**	-0.211	1.572***	-0.0234
	(0.175)	(0.180)	(0.141)	(0.148)	(0.569)	(0.391)
Inflation targeting dummy	0.301	1.243***	0.106	2.008***	6.640	-5.794
	(0.409)	(0.449)	(0.458)	(0.561)	(4.723)	(6.498)
Chairman from academia dummy	0.699	-0.0172	0.834	-1.119		
	(0.573)	(0.580)	(0.716)	(0.734)		
Insider Chairman dummy	-0.318	-0.575	-0.358	-0.984**		
	(0.362)	(0.393)	(0.341)	(0.391)		
Committee age gap	-0.00173	0.00182	0.00235	0.0244	0.303	-0.221
	(0.0254)	(0.0263)	(0.0251)	(0.0274)	(0.189)	(0.258)
Committee professional heterogeneity	-0.272	1.877	-0.559	3.666***	-4.167	3.130
	(1.370)	(1.355)	(1.211)	(1.334)	(9.825)	(12.32)
Number of Children of the parents	-0.0585	0.162				
	(0.160)	(0.179)				
PhD Keynesian school			-0.431	2.427**		
			(1.159)	(1.095)		
Left's political tendency of Chairmen					4.263	-2.543
					(4.683)	(5.972)
Constant	-2.486***	-1.392**	-2.375***	-1.587**	-6.877**	3.372
	(0.601)	(0.624)	(0.586)	(0.624)	(3.356)	(3.764)
Log-likelihood	80.29	80.29	92.98	92.98	29.77	29.77
Pseudo R-sq	14.41	14.41	14.68	14.68	21.89	21.89
Observations	265	265	304	304	63	63

Table 3.11: Robustness check of Placebo tests - Without Japan

	Model 1		Model 2		Model 3	
Variables	Hike	Cut	Hike	Cut	Hike	Cut
GDP growth rate	0.897***	-0.350**	0.788***	-0.335**	0.768***	-0.334**
	(0.249)	(0.164)	(0.224)	(0.165)	(0.224)	(0.165)
Inflation rate (variation)	0.673***	0.176	0.631***	0.214	0.610***	0.216
	(0.206)	(0.153)	(0.200)	(0.152)	(0.195)	(0.153)
Global Financial Crisis	0.299	1.061	0.468	1.140	0.488	1.168
	(1.319)	(0.767)	(1.303)	(0.750)	(1.288)	(0.752)
Inflation targeting dummy	-1.322	-1.651	-1.678	1.137	-0.883	-1.337
	(1.471)	(1.823)	(1.644)	(1.718)	(1.493)	(1.793)
Chairman from academia dummy	-1.322	-1.767	-1.577	-1.480	-1.335	-1.753
	(1.127)	(1.140)	(1.061)	(1.293)	(1.115)	(1.237)
Insider Chairman dummy	1.662	0.0358	0.750	1.064	0.758	1.188
	(1.129)	(1.093)	(0.982)	(1.092)	(0.991)	(1.081)
Committee age gap	0.107	-0.144	0.0607	-0.0148	0.0597	-0.0290
	(0.0834)	(0.103)	(0.0663)	(0.0911)	(0.0707)	(0.0897)
Committee professional heterogeneity	0.497	-1.378	1.821	-3.376	1.359	-3.975
	(2.872)	(2.755)	(3.289)	(3.974)	(3.813)	(3.995)
Number of Siblings	0.602	-1.254***				
	(0.436)	(0.399)				
Rank of Brotherhood			0.771	-2.199**		
			(0.879)	(1.011)		
Single Child					-0.505	2.339**
					(1.107)	(1.049)
Constant	-5.184**	2.685	-4.818**	2.561	-3.870**	0.664
	(2.192)	(2.062)	(2.258)	(2.674)	(1.929)	(1.904)
Log-likelihood	95.38	95.38	87.61	87.61	86.41	86.41
Pseudo R-sq	25.79	25.79	23.69	23.69	23.37	23.37
Observations	199	199	199	199	199	199

	Model 4		Model 5		Model 6	
GDP growth rate	0.730***	-0.131	0.694***	-0.160**	0.318	-0.322
	(0.123)	(0.0854)	(0.116)	(0.0817)	(0.262)	(0.241)
Inflation rate (variation)	0.400***	-0.0301	0.434***	-0.0321	1.405***	-0.0323
	(0.133)	(0.0967)	(0.120)	(0.0887)	(0.514)	(0.390)
Global Financial Crisis	0.276	0.521	0.214	0.444		
	(0.619)	(0.420)	(0.619)	(0.420)		
Inflation targeting dummy	0.216	0.748***	-0.475	0.661**	7.971*	-5.081
	(0.317)	(0.274)	(0.354)	(0.322)	(4.660)	(6.539)
Chairman from academia dummy	0.0912	-0.237	1.531**	-0.0564	-3.008	-16.88
	(0.415)	(0.380)	(0.604)	(0.441)	(2.796)	(1.894)
Insider Chairman dummy	-0.175	-0.193	0.0641	-0.339		
	(0.331)	(0.302)	(0.303)	(0.270)		
Committee age gap	0.0176	0.0228	0.0101	0.0143	0.346*	-0.196
	(0.0203)	(0.0180)	(0.0184)	(0.0162)	(0.187)	(0.259)
Committee professional heterogeneity	-0.388	1.036	-2.168*	1.200	-10.74	0.661
	(1.257)	(1.160)	(1.187)	(1.122)	(8.941)	(12.32)
Number of Children of the parents	-0.152	0.0955				
	(0.149)	(0.142)				
PhD Keynesian school			-2.827***	-0.348		
			(0.894)	(0.529)		
Left's political tendency of Chairmen					7.087	-1.392
					(4.419)	(6.010)
Constant	-2.777***	-1.623***	-2.163***	-1.275**	-6.363**	3.361
	(0.555)	(0.514)	(0.539)	(0.540)	(3.216)	(3.747)
Log-likelihood	119.79	119.79	139.01	139.01	39.98	39.98
Pseudo R-sq	13.69	13.69	14.60	14.60	24.68	24.68
Observations	436	436	475	475	71	71

Table 3.12: Robustness checks: Preferred recession variable and Placebos

	All observations		Observations before the GFC		Observations before the GFC		Observations without Japan	
Variables	Hike	Cut	Hike	Cut	Hike	Cut	Hike	Cut
GDP growth rate	0.711***	-0.130*	1.236***	-0.481**	0.678***	-0.419***	0.856***	-0.264
	(0.106)	(0.0733)	(0.353)	(0.222)	(0.136)	(0.140)	(0.253)	(0.166)
Inflation rate (variation)	0.400***	-0.0486	0.931***	0.0510	0.342**	-0.193	0.619***	0.152
	(0.115)	(0.0825)	(0.322)	(0.211)	(0.141)	(0.148)	(0.205)	(0.156)
Global Financial Crisis	0.323	0.646					0.178	2.313**
	(0.597)	(0.401)					(1.326)	(1.024)
Inflation targeting dummy	-0.00983	1.241***	4.292	2.874	0.0290	1.901***	-2.960	0.377
	(0.331)	(0.319)	(4.787)	(2.090)	(0.461)	(0.582)	(2.007)	(2.053)
Chairman from academia dummy	1.105*	-0.334	-1.465	4.714*	0.768	-0.219	-1.430	-1.261
	(0.573)	(0.451)	(2.027)	(2.597)	(0.721)	(0.850)	(1.205)	(1.054)
Insider chairman dummy	-0.250	-0.380	-10.33*	5.122	-0.424	-0.492	5.850	-4.241**
	(0.285)	(0.257)	(5.388)	(3.570)	(0.373)	(0.443)	(3.663)	(2.056)
Committee age gap	0.0124	0.00102	0.292**	-0.176	0.0111	-0.0379	0.129	-0.181*
	(0.0194)	(0.0162)	(0.124)	(0.119)	(0.0301)	(0.0367)	(0.0887)	(0.105)
Committee professional heterogeneity	-0.771	2.589**	-14.83*	7.904	-0.492	1.831	-1.549	0.909
	(1.151)	(1.017)	(8.093)	(7.494)	(1.250)	(1.563)	(3.413)	(2.785)
Number of maximum successive	0.0347	0.346***	-4.108***	4.211**	-0.121	0.548***	1.156	-1.154**
recession's years of the Chairman	(0.150)	(0.131)	(1.493)	(1.999)	(0.192)	(0.200)	(0.966)	(0.483)
PhD Keynesian school	-2.041**	0.676			-0.477	1.741		
	(0.850)	(0.568)			(1.105)	(1.205)		
Single Child			11.77**	-8.374				
			(4.874)	(5.106)				
Number of Siblings							2.183	-3.447***
							(1.393)	(1.076)
Constant	-2.947***	-2.951***	8.551	-14.40*	-2.132***	-2.250***	-9.751**	7.345**
	(0.575)	(0.548)	(5.316)	(7.701)	(0.655)	(0.690)	(4.510)	(2.910)
Log-likelihood	-437.82	-437.82	-85.91	-85.91	-265.04	-265.04	-132.38	-132.38
Pseudo R-sq	15.65	15.65	32.5	32.5	16.31	16.31	28.41	28.41
Observations	543	543	126	126	304	304	199	199

	Observations without Japan		Observations without Japan		Observations without Japan		
GDP growth rate	0.804***	-0.336**	0.814***	-0.334**	0.696***	-0.198**	
	(0.239)	(0.168)	(0.240)	(0.168)	(0.116)	(0.0848)	
Inflation rate (variation)	0.638***	0.213	0.641***	0.214	0.430***	-0.0202	
	(0.203)	(0.153)	(0.204)	(0.153)	(0.120)	(0.0894)	
Global Financial Crisis	0.483	1.128	0.573	1.151	0.165	0.391	
	(1.310)	(0.805)	(1.306)	(0.816)	(0.622)	(0.424)	
Inflation targeting dummy	-1.451	1.059	-0.847	-1.388	-0.553	1.004***	
	(2.015)	(2.492)	(1.500)	(1.891)	(0.377)	(0.365)	
Chairman from academia dummy	-1.509	-1.474	-1.418	-1.763	1.418**	-0.260	
	(1.121)	(1.314)	(1.121)	(1.242)	(0.595)	(0.461)	
Insider chairman dummy	0.635	1.084	0.426	1.234	0.0300	-0.311	
	(1.141)	(1.285)	(1.137)	(1.251)	(0.305)	(0.274)	
Committee age gap	0.0672	-0.0155	0.0708	-0.0317	0.0178	0.00867	
	(0.0743)	(0.0997)	(0.0733)	(0.0961)	(0.0198)	(0.0165)	
Committee professional heterogeneity	1.690	-3.287	0.0690	-3.891	-2.015*	1.137	
	(3.362)	(4.021)	(4.366)	(4.119)	(1.198)	(1.117)	
Number of maximum successive	-0.0679	0.0127	-0.238	0.0209	-0.116	0.290**	
recession's years of the Chairman	(0.334)	(0.297)	(0.388)	(0.305)	(0.158)	(0.133)	
PhD Keynesian school					-2.772***	0.199	
					(0.882)	(0.603)	
Single Child			0.360	2.249			
			(1.808)	(1.600)			
Rank of Brotherhood	0.605	-2.134					
	(1.210)	(1.485)					
Constant	-4.556*	2.454	-3.168	0.626	-1.925***	-1.993***	
	(2.594)	(3.025)	(2.204)	(1.971)	(0.639)	(0.636)	
Log-likelihood	-141.08	-141.08	-141.50	-141.50	-403.44	-403.44	
Pseudo R-sq	23.70	23.70	23.47	23.47	15.27	15.27	
Observations	199	199	199	199	475	475	

Chapter 4

Windows of Opportunity? Endogenous Beliefs and the Political Economy of Reforms in OECD Countries

We reassess the determinants of market liberalization processes in OECD countries. In a first part, we develop a theoretical framework, embedding psychological expected utility. The framework is used to analyze when governments are more susceptible to engineer reforms. The validity of the model is then empirically assessed, using data for the 1990-2013 period. The results tend to support the theoretical predictions. However, they reveal that the ideological divide about liberalization is less prevalent than former empirical evidence showed.

Where do reforms come from? More precisely, when is a government more enticed to implement structural reforms? Given that a structural reform, of any productive sector, induces a redistribution of existing (or potential) gains from the stakeholders benefiting from the pre-reform situation to other categories of agents (be they the government itself - through increased revenues, for example, consumers or competitors, especially new entrants), they will of course be opposed by the incumbents.

Barriers to the implementation of (overall beneficial) reforms mostly come from their distributional implications: their immediate upfront costs are borne by politicians (Tandon, 2012), the incumbents will suffer from the reform, while their benefits are spread unevenly across the population, and may take time to arise significantly. As a consequence, some simple discounting can explain that policy-makers procrastinate (Vogel, 2016) and will prefer to wait for "the right moment" before implementing a reform. However, identifying this right moment, or window of opportunity, is not that easy, as it will probably emerge from a combination of elements, among which the electoral cycle, the power of entrenched situations, and the possibility of compensating the losers from the consequences of the reform.

According to a first popular hypothesis, structural reforms are implemented first and foremost by governments following their own ideological agenda. As such, reforms should occur when new governments take office and / or when governments are strong (Bowen et al., 2016), and there should be strong differences among the partisan spectrum. Potrafke (2010) has tested how government ideology has influenced deregulation of product markets in OECD countries. He analyzes a dataset of non-manufacturing regulation indicators covering energy, transport and communication industries in 21 OECD countries over the 1980–2003 period and employs two different indices of government ideology. The results suggest that government ideology has a strong influence on the deregulation process, as market-oriented governments promote the deregulation of the energy, transport and communication industries. Hence, he identifies remarkable differences between leftist and right-wing governments. However, not only the probability of a successful reform may be larger under a left-wing government than under a right-wing one (as the coalition of politicians will be larger in the first case, as right-wing politicians will also support the reform), as Beazer and Woo (2016) show for IMF conditional programs, but the division line between left and right may be blurred by spillovers, as waves of reforms may be implemented between neighboring countries, as Fidrmuc and Karaja (2013) show.

A second popular hypothesis is that "crisis begets reforms". In other words, governments profit from a crisis situation to enforce a sweeping program of reforms (Ranciere and Tornell, 2015). For instance, Alesina et al. (2006) finds that fiscal reforms are more likely to occur during times of inflationary and budgetary crisis, when gaining time is no longer an option. Agnello et al. (2015) test the same hypothesis and show that external debt crises are the main trigger of financial and banking reforms, while banking crises are key drivers of external capital account and financial reforms. However, there may be an endogeneity issue here if, as signaled by

Rodrik (1996), a crisis is simply an indicator of a big policy failure. A typical case in point is when reforms are enforced upon a country as a way to obtain a credit from the IMF, for example. The issue is itself blurred by the possibility that "there is no situation so bad that it cannot get worse" (Toye, 1994). Moreover, taking into account the proclivity of politicians to stick to inefficient decisions, it is by no means clear that governments would be more inclined to revise their policies to cope with an economic crisis than otherwise (Dur, 2001).
However, the opposite hypothesis can be proposed: as private sector adjustment to policy reforms is frequently connected with substantial cost, governments may have a higher propensity to undertake the required policy revisions under good economic conditions than under bad circumstances. This hypothesis is notably proposed by Pitlik and Wirth (2003).

Since these hypotheses have been proposed and assessed, however, the trend of deregulation has been pursued in OECD countries. In some countries and sectors, much of what a reform could mean has been implemented, with few measures needed sometimes to end up the deregulation process. This raises the question of the enduring validity of the most popular hypotheses put forward by the literature. As a consequence, in this chapter, our objective is to have a fresh look at the data, to reappraise the value of the several hypotheses that have been put forward in the literature. We empirically assess if the windows of opportunity for reform are still depending on ideological divisions, on growth prospects, or on other, more structural, determinants (such as the weight of vested interests, or of the trade unions).
Our contribution to the literature is thus two-fold. First, we provide a theoretical model that allows analyzing the incentives of a government to confront the rent-holders (i.e., the agents that benefit from the status quo, and would lose from the reform). Our innovation here is that we build on the literature on psychological expected utility, to include the subjective element in a government's decision to engage in a reform. Second, we empirically test the determinants of reforms, making use of the aggregate indicator of reforms built by the OECD, as is standard in the literature, which we update by covering up to 10 more years of data. Moreover, as our sample goes up to 2013, it covers the great financial crisis, allowing to check if a large recession reduces the incentives to reform. All in all, our results provide support to the theory: reforms depend on the strength of the vested interests and, when the deregulation process has been strong, ideological divisions tend to matter much less than generally postulated and estimated in the literature.
The remainder of the chapter is thus organized as follows: Section 2 introduces the theoretical model. Section 3 describes the dataset. Section 4 tests the empirical accuracy of the model and presents the results, while Section 5 concludes.

4.1 Theory

4.1.1 Assumptions

We build on Minozzi (2013) model of conflict between countries under psychological expected utility[1], which we modify and adapt to our context. The introduction of the psychological expected utility means that agents will compute subjective pay-offs that will include two terms, the objective one, and a subjective one. The latter will be weighted by a parameter, δ, measuring the importance of the subjective part in an agent's reasoning (Caplin and Leahy, 2001).

Here, we consider a conflict arising between a government, wanting to implement a reform, and those who oppose the reform, as it would reduce their rents. The government thus opposes the representatives of vested interests, be they lobbies or pressure groups. A typical example is a sector- or labor-market reform opposed by trade unions, on the basis of the defense of the status quo, whatever the merits of the proposed reform. For ease of exposition, we will refer to the opposing group(s) as the union.

Confrontations between a reform-oriented government and the opposing union can end-up in three types of outcomes: (i) the government refrains from reforming, as it sees the opposition's rising and is afraid of a conflict that may generate too high losses (if only in electoral terms), (ii) the government and the union find a common ground, and a modified (i.e., less ambitious) reform is implemented, (iii) the government wants to show its strength, and the conflict develops, up to the point where the reform is implemented (under its initial and ambitious form). Examples of each situation abound, and one can only cite a few. For the first situation (where the project is withdrawn), one can think of the Clinton health care plan (officially known as the Health Security Act, and unofficially as the "Hillary care", after then-First Lady Hillary Clinton, in 1993). The second case is probably the more general one, and citing evidence would simply lead to a long list of acts and laws. The last case is rarer, but obvious examples are Margaret Thatcher's 1984 conflict with the unions, concerned by a project to reduce their own power, and El Khomri law (or the Loi travail) to change the French labor code, which was forced through Parliament's approval in 2016, in midst of public protests and trade unions' opposition.

The model presented here intends allowing to analyze these situations, by considering a reform-minded government, G, confronted with an opposing pressure group, or union, U. If implemented, the reform will cost x to the union. If the union is able to reject the reform, the status quo will prevail. However, if the government gets its way, then the reform proposal is transformed into law to be applied. This benefits the government, which gains $(1+\gamma)x$, where $\gamma\,(0<\gamma<1)$ is a factor that transforms the gain from the reform in political support (say, electoral gains at the next election, popularity or support inside the Parliament). Inversely, in this case, the union will

[1]The concept of "psychological expected utility" has been proposed by Caplin and Leahy (2001). It is an extension of the Expected Utility theory to situations in which agents experience feelings of anticipation prior to the resolution of uncertainty. While Minozzi (2013) uses the term "endogenous beliefs", it may be misleading, as the endogeneity of the beliefs is assumed, not demonstrated.

get $1-x$ (in other words, the rent which the reform intends to reduce is normalized to 1). This scenario may happen through an open conflict between the two agents. The government has to decide if it wants to act, or not. This decision will depend upon both the cost of the conflict, c, and the subjective probability made by each agent about the issue of the conflict.[2] Hence, the utility functions of the two agents are of the following type: $G = G\left(\underset{+}{r}; \underset{+}{(1+\gamma)x}; \underset{-}{c}; \underset{+}{\delta^G}\right)$, and $U = U\left(\underset{-}{1-x}; \underset{-}{c}; \underset{+}{\delta^U}\right)$, where r is the ego-rent value of being in power for the government.[3]
As in Minozzi (2013), the game has four steps. In the first step, the government proposes a reform, and each agent forms subjective probabilities of gaining the (potential) conflict, $\hat{p_G}$ and $\hat{p_U}$. These subjective expected probabilities can be equal to, or different from, the objective ones (respectively, p_G and p_U, with $p_U = 1-p_G$). The second step is the one during which the game is played (the conflict, or the peaceful reform, takes place). Then, the two agents experience a pause before the outcome of the conflict becomes clear, during which they anticipate what may or may not happen. In the fourth step, finally, the outcomes are realized, and either the status quo or the reform prevails.

4.1.2 From status quo to reform, through conflict (or not)

First, let's signal that the status quo scenario emerges immediately, if $\hat{p_G} < c$. In this situation, the cost of conflict being superior to the expectation formed by the government about the solution of the conflict, the threat of reform will not be pursued credibly and, obviously, the game will stop (without reform).
Second, another scenario emerges when $\hat{p_G} > c$ and $\hat{p_G} + \hat{p_U} \leq 1 + 2c$. The second condition means that at least one agent thinks he can gain the conflict, while the first ensures that the government will have an incentive to reform (and potentially enter in a conflict). Here, as we no longer have a probability of winning inferior to the cost of conflict, the government will decide to reform. For the union, rejecting the reform would deliver $\hat{p_U} - c$ while, by accepting it, the union would get $1-x$. Hence, the condition for the union to enter a conflict is simply:

$$1 - x < \hat{p_U} - c,$$

which means that the threshold level of reform proposed by the government would have to be:

$$x^T = 1 + c - \hat{p_U}, \tag{4.1}$$

where the superscript T indicates a threshold value. From the point of view of the union, then, any reform that would be superior to this threshold would force it into a conflict.

[2] In order to simplify the model, we consider that the cost of the reform is implicitly symmetric for the government and for unions. Even if there is a distinction of the reform's cost between the government and for union, this would not bring substantial changes to our results.

[3] It is important to keep in mind that all the components of the utility functions are normalized to 1.

Considering now the situation from the government's perspective, it knows that, by proposing a threshold level of reform inferior to the acceptable threshold by unions, it will start a conflict and get $\hat{p_G} - c$. Otherwise, the government sets up a conflict if the costs to confront with the opposition are superior to the government's gain at the threshold level acceptable by unions. Proposing a reform inferior to x^T, the government gets a payoff equal to $(1+\gamma)x$. Hence, the condition to enter a conflict is, for the government:

$$\hat{p_G} - c > (1+\gamma)x^T = (1+\gamma)(1+c-\hat{p_U}),$$

or:

$$\hat{p_G} > (1+\gamma)(1-\hat{p_U}) + (2+\gamma)c. \tag{4.2}$$

Given that, by assumption, in this case we have $\hat{p_G} + \hat{p_U} \leq 1+2c$, the above condition can only be filled if $\hat{p_U} > 1+c$. The fulfilment of this condition would however require the government's expectation to be such that $\hat{p_G} < c$. This would bring us back to the status quo case. Hence, just like in Minozzi (2013), the two agents reach a "settlement" zone, where they have an interest in avoiding the conflict, and all the incentives to reach a mid-point in the bargaining process.
A third scenario is when the beliefs verify $\hat{p_G} + \hat{p_U} > 1+2c$ (i.e., de facto, we have $\hat{p_i} > 2c$, with $i = G,U$). That is, both agents may think, simultaneously, that they will win the conflict.[4] As we have $\hat{p_U}^{MAX} = 1$, it means that the condition $\hat{p_G} > c$ is fulfilled, meaning that the government will take action and propose a reform (i.e., status quo is not an option here). In this case, the union's behavior is the same as in the previous (thus leading to $x^T = 1+c-\hat{p_U}$). However, here, the government will prefer the conflict to a cautious (that is, a piece-meal type of) reform, and the proposal made will be of a reform level superior to the union's acceptable threshold, $x^C > x^T$. The government has to decide if it is worth entering into a conflict, by comparing the extra gain obtained by the reform with the cost of the conflict:

$$(1+\gamma)\left(x^C - x^T\right) > c.$$

The condition will be filled if:

$$x^C > 1 + c\frac{2+\gamma}{1+\gamma} - \hat{p_U}. \tag{4.3}$$

Supposing that we have $\hat{p_U}^{MAX} = 1$, the condition boils down to $x^C > c\frac{2+\gamma}{1+\gamma}$. Hence, in this case, the reform proposed by the government is relatively important, being larger than the cost of the conflict (as $\frac{2+\gamma}{1+\gamma} > 1$, we know that $c\frac{2+\gamma}{1+\gamma} > c$). In this case, the political gains weight strongly in the government's decision to oppose the union.

[4] Of course, objective probabilities rule this out, differently from subjective ones. A direct analogy is with sports: while objectively only one team (or player) can carry a game, both teams enter the game thinking they will win it (otherwise, one of the teams should not even show up).

4.1.3 Enlarging the window of opportunity

As reforms threaten vested interests, one way for governments to increase their probability of reforming is by compensating losers. This means, in our setting, that the government reduces the losses of the union by adding a transfer. In this case, the union will get $1-x+t$, where t is the transfer. It immediately appears that the transfer will lower the threshold value of the reform acceptable by the union. Equation (1) becomes:

$$x^T = 1 + c - \hat{p_U} + t, \tag{4.4}$$

and reforms will be more easily implemented. The government even has to be less optimistic, that means that the probabilities to win the conflict (respectively $\hat{p_U}$ and $\hat{p_G}$) are not independent from the level of reform (x).

The condition to enter a conflict is reduced by the transfer (we have: $\hat{p_G} > (1+\gamma)(1-\hat{p_U}-t)+(2+\gamma)c$). In the last case, too, the government will appear less provocative, as we would now have:

$$x^C > x^{C|t} = 1 + c\frac{2+\gamma}{1+\gamma} - \hat{p_U} - t, \tag{4.5}$$

where $x^{C|t}$ is the proposal under the transfer scheme.

Of course, if the conflict is less costly for the government, then not only incentives to reform will be stronger, but the window of opportunity for reforming will be larger. This is the case if the government can forecast a path of positive growth rates, for example. This would not only reduce the cost of the reform indirectly (by enlarging the prospects to be able to compensate the losers from the change), but also directly, as it would ease the burden of the compensation for the public finance.

In our framework, this can be formally represented by the following adjustment: $c = c(\underset{-}{g^e})$. That is, the cost of the reform negatively depends on the expected growth rate of the economy (g^e), which is signaled by the negative sign under the functional form. In this case, even though the situation could be asymmetric, with the union's position unaffected by the forecasts (meaning that positive forecasts for the economy would not affect the union's threshold), it appears (from equation (2)) that the government would need to form less optimistic expectations to bring a reform, independently of the strength of the unions. Looking at equation (3), it also appears that positive forecasts would reduce the reform level needed for the government to start a conflict with the union. Another interesting interpretation of this equation is that the positive forecasts would reduce the weight of the electoral gains (as γ and $c(g^e)$ would have opposite effects on x^C). In other words, the government could be in a less favorable position (for example, its win-margin or popularity could be lower), and nevertheless be able to get reforms implemented.

4.1.4 What happens when there's nothing left to bargain for?

Now, suppose that the government has been able to go through several episodes of reforms, and that the union's rents have been strongly reduced. Assume that its reference value (here, defined equal to 1) has been diminished by an arbitary amount, say θ. The new value is thus now equal to $\overline{1-\theta}$. Now, the reference condition for a conflict, equation (3), becomes:

$$x^{C(\theta)} > 1 + c\left[\frac{1+\left(\overline{1-\theta}\right)+\gamma}{\left(\overline{1-\theta}\right)+\gamma}\right] - \hat{p_U}. \tag{4.6}$$

where $x^{C(\theta)}$ denotes the value of the reform that would start a conflict after the rent has been reduced. After several bouts of reform, the value of θ is probably close to 1. Let's denote the right-hand side term A. Its limit when θ tends towards 1 is equal to: $\lim_{\theta \to 1} A = 1 - c\frac{1+\gamma}{\gamma} - \hat{p_U}$. This limit is superior to the previous conflict value ($x^{C(\theta)} < x^C$), and even more so as γ will be small. In other words, it is when there is nothing left to bargain, that the government would be able to implement the most drastic reform without fearing the union's opposition. Interestingly, this is even truer when the political gains to be accrued from the reform are small (γ being close to 0). The interpretation of this result is that, even with a small incentive, the government would be able to implement a reform, as the union has already lost a lot and is no longer in a position to oppose the government's plans. Although the model does not consider differences in the politician's ideology, this particular result would stand whatever the political leaning of the government. Hence, when most of the deregulation has already been implemented, the ideological divide should no longer be a strong determinant of the reform process.
In the next section, we check the empirical relevance of the model.

4.2 Data

In order to assess to what extent the unions can influence the probability to implement or to refrain reforms, we constructed a time-series cross-sectional dataset that includes annual data for 18 OECD countries[5] over the period 1990-2013. Over this period, our database forms a balanced panel.

4.2.1 Dependent variable: A measure of reform

The dependent variable is built from the Regulation in Energy, Transport and Communications (ETCR) indicators of the OECD database.[6] ETCR indicators are computed every year and available since 1975 (however, limitations related to a number of independent variables forces us to start our analysis in 1990). As the name suggests, ETCR indicators measure the regulatory

[5] Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Netherlands, Norway, Portugal, Spain, Sweden, and Switzerland.

[6] See http://stats.oecd.org/ .

restrictions in Energy, Transport and Communication. These 3 sectors in turn are subdivided in 7 non-manufacturing industries: gas, electricity, post services and telecommunications, air passenger transport, rail transport and road freight (see, e.g., Conway and Nicoletti, 2006).[7]
The ETCR indicators take into account 2 main dimensions: barriers to entry and public ownership. For this empirical analysis, we focus on the "ETCR aggregate" indicator which is the average indicator for the 7 industries enunciated above. The ETCR aggregate is an indicator which ranges between 0 and 6, with the highest degree of market regulation being 6, while 0 correspond to the lowest level of regulation (complete liberalization). Descriptive statistics provided in Table 1 show that the average of the aggregate ETCR is 3.2 with a standard deviation of 1.2.
Figures 1 and 2 illustrate an issue with the data: given that there has been an impetus given to reforms over the period under study (if only by international institutions, like the IMF, the OECD or the EU, who have repeatedly argued in favor of such reforms), there has been a tendency to deregulate. As a consequence, there is a general downward trend of the ETCR indicator for all the OECD countries. Up to 1995, we notice that most of countries had a high level of ETCR (closed to 6 in general) but, since, they have experimented a relatively strong deregulation of the sectors under review. However, as can be seen from Figure 2, the downward trend has not been linear. This means that the downward trend has to be dealt with properly in the empirical strategy, which will have to take into account the non-linearity that goes with it. Otherwise, panel data unit root tests show that the dependent variable series is stationary.
From the ETCR aggregate indicator, we derive our dependent variable. In conformity with the literature and the definition of the index, we will call "reform" any change in regulation that corresponds to a form a liberalization. Thus, the main variable is a binary variable coded "1", if there is deregulation from year $t-1$ to year t, i.e, if the difference between the aggregate ETCR between two successive years is negative. Thus, we have:

$$Reform_{j,t} = 1 \, if \, ETCR_{j,t} - ETCR_{j,t-1} < 0. \tag{4.7}$$

Table 1 shows that approximately 85% of the observations correspond to a reform of the included sectors over the considered period, which confirms the visual description displayed in Figure 2.

[7]The OECD also provides a measure of Product Market Regulation (PMR), which is however provided every 5 years. The use of the PMR indicators would thus dramatically reduce the number of observations. Nevertheless, the two indicators are strongly - positively - correlated (with a coefficient equal to 0.75).

Table 4.1: Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Reform	321	.857	.351	0	1
Aggregate ETCR	321	3.227	1.187	1.275	5.916
Union density	321	37.968	18.953	12.5	87.4
Total social expenditure	321	22.566	4.905	11.3	36
Population over 65	321	15.64	2.469	10.8	23.3
Unemployment rate	321	7.313	3.581	.421	22
Herding	321	-.044	.679	-1.674	1.765
Inflation	321	2.691	2.611	-4.5	20.4
Deficit	321	-2.25	5.125	-32.554	18.696
Openness of the economy	321	74.333	35.602	15.924	187.849
Cabinet composition	321	2.526	1.553	1	5
GDP growth forecast fall date t, IMF	321	1.98	2.047	-7.5	8.743
GDP growth forecast fall date t+1, IMF	321	2.396	1.215	-2.5	7.048
GDP growth forecast fall date t+2, IMF	321	2.678	.922	.34	6.378
GDP growth forecast fall date t+3, IMF	321	2.734	.877	.4	6.115

4.2.2 Independent variables

Except when explicitly stated otherwise, all the independent variables are retrieved from the OECD database (see Table 1 for the descriptive statistics).

Our set of control variables includes the economic ones, namely: the unemployment rate (in percentage of civilian labor force), the total social expenditure (public and mandatory private, in percentage of GDP), the inflation rate (growth rate of the Consumer Price Index), the budget deficit (in percentage of GDP) and the openness of the economy (sum of imports and exports divided by the GDP). This set of economic variables aims at controlling for the identification of economic situations and contexts that can bring about reform and are standardly used in the literature (see, e.g., Rodrik, 1996, Potrafke, 2010, or Reinhart and Rogoff, 2011). In some further estimates, we also include a binary variable "crisis" which takes the value "1" between 2008 to 2010, in order to control for the impact of the financial crisis on the probability of OECD countries to reform.

Then, we consider a set of determinants of deregulation, including variables which aim at measuring political incentives or impediments to reforms. In line with the theoretical model, these include the type of government (based on a number of classifications referring to the type of government in office for the longest period) in a country *j* at time *t* and the cabinet composition (Schmidt index) in a country *j* at time *t,* as an indicator measuring the ideology of the government. The Schmidt index varies between 1 and 5, and is equal to 1 if right-wing parties are hegemonic, and to 5 if left-wing parties are. We consider these political indicators to test the Wiese (2014)'s arguments, according to which the likelihood of health privatizations increases

when a right-wing government holds office, decreases before elections and decreases when governments are more fractionalized. The political variables come from the comparative political data set gathered by Armingeon et al. (2016), and are in line with what the literature generally uses (see, for example, Potrafke (2010)). In this set of explanatory variable, we also include the share of the population over 65 years (in percentage of the population). This is meant to bring a control for structural opposition reforms from the general opinion (as a proxy measure of the degree of conservatism in the electorate).

One particularly important variable, with regard to the theoretical framework exposed before, is a measure of the net union membership (measured in percentage of the employees) which we term union density. This gives a measure of the power "insiders" can think they can rely on to confront with a reform-minded government. A high level of this variable would ex-ante reduce the expectations a government would form in terms of the possibility of winning a conflict if insiders oppose the reform.

Another set of explanatory variables is related to window of opportunity hypothesis. Here, to assess if reforms can be triggered by (positive) perceptions of the future GDP growth path, we include GDP growth forecasts in some of our estimates. However, data from the OECD database does not provide GDP growth forecast before 1997. Therefore, we use forecasts data from the IMF World Economic Outlook (WEO) and we include GDP growth forecasts that cover dates t to $t+3$. We do not go further than $t+3$, first because the average political cycle in the OECD is 4-year long and, second, because the credibility of forecasts made too many years ahead is probably weaker. Hence, going further than 3 years would probably be stretching the argument too much. However, data on GDP growth forecasts from WEO are only available from 1990 on. This constrains us to cover the period 1990-2013.

Finally, we add a variable, called "*herding*", that aims at reflecting the context in which any given government acts, that is capturing to what extent the reform process implemented in any country j is influenced by its "neighboring" countries. Similarly as in Abiad and Mody (2005); Elhorst et al. (2013); Romelli (2015), we compute this latter variable as follows: we first compute the difference between the average level of reform in the other countries ($\overline{ETCR}_{(-j)}$) and the level of the ETCR index for any country j of the database ($ETCR_j$). Then, we generate a dummy variable that takes the value "*1*" when the difference (see equation (6)) is positive and "*0*" otherwise. In other words, if the variable *herding* is equal to 1, it means that the other countries, on average, have a higher level of regulation than country j. Given the structure of the underlying variable (see Figure 2), this country can be considered as leading the reform process, as it means that it is reforming more quickly than the others. It is thus herding with regard to the others. Thus, we have:

$$diffETCRcountries_j = \overline{ETCR}_{(-j)} - ETCR_j \tag{4.8}$$

and:

$$diffETCRcountries_j > 0 \Rightarrow herding = 1 \tag{4.9}$$

In several estimates, we will include multiplicative interactions between our main interest variable (namely, union density) and some variables of the model that could have with a significant influence on the probability to implement a reform.

4.3 Empirical analysis

4.3.1 Methodology

The estimated equation is given by the following structure:

$$\begin{aligned} reform_{j,t} = a_0 + a_1 * ETCR_{j,t-1} + a_2 * ETCR^2_{j,t-1} + a_3 * (eco)_{j,t} + a_4 * (pol)_{j,t} \\ + a_5 * (GDPgrowth^e)_{j,t+n} + a_6 * (herding)_{j,t} + a_7 (interactions)_{j,t} + \varepsilon_{jt} \end{aligned} \tag{4.10}$$

with $j = 1, ..., 18$, $t = 1, ..., 24$, and $n = 0, ..., 3$.
As stated before, $ETCR_{jt-1}$ and $ETCR^2_{jt-1}$ are included to take into account the specific, non-linear, allure of the variable (see Figure 2). $(eco)_{jt}$ denotes the vector of economic variables at time t for the country j, $(pol)_{jt}$ denotes the vector of political economy variables (political as well as social - i.e., union density) for country j, $(GDPgrowth)^e_{j,t+n}$ are the different expected GDP growth variables at time t for the t to $t+n$ horizon for country j. $(herding)_{jt}$ indicates the variable controlling for the leadership hypothesis, $(interactions)_{jt}$ represent the interacted variables, while ε_{ij} is an error term, distributed according to a normal distribution $\left(0, \delta^2\right)$.
The dichotomous nature of the dependent variable requires the use of the conditional logistic estimation for panel data, with the identifier variable for each matching group being the countries. The conditional logistic is also known as a fixed-effects logit model for panel data.[8]

4.3.2 Results

Table 2 displays the results of the baseline estimates and Table 3 shows the results of the baseline results associated with the interaction variables.
Column (1) in Table 2 shows a significant and positive coefficient of the variable $ETCR$ at date $t-1$, and a negative and significant coefficient of the variable $ETCR^2$ at date $t-1$. This confirms the necessity to account properly for the allure of the data, as countries have tended to engineer reforms during the period under review, although not in a linear and systematic way.

[8] We also ran estimates with a country fixed effects logit model, and the results are quantitatively similar to the ones with the conditional logit model.

Then, column (3) shows that our main variable of interest, union density, weighs negatively on the probability to reform, as was expected. This stands in line with the theoretical model. Interpreting the level of social expenditures as a proxy for the possibility for a government to cajole opponents to reform (i.e., to implement compensating transfers to losers from reforms), our empirics also support the model, as this variable receives a positive sign (although the significance is not high).

In column (4), we see that the population aged 65+ acts negatively on the probability to reform, which was expected, this variable being considered as a proxy for the degree of conservatism (as well as of the weight of entrenched interests in a society).

The unemployment rate and the variable indicating a leadership effect are, however, not significant. As the former may de facto contain the same information that the union density variable (in an insider vs. outsiders framework as Lindbeck and Snower, 1988), this is not completely surprising. We interpret the non significance of the latter variable (the leadership, or herding, effect) as revealing the relative independence of countries in their decision to reform.[9]

Of the other variables included in our estimates (see columns (6) and (7)), inflation and the degree of openness of the economy are significant, though they influence the probability to reform in opposite ways. Openness reflects the competitive pressure from outside, and thus logically has a positive influence. Concerning inflation, in line with the model, we would interpret it as a sign of monetary illusion, hence a priori facilitating reforms (in terms of the model, this would act like a - nominal - transfer to the union). However, in the countries and the period under review, inflation has generally been decreasing, to very low levels, and then being stable. As a consequence, monetary illusion can no longer be relied on by a government attempting to bribe its opponents, which can explain the negative coefficient in our estimates.

The other variables, and in particular the ones related to the political leaning of the governments, are not significant. This comes in stark contrast with the literature. Notably, Potrafke (2010) identifies remarkable differences between leftist and right wing governments which we are not able to reproduce in our dataset. Our explanation of this difference is that, given the low degree of the degree of regulation that is now prevailing (see Figure 2), ideological differences may no longer matter much. Hence, the difference is probably related to the fact that our sample covers 10 years more than the latter author. In other words, when there are few degrees of deregulation available, the role of ideology tends to disappear. This again stands in line with our theoretical reasoning.

The first two columns of Table 3 display the results of estimates containing the same variables as before, to which we add the growth forecasts for, respectively, year $t+2$ and $t+3$. These variables are non significant and they are dropped in what follows. These results thus tends to contradict the extension of the theoretical model. However, the dummy "crisis", although

[9]Of course, there may be external pressures to reform, as we acknowledged above. Hence, the result is more revealing that the steps taken to reform can be freely - independently - chosen. In other words, countries can choose the speed at which they undertake reforms, even though the direction (liberalization of the markets and sectors) may be given.

slightly significant, receives a negative sign, which tends to support the possibility that bad economic conditions do not pave the way for reforms. In other words, for the countries and period under review, our results tend not to support the "crisis begets reform" assumption.
Finally, considering the interactions between our variables of interest, the only significant one is the interaction between union density and the level of social expenditures. Its positive sign is also supportive of the theoretical model: the larger the weight of unions, the easier it will be for a government to reform if it can smooth out the consequences of the reform for the losers by compensating them. This will be easier if resources can be used (even if that means deflecting resources from one budget line to another, this is always easier than generating new revenues).

4.4 Conclusion

In this chapter, we propose a model of the political economy of reforms, showing the importance of the unions for the implementation of reforms by governments. The theoretical analysis also confirms the importance of transfers on the ease of implementation of reforms, as well as a difference in the opposition's reactions when the level of reform has already been high and deregulation has taken place. The theoretical findings are then empirically tested. The estimates tend to support the theoretical claims. Especially, we show that unions tend to slow down reforms but that this opposition tends to decrease with an increase in the level of social expenditures. Finally, in stark contrast with the literature, we find no ideological divide in terms of the probability to implement liberalization reforms. However, as deregulation has already reached high levels, this result lies in conformity with what could be expected theoretically.

These results thus tend to favor for a reappraisal of the literature on reforms, suggesting that the focus could be put less on ideological divides and more on the other, structural, determinants of reform processes (and notably the weight of vested interests).

4.5 Appendix

Figure 4.1: Distribution of the aggregate ETCR indicator

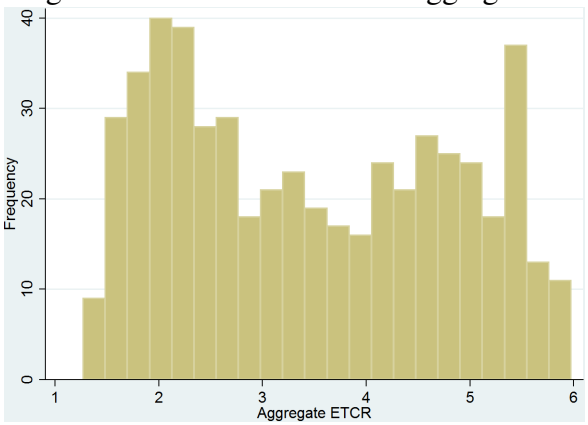
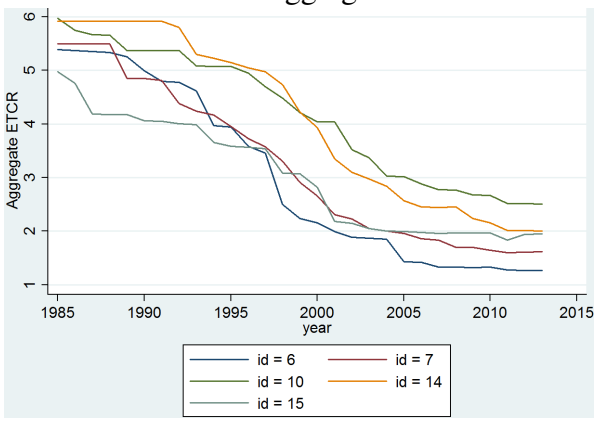


Figure 4.2: Evolution of the aggregate ETCR indicator - selected countries



id = 6:Germany, 7:Denmark, 10:France, 14:Italy, 15:Japan

Table 4.2: Baseline models

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ETCR(t-1)	42.083***	50.628***	48.836***	49.165***	49.971***	38.807***	39.571***	38.922***
	(8.849)	(10.236)	(10.109)	(10.306)	(10.618)	(10.061)	(10.084)	(10.289)
ETCR(t-1) squared	-37.835***	-41.893***	-41.119***	-41.811***	-41.969***	-25.058***	-26.218***	-26.308***
	(7.706)	(8.680)	(8.500)	(8.680)	(8.930)	(8.546)	(8.696)	(8.760)
Union density		-0.164***	-0.175***	-0.199***	-0.224***	-0.137*	-0.140*	-0.132*
		(0.057)	(0.058)	(0.063)	(0.066)	(0.076)	(0.077)	(0.079)
Total social expenditure		0.189*	0.328**	0.217	0.234	0.423*	0.403*	0.441*
		(0.102)	(0.132)	(0.159)	(0.157)	(0.238)	(0.237)	(0.241)
Population over 65			-0.412*	-0.377*	-0.376	-0.635**	-0.653**	-0.639**
			(0.230)	(0.229)	(0.232)	(0.277)	(0.277)	(0.271)
Unemployment rate				0.140	0.133	-0.016	-0.013	-0.024
				(0.119)	(0.116)	(0.138)	(0.141)	(0.140)
Herding					-0.789	-1.250	-1.330	-1.069
					(0.740)	(0.939)	(0.922)	(0.949)
Inflation						-0.639***	-0.622***	-0.624***
						(0.203)	(0.200)	(0.202)
Deficit						0.081	0.087	0.041
						(0.106)	(0.106)	(0.112)
Openness of the economy						0.119***	0.111***	0.107***
						(0.036)	(0.035)	(0.037)
Type of government							0.246	
							(0.215)	
Cabinet composition								0.036
								(0.223)
GDP growth forecast fall date t, IMF								0.148
								(0.137)
Observations	321	321	321	321	321	321	321	321
Pseudo R^2	19.74	24.99	26.75	27.43	28	40.58	41.24	41.15

Notes: (i) Conditional logit estimates with country matched groups, (ii) * p<0.1, ** p<0.05, *** p<0.01

Table 4.3: Including interacted variables

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ETCR(t-1)	39.042***	41.810***	33.088***	31.571***	29.513***	32.855***	35.640***	33.218***
	(10.361)	(10.508)	(10.349)	(10.393)	(10.798)	(10.545)	(10.914)	(10.408)
ETCR(t-1) squared	-25.204***	-26.987***	-22.237***	-21.255**	-19.148**	-21.690**	-24.537***	-22.275***
	(8.680)	(8.733)	(8.616)	(8.649)	(9.044)	(8.715)	(9.145)	(8.634)
Union density	-0.137*	-0.149*	-0.121	-0.016	-0.292	-0.458***	-0.177*	-0.122
	(0.077)	(0.078)	(0.077)	(0.109)	(0.187)	(0.174)	(0.099)	(0.077)
Total social expenditure	0.419*	0.411*	0.471*	0.467*	0.495**	-0.181	0.452*	0.471*
	(0.242)	(0.237)	(0.246)	(0.240)	(0.245)	(0.362)	(0.249)	(0.246)
Population over 65	-0.635**	-0.686**	-0.597**	-0.568**	-0.937**	-0.473*	-0.583**	-0.588**
	(0.276)	(0.277)	(0.256)	(0.257)	(0.444)	(0.268)	(0.256)	(0.264)
Unemployment rate	-0.017	-0.014	-0.011	-0.060	-0.029	0.069	-0.043	-0.012
	(0.138)	(0.136)	(0.142)	(0.146)	(0.142)	(0.150)	(0.146)	(0.142)
Herding	-1.234	-1.043	-0.810	-0.626	-0.874	-0.646	-0.683	-0.818
	(0.952)	(0.931)	(0.963)	(0.962)	(0.978)	(0.958)	(0.982)	(0.966)
Inflation	-0.642***	-0.645***	-0.554***	0.051	-0.560***	-0.600***	-0.550***	-0.556***
	(0.205)	(0.201)	(0.195)	(0.442)	(0.192)	(0.201)	(0.198)	(0.197)
Deficit	0.080	0.072	0.039	-0.010	0.056	0.047	0.015	0.039
	(0.107)	(0.107)	(0.109)	(0.116)	(0.112)	(0.112)	(0.112)	(0.109)
Openness of the economy	0.119***	0.125***	0.116***	0.131***	0.115***	0.140***	0.087*	0.116***
	(0.036)	(0.036)	(0.035)	(0.039)	(0.035)	(0.039)	(0.047)	(0.035)
GDP growth forecast fall date t+2, IMF	-0.042							
	(0.443)							
GDP growth forecast fall date t+3, IMF		-0.512						
		(0.459)						
crisis between 2008 and 2010			-1.254*	-1.254*	-1.254*	-1.042	-1.254*	-1.382
			(0.729)	(0.752)	(0.739)	(0.728)	(0.732)	(1.203)
Union density * Inflation				-0.019				
				(0.013)				
Union density * share pop. over 65					0.015			
					(0.015)			
Union density * Total social expenditure						0.019**		
						(0.008)		
Union density * Openess of the economy							0.001	
							(0.001)	
Union density * crisis								0.004
								(0.029)
Observations	321	321	321	321	321	321	321	321
Pseudo R^2	40.59	41.19	42.08	43.19	42.59	44.84	42.50	42.09

Notes: (i) Conditional logit estimates with country matched groups, (ii) * p<0.1, ** p<0.05, *** p<0.01

Conclusion Générale

Dans cette thèse, nous levons le voile sur un certain nombre de facteurs qui peuvent agir sur la prise de décision des décideurs internationaux. Nous étudions également les motivations des gouvernements à mettre en place de réformes économiques.

Résultats principaux

Dans le chapitre 1, nous montrons que les pays membres du Conseil d'Administration (CA) du Fonds Monétaire International (FMI) tendent à impacter formellement ou informellement les décisions de prêts et de remboursements du FMI. En réalité, nous indiquons qu'un membre du CA qui représente son pays ou un groupe de pays ne peut influencer la probabilité de recevoir des prêts ou au contraire sa probabilité à rembourser des prêts. Néanmoins, nos résultats prouvent que leur présence a tendance à augmenter le montant des prêts et des remboursements vers le pays d'origine du représentant. Ce résultat reste robuste en contrôlant pour les déterminants traditionnels à savoir économiques et politiques couramment utilisés dans la littérature pour expliquer les comportements d'octroi de prêts de la part du FMI.
Le chapitre 2 est une continuité du chapitre 1 et dans ce chapitre nous essayons dans un premier temps de dresser un profil de référence de ces membres du CA d'administration du FMI et dans un second temps nous testons quel serait le profil d'administrateur qui influencerait le plus les décisions du FMI en matière de prêts et de remboursements. Nous montrons que ces bureaucrates internationaux sont en moyenne des docteurs en économie, qui ont tendance à travailler dans l'administration public pour une durée moyenne de 11 ans avant de rejoindre le FMI. Après leur mandat d'administrateur au FMI, ces bureaucrates ont tendance à retourner travailler dans le secteur public. Le conseil d'administration du FMI est donc composé pour l'essentiel de hauts fonctionnaires de l'administration publique désignés pour représenter leur pays d'origine au sein de l'organisation. Nous indiquons également que les administrateurs issus du continent africain reçoivent et remboursent plus de prêts comparé aux autres membres du CA. Nos résultats affichent également que l'expérience des administrateurs dans la politique a tendance à réduire les montants de prêts de la part du FMI alors que l'expérience au sein d'une organisation international a au contraire tendance à augmenter le montant des prêts.
Dans le chapitre 3, nous testons si « la trajectoire de vie » c'est-à-dire les expériences de récession des banquiers centraux des pays développés au cours de leurs premières 25 années impactent de manière significative leur probabilité à augmenter ou à baisser le taux d'intérêt des banques centrales qu'ils président. Les résultats principaux de ce chapitre démontre que le taux d'inflation, les taux d'inflation ciblés des banques centrales ou encore les taux de croissance des pays ont tendance à influencer les taux d'intérêt. Également, les expériences de récession connues par un banquier central, que ce soit dans la durée (c'est-à-dire le nombre d'années maximum de récession) ou dans la profondeur (c'est-à-dire le plus bas taux de croissance) tendent à impacter considérablement la probabilité des banquiers centraux à baisser les taux d'intérêts. Ces résultats restent robustes en contrôlant pour des hypothèses alternatives

qui pourraient également expliquer cet aversion au risque des banquiers centraux. Ces résultats restent valides aussi bien empiriquement que théoriquement.
Enfin dans le chapitre 4, il est question d'analyser quand les gouverneurs des pays de l'OCDE sont susceptibles de mettre en place des réformes de libéralisation de leur marché de biens et services. Nous montrons que lorsque les gouvernements des pays de l'OCDE veulent initier des réformes, les syndicats de travailleurs ont tendance à ralentir la mise en œuvre de ces réformes et cette opposition tend à diminuer avec une augmentation du niveau des dépenses sociales qui sert de transfert de richesse de la part du gouvernement vers la population. Ce chapitre atteste également que, contrairement à la littérature existante, il n'existe aucune fracture idéologique qui pourrait expliquer la mise en œuvre de réformes de libéralisation du marché des biens et services. Nous validons ces résultats tout d'abord au travers d'une analyse théorique que nous confirmons par la suite par une étude empirique.

Perspectives de recherches futures

Dans cette section, nous souhaitons ouvrir le débat sur les perspectives de recherches futures concernant les thématiques développées dans cette thèse.
Concernant le chapitre 1 qui porte sur la présence des pays au CA du FMI et leur influence sur les comportements de prêts et de remboursements, nous souhaitons élargir le cadre de cette analyse. En réalité, nous nous sommes intéressés à la partie en aval de la chaine de décision du FMI c'est-à-dire nous nous sommes intéressés aux comportements de prêts et de remboursement lorsque les administrateurs sont déjà au CA. La question que nous nous posons est de savoir que se passe-t-il en amont de cette chaine de décision ? Pourquoi un pays a-t-il été désigné pour représenter son groupe au CA ?
Comme le signale Houtven (2002), la présence d'un pays au sein du conseil d'administration dépend fortement de la constitution du groupe de pays auquel il appartient. Les considérations géographiques sont généralement importantes dans la formation des groupes de pays dans la mesure où certains groupes de pays regroupent à la fois des pays développés et des pays en voie de développement. Plus intéressant, le choix du pays représentant est une décision qui appartient aux différents groupes de pays. Dans certains groupes de pays, les membres se partagent le siège alors que dans d'autres groupes, c'est seulement un seul pays ou un petit nombre de pays (en général des pays développés) qui se partagent le siège.
Dans une future recherche, notre but est de développer une modèle théorique sur comment est choisi le pays représentant au sein de son groupe. L'idée est clairement de développer une modèle théorique en y intégrant un système de jeux séquentiel entre les pays appartenant au même groupe. Cette modélisation théorique en amont sur le choix du pays nous permettra dans un premier temps de mieux comprendre les stratégies des pays dans le choix de leurs représentants, et dans un deuxième temps, mieux comprendre les comportements des pays représentants qui ont tendance à privilégier leur pays au lieu de défendre les intérêts du groupe tout entier.

Nous souhaitons poursuivre nos recherches en nous intéressant cette fois à d'autres décisions importantes du FMI en matière de prêt et de remboursement à savoir les conditionalités. En effet, lorsqu'un pays emprunte auprès du FMI, le pays emprunteur acceptent des conditions de la part du FMI afin d'ajuster sa politique économique pour surmonter les problèmes qui les ont conduits à solliciter l'aide financière du FMI. Ces conditions permettent également de veiller à ce que les pays soit en mesure de rembourser le FMI afin de mettre les ressources à la disposition d'autres pays qui en feront la demande. Dans une future recherche donc, nous souhaitons approfondir l'étude de Copelovitch (2010) qui a travaillé sur les conditionalités du FMI en testant si la présence des pays au sein du CA du FMI impacte ces conditionalités mise en place par le FMI. Comme une suite logique de la précédente idée, nous souhaitons également vérifier si la présence au sein du CA peut influencer le délai d'approbation de prêt de la part du FMI. En effet, McDowell (2013) a montré que le délai entre la demande de prêt et l'approbation dépend fortement du pays emprunteur. Il montre que la proximité entre le pays emprunteur et les pays du G5 (États Unis, France, Grande Bretagne, Japon, Allemagne) est associée à des approbations de prêts plus rapides. Dans une future recherche, nous souhaitons nous inspirer de ce cadre d'analyse pour tester l'hypothèse selon laquelle la présence des membres au CA du FMI pourrait être également liée au délai d'approbation des prêts du FMI.

Concernant le chapitre 2, nous avons construit une base de données assez originale à partir des CVs des membres du conseil d'administration du FMI. Néanmoins, nous sommes conscient de la limite du nombre d'observation de cette base de données. Dans de futures recherches, nous souhaitons élargir cette base de données sur une période assez conséquente d'environ 20 années, mais nous souhaitons aussi intégrer dans cette base de données d'autres organisations internationales comme la Banque Mondiale, l'Organisation Mondiale du Commerce (OMC) ou encore l'Organisation Mondiale de la Santé (OMS). L'élargissement de cette base de données nous permettra de mener une étude économétrique plus solide et plus pertinente afin d'en tirer d'importantes politiques économiques. Concernant ce même chapitre, une autre étude que nous souhaitons mener est de tester ou de vérifier si les bureaucrates internationaux qui ont reçu plus de prêts ou de subventions de la part des institutions internationales dans lesquels ils ont travaillé en raison de leur « trajectoire de parcours » font de « meilleures » carrières après leur poste au FMI. Nous nous posons la question de savoir si l'expérience au sein d'une institution internationale impacte positivement les carrières futures de ces bureaucrates internationaux. La vérification de cette hypothèse nécessiterait comme mentionné précédemment, une collecte supplémentaire de données.

Dans le chapitre 3, nous montrons l'importance du passé des banquiers centraux dans leur comportement en tant que Président de banques centrales. Précisément, notre recherche démontre que les récessions connues par les banquiers centraux des pays développés ont tendance à les rendre plus averse au risque à travers une tendance à baisser les taux d'intérêt des banques centrales. Dans ce chapitre, en terme de perspectives futures de recherche, nous souhaitons prolonger cette étude avec les pays en voie de développement. Plus précisément, nous souhai-

tons analyser dans quelle mesure le passé des banquiers centraux des pays en développement pourrait influencer leurs décisions en tant que Président d'une banque centrale. Cette analyse nécessite une collecte de données sur les banques centrales des pays en développement et leurs dirigeants. Nous sommes conscient du fait que les données sur les 25 premières années des banquiers centraux des pays en voie de développement seront difficile, voire impossible à trouver. Ainsi, pour ces banquiers centraux au lieu de considérer le nombre d'année de récession, nous considèrerons des faits marquants de leur vie à savoir les guerres, les périodes de colonisation et de décolonisation etc. Ces informations sont plus accessibles et nous permettront d'étendre notre analyse avec les pays en voie de développement.

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