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UNIVERSITÉ D'ORLÉANS

ÉCOLE DOCTORALE SCIENCES DE L'HOMME ET DE LA SOCIÉTÉ

LABORATOIRE D'ÉCONOMIE D'ORLÉANS

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Kenyatta**

Discipline/S spécialité : **Sciences Economiques**

**Essays on Fiscal Space in Developing Countries: The
Role of International Remittances, Convergence
Programs and Fiscal Federalism.**

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Essais sur l'espace fiscal dans les pays en développement : rôle des transferts de fonds internationaux , des programmes de convergence et de situation de fédéralisme budgétaire.

Résumé :

La politique fiscale est importante pour le financement du développement, en particulier dans le contexte d'une marge de manœuvre fiscale limitée, comme c'est le cas dans de nombreux pays en développement. Cette thèse étudie le potentiel de la politique fiscale en tant qu'atout pour financer le développement. Elle explore quatre questions fondamentales sur l'efficacité de cet outil politico-économique et la mobilisation des ressources. Le premier essai analyse l'impact des transferts de fonds des migrants sur les recettes fiscales non liées aux ressources naturelles des pays bénéficiaires de ces transferts et la manière dont la stabilité des institutions modifie cette relation. Les résultats montrent une association positive principalement à travers son effet sur les impôts indirects. En outre, la qualité des institutions n'augmente pas la relation entre les envois de fonds et la fiscalité, car cet effet positif diminue à mesure que les institutions se stabilisent. Le deuxième essai étudie la contribution des programmes de convergence macroéconomique à la convergence fiscale et à la viabilité fiscale des communautés économiques régionales africaines. Malgré l'absence de convergence fiscale absolue au niveau de la dette publique, des recettes et des dépenses, les tests log-t montrent une convergence conditionnelle. En outre, l'analyse qui suit ne parvient pas à valider l'hypothèse selon laquelle l'appartenance à une zone monétaire, qui est perçue comme la forme la plus profonde d'intégration, améliore la réponse de la politique fiscale à l'augmentation de la dette publique. Le troisième essai examine les effets de la décentralisation des dépenses et de l'autonomie des recettes sur la performance fiscale du gouvernement central (CG) et des gouvernements locaux (SNG). Les résultats montrent que la décentralisation des dépenses pourrait améliorer la performance fiscale du gouvernement central, mais seulement à des niveaux faibles de dépendance des transferts par les gouvernements sous-nationaux. Cependant, une plus grande autonomie en matière de recettes est préjudiciable à la fois à la performance du gouvernement central et à celle des gouvernements infranationaux. Néanmoins, le renforcement de la responsabilité des SNG et la prise en compte des relations fiscales verticales lors de la conception des réformes de décentralisation pourraient réduire le biais de déficit au niveau central et local. Le dernier essai étudie comment les déséquilibres budgétaires (verticaux et horizontaux) affectent les efforts de collecte des recettes fiscales par les gouvernements locaux kenyans. Les résultats montrent que les déséquilibres verticaux diminuent la part des recettes propres, ce qui confirme que des déséquilibres verticaux importants peuvent favoriser l'indiscipline budgétaire au niveau infranational en réduisant l'effort fiscal. Cependant, les gouvernements des comtés "plus pauvres" exercent un effort fiscal plus important.

Mots clés : Politique budgétaire, Transferts de fonds internationaux et fiscalité, Programmes de convergence, Décentralisation budgétaire, Relations budgétaire intergouvernementales, Pays en développement.

Essays on Fiscal Space in Developing Countries: The Role of International Remittances, Convergence Programs and Fiscal Federalism.

Abstract :

Fiscal policy is important for development financing, particularly in the context of limited fiscal space, as in many developing countries. This thesis studies the potential of fiscal policy as an asset to fund development. It explores four fundamental questions about the effectiveness of this political-economic tool and resource mobilization. The first essay analyses the impact of migrant remittances on non-resource tax revenues in remittance-recipient countries and how institutional stability modifies this relationship. The results show a positive association mainly through its effect on indirect taxes. Furthermore, institutional quality does not augment the remittance-taxation relationship, as this positive effect diminishes as institutions stabilize. The second essay studies macroeconomic convergence programs' contribution to fiscal convergence and fiscal sustainability of African Regional Economic Communities. Although there is no absolute fiscal convergence in public debt, revenue and expenditure, the log-t tests show conditional convergence. Furthermore, the subsequent analysis fails to validate the hypothesis that belonging to a monetary zone, which is perceived as the deepest form of integration, augments the response of fiscal policy to increasing public debt. The third essay examines the effects of expenditure decentralization and revenue autonomy on the fiscal performance of central government (CG) and subnational governments (SNGs). The results show that expenditure decentralization could enhance CG fiscal performance but only at low levels of transfer dependency by SNGs. However, higher revenue autonomy is detrimental to both central and subnational performance. Nevertheless, enhancing SNG accountability and taking into account the vertical fiscal relations when designing decentralization reforms could reduce the deficit bias at the central and local levels. The final essay investigates how fiscal imbalances (vertical and horizontal) affect tax revenue collection efforts in Kenyan local governments. The results show that vertical imbalances diminish the share of own-source revenues, confirming that large vertical imbalances may foster subnational fiscal indiscipline through a lower tax effort. However, "poorer" county governments exert a higher tax effort.

Keywords : Fiscal Policy, International Remittances and Taxation, Fiscal convergence, Fiscal Decentralization, Intergovernmental Fiscal Relations, Developing Countries.

I dedicate this thesis to my family, particularly my parents, who have been the greatest support in my entire education journey.

The University of Orléans does not intend to give any approval or disapproval to the opinions expressed in this thesis. These opinions are to be considered as the author's own.

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Abstract

Developing countries face multitude of needs including poverty alleviation, energy access, investments in human capital and physical infrastructure, building strong institutions, among others. Fiscal policy remains a feasible option for funding these development projects, especially when there is scarcity of external financing, as it is in many developing countries. However, effective fiscal policy implementation depends on the availability of room for fiscal maneuver in a government's budget, also called fiscal space. Literature identifies domestic revenue mobilization, well-designed fiscal rules, external financing and foreign aid mobilization and public expenditure efficiency as some of the avenues of creating fiscal space for development. This thesis investigates how developing countries can harness the potential of fiscal policy as an asset for development financing by exploring four fundamental questions in three subject areas that impact fiscal sustainability and fiscal space in developing countries.

The first essay analyses the impact of migrant remittances on non-resource tax revenues in remittance-recipient countries and how institutional stability modifies this relationship. The results show a positive association mainly through its effect on indirect taxes. Furthermore, institutional quality does not augment the remittance-taxation relationship, as this positive effect diminishes as institutions stabilize. The second essay studies macroeconomic convergence programs' contribution to fiscal convergence and fiscal sustainability of African Regional Economic Communities. While convergence programs and monetary zones favor convergence in public debt, revenue and expenditure as shown by the log-t tests, they do not necessarily support fiscal discipline to augment the response of fiscal policy to increasing public debt.

The third essay examines the effects of expenditure decentralization and revenue decentralization on the fiscal performance of central government (CG) and subnational governments (SNGs). The results show that expenditure decentralization could enhance CG fiscal performance but only at low levels of transfer dependency by SNGs. However, higher revenue decentralization is detrimental to both central and subnational performance. Nevertheless, enhancing SNG accountability and taking into account the vertical fiscal

relations when designing decentralization reforms could reduce the deficit bias at the local government level. The final essay investigates how fiscal imbalances (vertical and horizontal) affect tax revenue collection efforts in Kenyan local governments. The results show nonlinear relation between vertical fiscal imbalances (VFIs) and local revenues, presenting an inverted U shape. This implies that both small and large VFIs are bad for SNG fiscal discipline. Furthermore, the harmful effect of VFIs more pronounced in SNGs with high horizontal fiscal imbalances (HFIs). However, "poorer" county governments (large HFIs) exert a higher tax effort.

Keywords: Fiscal Policy, International Remittances and Taxation, Fiscal convergence, Fiscal Decentralization, Intergovernmental Fiscal Relations, Developing Countries.

List of Abbreviations

AfCFTA African Continental Free Trade Area

CAPB Cyclically Adjusted Primary Balance

CEMAC Communauté économique et monétaire de l'Afrique centrale

CER Communautés économiques régionales

COMESA Common Market for Eastern and Southern Africa

CPIA Country Policy and Institutional Assessment

DRM Domestic Revenue Mobilization

EAC East African Community

ECOWAS Economic Community of West African States

EMU European Monetary Union

EU European Union

FDI Foreign Direct Investment

GCP Gross County Product

GDP Gross Domestic Product

GRD Government Revenue Dataset

HIPC Highly Indebted Poor Countries

ICTD International Centre for Tax and Development

IMF International Monetary Fund

KNBS Kenya National Bureau of Statistics

LICs Low-Income Countries

LMICs Lower Middle-Income Countries

LSDVC Corrected Least Square Dummy Variable

OCDE Organisation de coopération et de développement économiques

OCOB Office of the Controller of Budget

ODA Official Development Assistance

ODD Objectifs de développement durable

OECD Organization for Economic Co-operation and Development

PFM Public Financial Management

PIB Produit intérieur brut

RECs Regional Economic Communities

SADC Southern African Development Community

SFA Stochastic Frontier Analysis

SNGs Subnational Governments

UE Union Européenne

UEMOA Union économique et monétaire ouest-africaine

UMICs Upper Middle-Income Countries

VAT Value Added Tax

WAEMU West African Economic and Monetary Union

WAMZ West African Monetary Zone

WDI World Development Indicators

WEO World Economic Outlook

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1

Introduction Générale (Résumé en Français)

Cette thèse comprend deux parties, chacune comportant deux chapitres. Bien que chaque chapitre puisse être lu indépendamment, ils sont liés les uns aux autres dans le sens où ils contribuent tous à l'analyse de l'espace fiscal dans les pays en développement. Dans ce chapitre introductif, je présente d'abord les considérations générales concernant la motivation principale de cette thèse et les questions d'espace fiscal abordées. Ensuite, je propose une analyse de chaque chapitre en termes d'aperçu et de valeur ajoutée à la littérature sur l'espace fiscal. Dans la première partie, le premier chapitre examine comment les flux financiers externes (plus précisément, les transferts de fonds) pourraient influencer l'espace fiscal en fonction de diverses considérations sur la qualité des institutions. Le deuxième chapitre est centré sur l'espace budgétaire des communautés économiques régionales (CER) africaines et la viabilité de leur dette, compte tenu de leurs choix de programmes de convergence budgétaire qui fixent des règles concernant les déficits budgétaires et les limites de la dette.

La deuxième partie de la thèse est consacrée à l'analyse des efforts de décentralisation fiscale dans les pays en développement. A cette fin, le troisième chapitre évalue comment la décentralisation fiscale (plus précisément, la décentralisation des dépenses et la décentralisation des recettes), considérée comme un remède possible à l'efficacité de la politique fiscale, a un impact sur la performance fiscale des gouvernements centraux et locaux, telle que mesurée par les déficits fiscaux. L'une des conclusions notables de ce chapitre est que la dépendance des gouvernements locaux à l'égard des transferts du gouvernement central est préjudiciable à la performance fiscale nationale. Cet effet se produit-il en affectant les efforts de mobilisation des recettes des gouvernements locaux? Pour tenter d'établir la validité de ce canal de causalité, le quatrième chapitre cherche à évaluer comment les déséquilibres fiscaux verticaux et horizontaux affectent les efforts de mobilisation des ressources des gouvernements locaux. Cependant, en raison du manque de données infranationales permettant une large analyse transnationale, l'étude se concentre sur

les 47 gouvernements locaux du Kenya en utilisant des données obtenues auprès du ministère des Finances et de ses institutions affiliées.

1.1 Considérations Générales.

La situation typique de la plupart des pays en développement est la multitude de besoins en termes de réduction de la pauvreté, de croissance de la production, d'accès à l'énergie, d'investissements dans le capital humain et les infrastructures physiques, et de mise en place d'institutions solides, entre autres. Dans ce contexte, la raison d'être des objectifs de développement durable (ODD) est de fournir un cadre stratégique visant à mettre fin à la pauvreté et à protéger la planète tout en promouvant une forte inclusion des plus pauvres et des plus vulnérables. L'éducation, la santé, l'environnement et la promotion d'une croissance équitable tout en maintenant des institutions fortes ont tous été cités comme des accélérateurs du développement à long terme dans les pays sous-développés. Pour atteindre les objectifs des ODD, la politique fiscale est l'un des instruments les plus puissants dont disposent les gouvernements pour influencer l'activité économique et parvenir à un développement durable (López and Figueroa, 2016; Stiglitz, 2012). Son rôle est particulièrement important dans les pays en développement où les ménages peinent à lisser leur consommation en raison de contraintes financières. Les cycles économiques exacerbent la volatilité déjà élevée des dépenses privées dans de telles circonstances (Özbilgin, 2010). Wong et al. (2002) définissent la politique fiscale comme "le déploiement des dépenses publiques et de la fiscalité pour contrôler la production économique". Cela se produit à travers ses trois fonctions principales de stabilisation macroéconomique, d'allocation et de distribution équitable des ressources, telles qu'identifiées dans le travail fondateur de Musgrave (1959).

La mise en œuvre efficace de la politique budgétaire dépend de la disponibilité d'une marge de manœuvre budgétaire dans le budget d'un gouvernement, également appelée espace budgétaire. Il existe plusieurs façons de décrire l'espace budgétaire. Les définitions existantes dans la littérature sont étroitement liées à la théorie existante de la viabilité de la politique budgétaire. Comme dans Ghosh et al. (2013), l'espace budgétaire est défini comme l'écart entre la dette publique brute et le plafond d'endettement préférable¹ déduit de l'historique de l'assainissement budgétaire d'un pays. Alors qu'il existe de nombreuses recherches sur l'espace budgétaire dans les économies avancées (Bohn, 1998; Del Monte and Pennacchio, 2020; Ghosh et al., 2013; Heller, 2005; Ostry et al., 2010), la littérature sur l'espace budgétaire dans les pays en développement est plutôt restreinte (Adedeji et al.,

¹Le ratio d'endettement au-delà duquel la dynamique de la dette devient explosive est appelé limite d'endettement (Ostry et al., 2010).

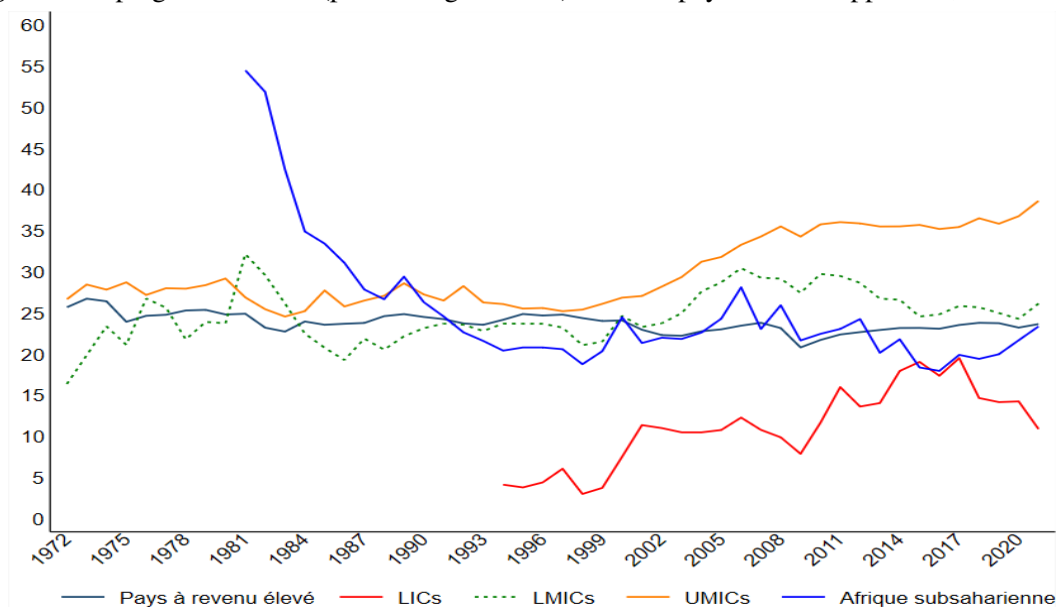
2016; Baum et al., 2017; Yohou, 2020). Baum et al. (2017), par exemple, montre que les pays à faible revenu (ou Low-Income Countries - LICs, en anglais) ne disposent pas de la marge de manœuvre fiscale nécessaire pour atteindre les ODD, tandis que Yohou (2020) démontre que la corruption sape les effets d'appréciation des efforts fiscaux sur l'espace fiscal. Adedeji et al. (2016), d'autre part, utilise plusieurs scénarios de plafond de la dette pour prouver la disponibilité de l'espace budgétaire dans les pays à faible revenu, qui est conditionné par l'accès au financement intérieur et extérieur. Ils montrent également que la qualité institutionnelle, telle qu'elle est appréhendée par l'indice d'évaluation des politiques et des institutions nationales de la Banque mondiale, est un élément important de la marge de manœuvre budgétaire.

En effet, en utilisant des exemples nationaux, Acemoglu et al. (2012) démontrent l'importance des institutions pour expliquer les différences de performance économique entre les pays. En outre, de nombreuses sources de données sur la qualité des institutions et de la gouvernance sont apparues depuis les années 1990, ce qui a donné lieu à l'émergence d'une littérature prolifique sur la forte relation de cause à effet entre les institutions et la gouvernance et les performances macroéconomiques dans les quatre secteurs de la macroéconomie : le secteur réel, le secteur fiscal, le secteur monétaire et financier, et le secteur extérieur. Plusieurs documents ont montré que des institutions et une gouvernance fortes pouvaient être un remède contre les distorsions fiscales et les performances fiscales insoutenables (Bergman and Hutchison, 2015; Bergman et al., 2016; Cooray et al., 2017; Frankel et al., 2013; Keita and Turcu, 2019). Ricciuti et al. (2019) montrent également, à l'aide d'une base de données actuelle sur les performances du secteur public, que la qualité des institutions politiques est essentielle pour la fiscalité dans les pays en développement.

La littérature existante sur les pays en développement identifie l'augmentation durable des recettes fiscales, l'existence de règles fiscales bien conçues, le recours au financement intérieur et extérieur, l'augmentation de l'efficacité des dépenses publiques et la mobilisation de l'aide étrangère comme autant de moyens de créer un espace fiscal pour le développement.

1.2 L'espace fiscal dans les pays en développement: Défis et Opportunités.

Tout d'abord, de nombreux pays en développement sont confrontés au problème de l'insuffisance de l'épargne nationale. Cela exacerbe les importants déficits de financement des pays en développement dans leur quête d'investissement et de croissance économique durable. Par exemple, pour les LICs et les pays à revenu intermédiaire de la tranche inférieure

Figure 1.1 Épargne intérieure (pourcentage du PIB) dans les pays en développement, 1972-2021.

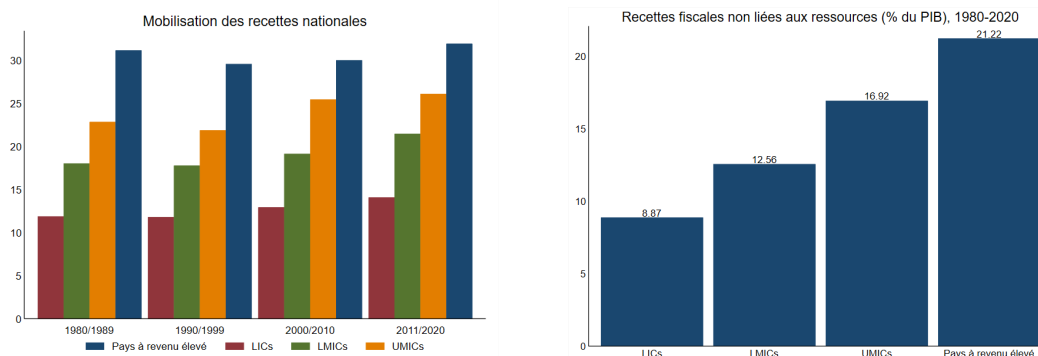
Source: Compilation de l'auteur à partir des données des Indicateurs du développement dans le monde (ou World Development Indicators - WDI, en anglais), Banque Mondiale 2022

(ou Lower Middle-Income Countries - LMICs, en anglais), l'épargne nationale a progressé, mais de manière plutôt irrégulière, et est restée inférieure à 20 pourcentage du produit intérieur brut (PIB) pour les LICs (Figure 1.1).² Par conséquent, le secteur public reste l'agent investisseur le plus crédible dans ces économies.

En outre, étant donné que la croissance est le résultat direct de l'accumulation de capital, certains analystes (influencés par les modèles de croissance de Harrod et Domar) soutiennent que le rôle principal de la politique fiscale est d'encourager l'épargne privée en ajoutant sa propre "mobilisation" à cette épargne (Tanzi, 1976). Pour atteindre un tel objectif, et selon ces théories, les politiques budgétaires et fiscales du gouvernement sont les seuls outils à la disposition des pays en développement.

Deuxièmement, selon plusieurs spécialistes, dont Besley and Persson (2014) et Morrissey et al. (2016), la plupart des pays en développement taxent si peu, et leurs recettes fiscales sont loin d'atteindre le niveau souhaité et restent inférieures à celles de l'Organisation de coopération et de développement économiques (OCDE) (24%), et d'autres pays émergents en développement. Plusieurs facteurs contribuent à la faiblesse des recettes fiscales des pays en développement. Selon Stiglitz et al. (2006), l'assiette des recettes est souvent plus mince dans les pays en développement, et la conformité fiscale est considérablement plus

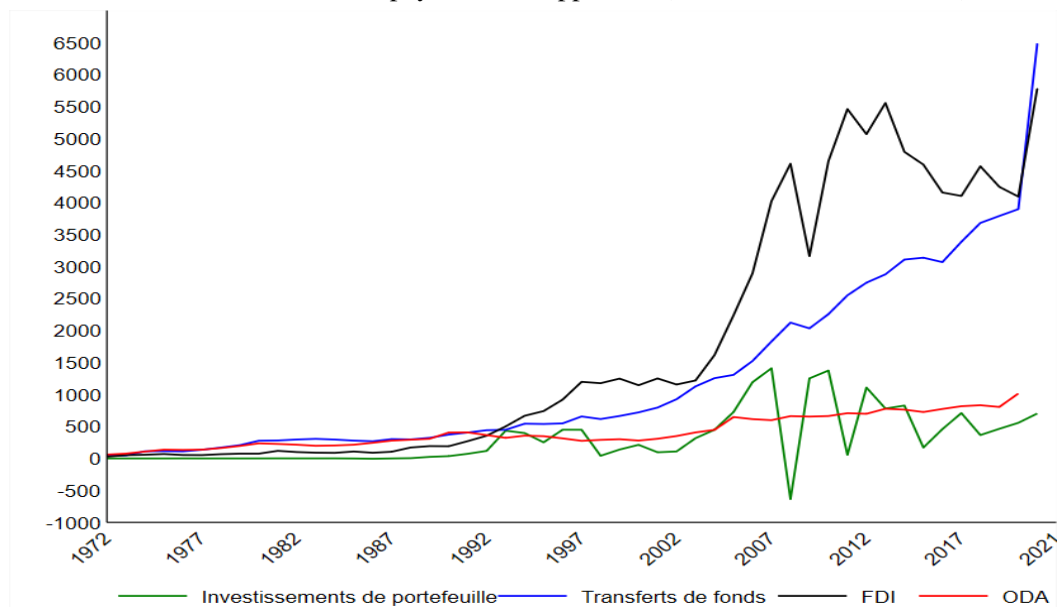
²Ces chiffres sont à comparer avec ceux des pays à revenu intermédiaire de la tranche supérieure (ou Upper Middle-Income Countries - UMICs, en anglais) dont les taux d'épargne ont augmenté au fil du temps, atteignant en moyenne 30 pourcentage sur la période allant de 1972 à 2021.

Figure 1.2 Mobilisation des recettes nationales dans les pays en développement

Source: Compilation de l'auteur à partir des données du Government Revenue Dataset (GRD) du Centre international pour la fiscalité et le développement (ou International Centre for Tax and Development - ICTD, en anglais), 2021.

faible. Ils affirment également que, par rapport à leurs homologues avancés, les pays en développement dépendent davantage des impôts indirects que des impôts directs. Dans ce cas, la perspective de stimuler l'économie par des réductions d'impôts est considérablement réduite. La Figure 1.2 montre que les taux d'imposition dans les pays en développement sont nettement inférieurs depuis les années 1990. Le taux de croissance des taux d'imposition a été remarquablement le même pour chaque groupe au cours de chaque décennie. Les pays en développement doivent lever des fonds (à la fois au niveau national et international) afin de renforcer leurs finances pour le développement économique et pour atteindre les ODD. Il est indéniable que la mobilisation des recettes nationales et l'importance d'institutions fortes sont réitérées dans l'objectif de développement durable 17 (Objectif 17.1) et l'objectif de développement durable 16 (Objectifs 16.5 à 16.8) des Nations Unies, respectivement.

Le premier essai "*Transferts de fonds, capacité fiscale et qualité institutionnelle dans les pays en développement*" apporte une contribution à la littérature sur la mobilisation des recettes nationales en examinant comment les pays en développement peuvent exploiter les flux de transferts de fonds en fonction de différentes considérations de qualité institutionnelle. Les transferts de fonds représentent actuellement une source importante de financement externe dans les pays en développement (Figure 1.3), dépassant les niveaux de l'aide publique au développement (ou Official Development Assistance - ODA, en anglais) ou de l'investissement direct étranger (ou Foreign Direct Investment - FDI, en anglais) (Ratha et al., 2021). Cependant, malgré leur importance considérable, il existe peu de recherches sur les canaux par lesquels ils ont un impact sur les finances publiques des pays d'accueil, étant donné qu'il n'existe pas de mécanisme direct pour taxer les transferts de fonds. La contribution de cette thèse à ce domaine de recherche est double. Premièrement, elle examine la manière dont les pays en développement peuvent exploiter les transferts de fonds en

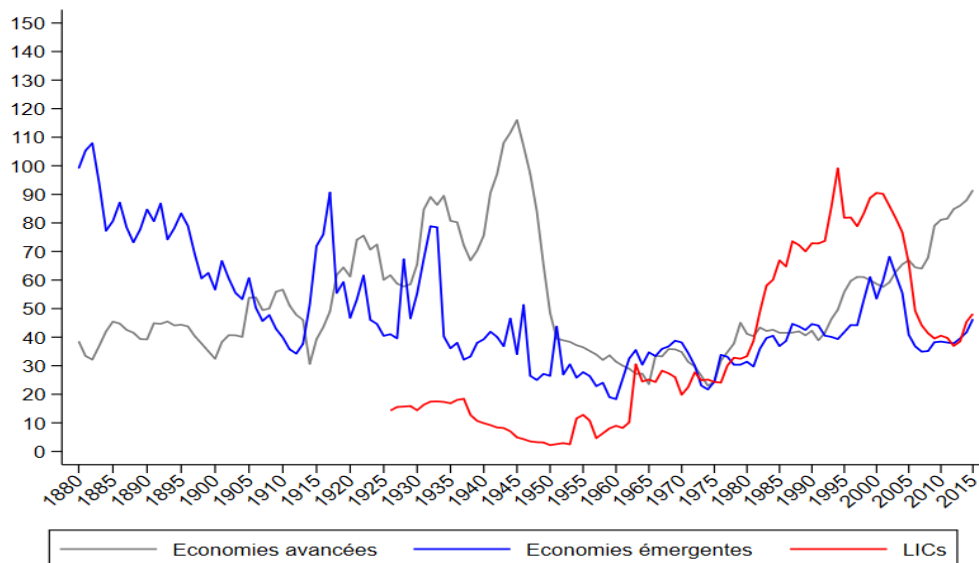
Figure 1.3 Les flux extérieurs vers les pays en développement (en millions de dollars US), 1972-2021.

Source: Compilation de l'auteur à partir des données de WDI, 2022.

analysant l'impact de ces transferts sur les recettes fiscales. Deuxièmement, elle explore à la fois l'hétérogénéité et les effets interactifs de la qualité institutionnelle sur la capacité fiscale des pays recevant des transferts de fonds. Ce faisant, il révèle des liens importants entre les institutions et le lien entre les transferts de fonds et la fiscalité.

La question de la viabilité budgétaire est tout aussi importante et, comme le soulignent certains auteurs (par exemple Burnside (2005)), il s'agit de déterminer si le gouvernement peut poursuivre ses politiques budgétaires de manière indéterminée. On en déduit que lorsque la politique actuelle est susceptible d'entraîner une crise ou une restructuration à moyen terme, cette politique n'est pas viable et doit être ajustée. Un autre point de vue consiste à dire que, comme les gouvernements ne sont pas aussi à court de liquidités que les agents privés, il n'y a pas de risque à ce que les autorités publiques financent les dépenses courantes en empruntant aux générations futures. Toutefois, la crise de la dette dans de nombreux pays émergents et en développement dans les années 1980 (voir Figure 1.4) et même la crise de la dette dans les pays européens périphériques en 2010 démontrent qu'il y a une limite à la quantité de dette que le secteur public peut emprunter.

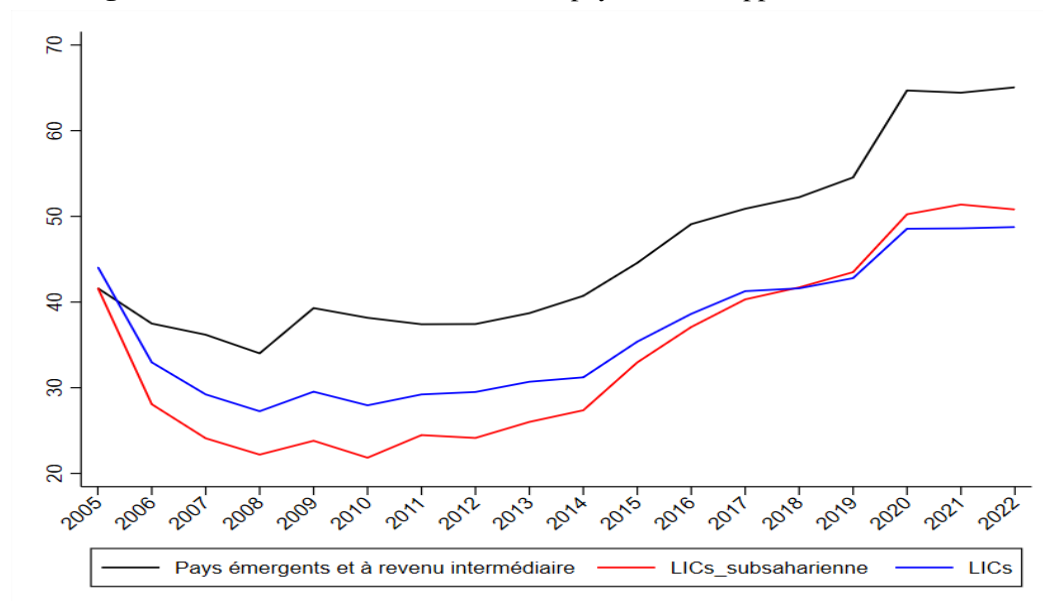
Selon la théorie de l'approche fiscale (Buitier and Rahbari, 2010; Pisani-Ferry, 2012), la crise de l'euro a été déclenchée par des excès fiscaux avant la crise financière de 2008, ainsi que par la mauvaise conception institutionnelle de l'Union monétaire européenne, qui a entraîné la disponibilité de crédits bon marché et un contrôle laxiste des emprunts. Buitier and Rahbari (2010) sont particulièrement critiques à l'égard des comptes budgétaires

Figure 1.4 Ratio dette publique/PIB, 1880-2015.

Source: Compilation de l'auteur à partir des données de la base de données historique de la dette publique, Fonds monétaire international (ou International Monetary Fund - IMF, en anglais), 2022.

d'avant la crise, soulignant que les dépenses excessives et le comportement procyclique des gouvernements avant la crise ont exacerbé les problèmes de finances publiques dans la périphérie sud de l'Union monétaire européenne, malgré les renflouements financiers. Le pacte de stabilité et de croissance et une clause de "non renflouement" ont été introduits pour remédier à l'endettement excessif des États membres. Cependant, le pacte de stabilité et de croissance a été fortement critiqué, d'une part, parce qu'il imposait un resserrement budgétaire pendant les récessions et, d'autre part, parce qu'il n'était pas respecté.

Dans les pays en développement, l'accumulation de la dette a augmenté ces derniers temps, atteignant des niveaux qualifiés de "dangereux et insoutenables" (Figure 1.5). Ce fardeau de la dette met en péril la croissance et les progrès vers les ODD, en particulier à la lumière des régimes de taux de change flexibles et des économies ouvertes (IMF, 2022). Le statut historique des pays en développement en tant que débiteurs de devises étrangères et la volatilité des taux de change ont été une source récurrente de vulnérabilité aux chocs extérieurs, tels que la crise de l'euro de 2008 et, plus récemment, la pandémie du virus Covid-19. Alors que la pandémie a continué à dominer en 2021, le ratio moyen de la dette extérieure par rapport au PIB des pays en développement a atteint 70 pourcentage, contre 44 pourcentage en 2009, ce qui représente une augmentation d'environ 60 points de pourcentage. Ces gouvernements sont confrontés à la difficulté de ramener la dette à des niveaux plus gérables tout en continuant à protéger les plus défavorisés face à une crise mondiale potentielle. Les efforts coordonnés de la communauté internationale ont

Figure 1.5 Ratio dette totale/PIB dans les pays en développement, 2005-2022.

Source: Compilation de l'auteur à partir des données du World Economic Outlook (WEO), IMF, 2022.

permis d'éviter une vague de défaillances souveraines. Toutefois, la fin des programmes spéciaux d'allègement de la dette, combinée au resserrement de la politique monétaire dans les économies avancées, n'est pas de bon augure.

En outre, on ne saurait trop insister sur la menace que représente une dette publique insoutenable pour l'agenda de l'intégration régionale : son potentiel de créer des retombées négatives par le biais de divers canaux, y compris le commerce et les effets de contagion, et de faire dérailler le processus de convergence macroéconomique dans une union monétaire est bien réel. L'utilisation de programmes de convergence macroéconomique pour harmoniser les déficits budgétaires nationaux, la dette publique, l'inflation, les taux d'intérêt et les taux de change, ainsi que pour promouvoir le processus d'intégration monétaire, est bien connue dans la littérature sur l'intégration régionale. Ces programmes visent à aligner les politiques relatives aux déficits budgétaires, à la dette publique, à l'inflation, aux taux d'intérêt et aux taux de change, le déficit budgétaire étant la condition la plus fondamentale pour faire converger les positions budgétaires. Par conséquent, la discipline et la viabilité fiscales peuvent, en principe, être soutenues par des programmes de convergence fiscale, comme le montrent les contraintes fiscales explicites évoquées dans la littérature sur l'Union Européenne (UE). Par exemple, dans le contexte de l'Union économique et monétaire ouest-africaine (UEMOA)³, les règles fiscales établies par le cadre de surveillance régional

³L'UEMOA est l'une des quatre unions monétaires au monde composée de huit pays - le Bénin, le Burkina Faso, la Côte d'Ivoire, la Guinée-Bissau, le Mali, le Niger, le Sénégal et le Togo.

ont été faiblement appliquées au fil des ans, contribuant ainsi au faible respect des critères de convergence par les États membres (Féler and Simard, 2019). En outre, le cadre de convergence manque encore de mécanismes formels de partage fiscal, ce qui rend difficile pour les pays soumis à des chocs idiosyncratiques (tels que les problèmes de sécurité actuels au Burkina Faso, au Mali et au Niger) de stabiliser leurs économies sans le soutien des autres membres ou la pression pour assouplir l'orientation de la politique monétaire commune. Ceci dans un contexte où ces pays sont parmi les plus endettés au monde.⁴

Le deuxième essai "*Convergence fiscale et soutenabilité de la dette publique en Afrique*" contribue à la littérature sur la convergence fiscale et la soutenabilité fiscale en analysant si l'adoption de programmes de convergence macroéconomique dans les CER africaines a favorisé la convergence fiscale et, à son tour, la soutenabilité fiscale. La convergence fiscale dans les CER africaines est une question importante, en particulier dans le sillage de la signature historique de l'accord sur la zone de libre-échange continentale africaine (ou African Continental Free Trade Area - AfCFTA, en anglais) qui vise à approfondir l'intégration sur le continent. En outre, la suspension actuelle du cadre de l'UEMOA offre l'occasion d'évaluer certaines de ses composantes, en particulier celles liées aux mécanismes d'application et de coordination fiscale régionale. A cette fin, la nouveauté de cette thèse réside dans l'évaluation de la viabilité des niveaux de la dette publique dans les CER africaines existantes et proposées. Elle apporte un éclairage utile au débat sur la viabilité de la dette africaine de deux manières significatives. Premièrement, elle analyse la présence d'une convergence fiscale absolue et de clubs de convergence dans les CER. La littérature sur la convergence fiscale n'aborde pas la question des clubs de convergence. Le sujet des clubs de convergence, en revanche, est abordé de manière informelle dans les débats sur la manière dont les pays du noyau dur de l'Europe ont regagné, à des rythmes différents, du terrain par rapport à leurs homologues de la périphérie après la crise financière. Deuxièmement, il analyse la viabilité de la dette publique au sein des clubs identifiés et, en particulier, il évalue si l'appartenance à une zone monétaire est un élément important pour favoriser la viabilité budgétaire.

Enfin et surtout, contrairement aux années 1970 et 1980, la tendance à une plus grande décentralisation des structures gouvernementales depuis les années 1980 a abouti à une situation où les gouvernements infranationaux contribuent désormais de manière substantielle à l'endettement du secteur public (Ivanyna and Shah, 2014; Rodden, 2006). Les politiques de

⁴Les 8 membres de l'UEMOA ont été inclus dans l'initiative des pays pauvres très endettés (Highly Indebted Poor Countries - HIPC, en anglais). L'initiative HIPC est un groupe de 37 pays en développement présentant des niveaux de pauvreté élevés et une dette importante. En outre, 4 des 6 pays de la Communauté économique et monétaire de l'Afrique centrale (CEMAC) faisaient également partie de l'initiative HIPC. La CEMAC est également l'une des unions monétaires du monde, composée du Cameroun, du Tchad, du Gabon, de la République du Congo, de la République centrafricaine et de la Guinée équatoriale.

décentralisation ont été mises en œuvre à l'échelle mondiale avec un large éventail d'objectifs primaires de grande portée, notamment l'amélioration de la fourniture de services publics équitables et des résultats du développement, la bonne gouvernance et le contrôle public, la promotion des conditions d'un État plus stable, parmi beaucoup d'autres (Devarajan et al., 2009; Faguet, 2014, 2015; Ligthart and van Oudheusden, 2015; Smoke, 2015, 2019). Dans les pays en développement, la décentralisation fiscale est considérée comme une solution à certains des facteurs qui limitent l'efficacité de la politique fiscale. Une gestion fiscale plus étroite pourrait contribuer à accroître les recettes fiscales tout en encourageant la fourniture rapide et efficace de biens publics de qualité dont la population a besoin (Junghun et al., 2019; Smoke, 1993).

La communauté internationale est consciente que pour atteindre les ODD, le secteur public doit fonctionner plus efficacement. Ces aspirations ne peuvent se concrétiser que si l'importance du secteur public local est reconnue. La pandémie de Covid-19 a également montré l'importance du secteur public local dans la fourniture de services essentiels en temps de crise. Les données du Moniteur budgétaire 2012 du IMF suggèrent que la crise mondiale de 2008 a gravement affecté les finances des gouvernements locaux, réduisant les revenus et augmentant les dépenses liées au cycle. En général, les gouvernements locaux des économies émergentes ont été moins touchés que ceux des économies avancées, où l'impact de la crise a été inégal selon les régions. Cependant, les différences régionales au sein des économies émergentes étaient plus importantes que dans les économies avancées, ce qui reflète en partie des mécanismes de transfert moins développés dans les économies émergentes. Une autre observation notable est que la détérioration des soldes globaux des gouvernements locaux a été relativement faible, limitée par les exigences de la règle de l'équilibre budgétaire. En Australie, au Canada et en Espagne, la plupart des gouvernements locaux ont enregistré des déficits persistants, ce qui reflète probablement un degré différent de flexibilité dans leurs arrangements institutionnels. Néanmoins, en raison de l'influence des relations intergouvernementales, les causes des déficits et des emprunts aux niveaux central et local sont sans aucun doute différentes.

Le troisième essai "*Performance fiscale et relations fiscales intergouvernementales dans les pays en développement*" est centré sur l'analyse des résultats fiscaux des réformes de décentralisation dans les pays en développement. Même si la décentralisation fiscale fait l'objet d'une grande attention, notre compréhension des canaux par lesquels elle influence la performance fiscale doit être améliorée, en particulier pour les pays émergents et les pays en voie de développement. La mise en œuvre efficace des réformes de décentralisation au Brésil et en Indonésie est un bon exemple du potentiel de la décentralisation à améliorer la qualité des services publics, à encourager la responsabilité publique et à faire progresser les

objectifs socio-économiques. Toutefois, la réforme n'est pas toujours pleinement réussie (par exemple, au Nigeria), car des conditions institutionnelles préalables doivent être remplies à tous les niveaux de gouvernement. La mauvaise conception, organisation et mise en œuvre des réformes de décentralisation a souvent été critiquée et rendue responsable de leur échec dans plusieurs pays. Néanmoins, la décentralisation fiscale continue d'être un système de gouvernance viable, le Kenya étant le dernier pays africain à mettre en œuvre efficacement la décentralisation après l'adoption d'une nouvelle constitution en 2010.

Compte tenu de ce qui précède, le troisième chapitre est consacré à l'analyse des résultats fiscaux des réformes de décentralisation dans les pays en développement. S'appuyant sur l'abondante littérature disponible sur les résultats de la décentralisation fiscale dans les économies avancées, la nouveauté de cette thèse réside dans le fait que le chapitre se concentre sur les pays en développement. La décentralisation fiscale étant généralement plus faible dans les pays en développement que dans leurs homologues développés, cette thèse apporte quatre contributions clés que les décideurs politiques peuvent utiliser pour évaluer la viabilité de la promotion des réformes de décentralisation dans le premier groupe. Premièrement, il examine les différents aspects de la décentralisation fiscale (décentralisation des dépenses, décentralisation des recettes et dépendance à l'égard des transferts). Deuxièmement, il considère la performance fiscale du point de vue du secteur local. Troisièmement, il calcule une mesure de la décentralisation des recettes à utiliser au niveau du gouvernement local qui fait la distinction entre les fonctions réelles des gouvernements locaux et celles qui sont réglementées par le centre. Ce faisant, le degré d'autonomie fiscale est mieux pris en compte. Quatrièmement, elle couvre un échantillon relativement large de pays en développement, contrairement aux études précédentes qui se concentrent sur un pays spécifique ou sur les pays de l'OCDE et de l'UE où les données sont largement disponibles.

Une conclusion notable de l'analyse théorique et empirique du troisième essai est que la dépendance des gouvernements locaux à l'égard des transferts fiscaux du gouvernement central est préjudiciable à la performance fiscale des administrations publiques. Cependant, il est essentiel d'établir les canaux par lesquels cela se produit.

Le quatrième essai "*Déséquilibres fiscaux et discipline fiscale locale: L'exemple des gouvernements des comtés Kenyans*" est ensuite centré sur l'étude de l'impact des déséquilibres fiscaux verticaux (ou Vertical Fiscal Imbalances - VFIs, en anglais) et horizontaux (ou Horizontal Fiscal Imbalances - HFIs, en anglais) sur les efforts de mobilisation des revenus au niveau du gouvernement local. Cependant, en raison du manque de données gouvernements locaux permettant une large analyse transnationale, l'essai se

concentre sur les 47 gouvernements locaux du Kenya et utilise des données obtenues auprès du Ministère des Finances et de ses institutions affiliées.⁵

Outre la disponibilité des données, le Kenya est un pays approprié pour étudier la relation entre les déséquilibres fiscaux et la discipline fiscale des gouvernements locaux dans un contexte africain, et ce pour trois raisons principales. Premièrement, les conditions préalables à une décentralisation réussie sont réunies. Contrairement à de nombreux pays en développement, les gouvernements locaux semi-autonomes ont joué un rôle prépondérant dans la fourniture de services pendant l'ère coloniale et la première décennie de l'indépendance ; une structure institutionnelle et juridique affaiblie mais viable est donc toujours en place. En outre, le pays a fait preuve d'une stabilité politique remarquable sur un continent où les coups d'État et les révolutions sont des événements réguliers. Deuxièmement, les transferts fiscaux représentent une part importante des budgets des gouvernements des comtés au Kenya, comme dans de nombreux autres pays de la région (Masaki, 2018). Et ce, en dépit du fait que différentes législations ont été adoptées pour leur conférer davantage de pouvoirs fiscaux, par exemple la réglementation relative à l'impôt foncier, et de plusieurs efforts visant à renforcer la gestion des finances publiques au niveau des comtés. Enfin, la politique fiscale est extrêmement consolidée et politisée en Afrique, ce qui entraîne une ingérence politique dans la collecte des impôts locaux. En outre, il existe d'importantes disparités régionales entre les gouvernements des comtés, avec au moins 14 comtés catégorisés comme "marginalisés" et donc éligibles aux transferts de péréquation.

1.3 Structure de la thèse.

Chapitre 2⁶

Ce chapitre étudie comment l'environnement institutionnel modifie la relation entre les transferts de fonds et les recettes fiscales non liées aux ressources. Avec l'importance accrue de ces entrées externes pour les pays en développement qui font face à une grave pénurie de biens publics, il devient essentiel d'analyser comment les gouvernements des pays bénéficiaires des transferts de fonds peuvent exploiter ces derniers étant donné que ces entrées ne peuvent pas être taxées directement. Plus précisément, ce chapitre évalue les effets des transferts de fonds sur les recettes fiscales non liées aux ressources en fonction du

⁵Le Bureau du Contrôleur du Budget (ou The Office of the Controller of Budget -OCOB, en anglais) et le Bureau National des Statistiques du Kenya (ou Kenya National Bureau of Statistics - KNBS, en anglais) publient des données fiscales et des données sur le Produit Brut des Comtés (ou Gross County Product - GCP, en anglais) sur les gouvernements des comtés, ce qui permet aux chercheurs de mener des études empiriques.

⁶Je tiens à remercier les participants à la 42e conférence de l'Eurasia Business and Economics Society (EBES) (Lisbonne) et aux séminaires doctoraux du LEO pour leurs commentaires et discussions utiles.

niveau de qualité institutionnelle pour 108 pays en développement entre 1996 et 2020. La stabilité de l'environnement institutionnel est représentée par le contrôle de la corruption, la qualité du gouvernement et les indices de démocratie. Le chapitre estime des modèles dans lesquels les impôts non liés aux ressources (et l'efficacité fiscale dans la section sur la robustesse) sont expliqués par la qualité institutionnelle, les transferts de fonds, leurs termes d'interaction, ainsi que d'autres variables de contrôle standard utilisées dans la littérature. Il contrôle l'endogénéité dans les modèles en utilisant la méthode généralisée des moments (GMM) et, en plus d'utiliser les retards des régresseurs comme instruments, un instrument externe pour les transferts de fonds est construit en prenant le PIB moyen par habitant des 10 premiers pays récepteurs de migrants, pondéré par la réciproque du pays individuel par rapport au pays récepteur de transferts de fonds dans l'échantillon.

Les résultats montrent que les transferts de fonds augmentent les recettes fiscales non liées aux ressources dans les pays en développement. En outre, les résultats suggèrent une relation non linéaire conditionnée par l'environnement institutionnel. Plus précisément, l'impact positif des transferts de fonds sur les recettes fiscales non liées aux ressources diminue lorsque l'environnement institutionnel se stabilise. Les seuils à partir desquels les rendements décroissants sont observés sont d'environ 0.4 pour la corruption et la qualité du gouvernement, et d'environ 8 pour l'indice de démocratie. Ces résultats restent valables lorsque l'effort fiscal / l'efficacité fiscale est utilisé pour mesurer la capacité fiscale. Les résultats soutiennent l'interprétation selon laquelle, alors que certains décideurs politiques dans les pays recevant des transferts de fonds peuvent vouloir taxer les transferts en instituant des systèmes de taxe sur la valeur ajoutée, d'autres envisagent des taux d'imposition plus bas afin d'augmenter la participation à l'économie formelle et/ou d'encourager davantage d'entrées de transferts de fonds. En outre, il va sans dire que les nations appauvries ont la qualité institutionnelle la plus faible et reçoivent le plus de transferts de fonds, car les deux peuvent se renforcer mutuellement. Ce chapitre vient s'ajouter au corpus croissant de connaissances sur les facteurs politiques qui influencent l'impact macroéconomique des transferts de fonds.

En termes de suggestions politiques, les pays en développement devraient prendre des mesures fortes et efficaces pour capitaliser sur les flux de transferts de fonds au fil du temps afin d'améliorer la collecte des recettes fiscales. Étant donné que les transferts de fonds sont des transferts personnels qui n'ont pas encore été formalisés, la méthode par laquelle ils affectent les recettes fiscales est indirecte. Par conséquent, les propositions d'améliorations institutionnelles visant à renforcer l'efficacité de la mobilisation des impôts indirects sont primordiales. Cela implique de réfléchir à des mesures visant à réduire le secteur informel, car

le développement de l'informalité conduit généralement à l'évasion fiscale, ce qui constitue un compromis avec les avantages potentiels des flux de transferts de fonds.

Chapitre 3⁷

Ce chapitre analyse la convergence fiscale et sa contribution à la viabilité de la dette publique en Afrique et dans les CER africaines. Plus précisément, il teste le bien-fondé empirique de l'affirmation selon laquelle les critères de convergence macroéconomique sont un carcan nécessaire pour garantir des finances publiques saines et viables. En utilisant les données de la dette publique, des recettes et des dépenses de 1995 à 2021, le chapitre étudie s'il existe une convergence fiscale et des clubs de convergence en Afrique en utilisant le test de régression logarithmique t pour la convergence et le regroupement des clubs. En plus de l'échantillon complet de 52 pays africains (la zone monétaire africaine proposée), l'étude inclut des sous-échantillons des deux zones du franc CFA (UEMOA et CEMAC, individuellement et conjointement), des CER avec un critère de convergence établi (EAC, ECOWAS, COMESA et SADC), et la WAMZ proposée et tripartite COMESA-EAC-SADC.⁸ Ensuite, l'étude utilise la méthode de la variable instrumentale avec effets fixes (IV-FE) pour explorer la réaction de la politique fiscale aux augmentations de la dette publique, et si cette réaction est renforcée lorsqu'un pays est membre d'une zone monétaire, qui est considérée comme le type d'intégration le plus profond.

Les tests de convergence confirment les résultats suivants. Tout d'abord, le test de convergence sigma de base ne montre aucune preuve de convergence des variables fiscales, puisque les résultats indiquent des périodes séquentielles de convergence et de divergence. Dans le même ordre d'idées, le test de convergence log t , qui tient compte de l'hétérogénéité de la politique budgétaire entre les pays, ne fournit pas de preuve convaincante de la convergence absolue de la dette publique, des recettes et des dépenses dans les sous-échantillons. Cette conclusion est renforcée par les courbes de transition relatives qui présentent des divergences puisqu'elles ne convergent jamais vers 1 au cours de la période étudiée. Néanmoins, les régressions log t montrent des preuves substantielles de convergence conditionnelle pour la dette publique dans tous les sous-échantillons étudiés, ainsi que de faibles preuves de convergence absolue dans certaines CER (UEMOA, WAMZ,

⁷Je tiens à remercier les participants à la 43e conférence de l'Eurasia Business and Economics Society (EBES) (Madrid) et aux séminaires de doctorat du LEO pour leurs commentaires et discussions utiles. Cet article est soumis pour publication au Journal of Economic Integration.

⁸EAC - East African Community, en anglais ou Communauté de l'Afrique de l'Est; COMESA - Common Market for Eastern and Southern Africa, en anglais ou Marché commun de l'Afrique orientale et australe; ECOWAS - Economic Community of West African States, en anglais ou Communauté économique des États de l'Afrique de l'Ouest; SADC - Southern African Development Community, en anglais ou Communauté de développement de l'Afrique australe; WAMZ - West African Monetary Zone, en anglais ou Zone monétaire de l'Afrique de l'Ouest.

zone CFA commune et EAC). En ce qui concerne la convergence des recettes et des dépenses publiques, nous trouvons des signes de convergence conditionnelle dans la plupart des CER, à l'exception de la ECOWAS, de la WAMZ, de la SADC et de la Tripartite. Les schémas de regroupement des clubs dans ces CER révèlent les pays divergents qui ne convergent pas avec le reste des pays au cours de la période d'analyse. La convergence conditionnelle de la dette publique dans les sous-échantillons est comparable et confirmée par des tests de convergence β inconditionnelle qui révèlent des graphiques à pente descendante.

En ce qui concerne la deuxième question de recherche, les résultats montrent que si les exigences de convergence et l'appartenance à une zone monétaire peuvent encourager la convergence fiscale, elles n'améliorent pas nécessairement la viabilité de la dette publique. Le terme d'interaction entre la dette publique et une variable muette pour les pays de la zone monétaire reste statistiquement non significatif. En revanche, la politique budgétaire est jugée soutenable à la fois dans l'ensemble de l'échantillon et dans la zone monétaire (zones combinées du franc CFA et du rand). Ces résultats restent valables même lorsque la balance primaire corrigée des variations cycliques et le système GMM sont utilisés comme mesure alternative du déficit fiscal et comme méthode d'estimation respectivement. Ce chapitre contribue à la littérature sur la convergence fiscale en tenant compte de l'hétérogénéité des politiques fiscales pour déterminer empiriquement si l'Afrique et les CER africaines s'intègrent ou dérivent sur le plan fiscal au fil du temps. Il s'agit d'une conclusion impérative pour les CER et leur participation à l'Union monétaire africaine proposée, qui a récemment été renouvelée avec la création de AfCFTA.

Les résultats perspicaces de l'étude permettent de tirer une leçon politique essentielle, à savoir l'adoption de mesures sévères pour garantir l'adhésion et le respect des critères de convergence, étant donné que l'étude constate que la plupart des États membres ne respectent pas les critères de dette publique fixés par les CER respectives. Ceci est nécessaire pour saisir de manière adéquate l'impact de ces programmes macroéconomiques sur l'amélioration de la viabilité fiscale. En outre, en analysant la proposition de tripartite COMESA-EAC-SADC, la recherche apporte un éclairage supplémentaire sur les tentatives qui ont été faites dans un passé récent pour résoudre le problème du chevauchement des adhésions entre les CER africaines.

Chapitre 4⁹

Ce chapitre examine les résultats fiscaux de la décentralisation fiscale dans les pays en développement, tant au niveau central que local. L'analyse implique la construction

⁹Je tiens à remercier les participants au deuxième édition du colloque international en économie et gestion (Université d'Orléans), au 71e congrès de l'Association française de Science Economique (AFSE) (Paris) et au 39e symposium international sur la monnaie, la banque et la finance (Université de Lille) pour leurs commentaires et discussions utiles. Cet article est en cours d'examen par la revue *Public Finance Review*.

d'un ensemble de données déséquilibrées de 33 pays en développement entre 2000 et 2020 afin d'examiner les effets de la décentralisation à l'aide d'une méthode dynamique de variables muettes des moindres carrés corrigées (ou *dynamic Corrected Least Square Dummy Variable - LSDVC*, en anglais). Les résultats indiquent que la décentralisation fiscale a le potentiel d'améliorer la performance fiscale. Tout d'abord, l'étude montre que la décentralisation des dépenses améliore les finances du gouvernement central, ce qui est cohérent avec les justifications de l'efficacité de la décentralisation des dépenses. Cependant, lorsque la décentralisation des dépenses est financée par des transferts provenant de niveaux de gouvernement plus élevés, l'effet bénéfique de la décentralisation des dépenses est réduit. D'autre part, la décentralisation des recettes et la dépendance à l'égard des transferts pèsent sur les relations intergouvernementales et exacerbent les déséquilibres budgétaires au niveau national. Les résultats survivent à plusieurs contrôles de robustesse, y compris la réestimation du modèle avec le changement du ratio dette publique/PIB comme mesure de la performance fiscale; l'utilisation d'une définition plus étroite de la décentralisation des revenus, c'est-à-dire la décentralisation fiscale; les spécifications à travers les sous-échantillons régionaux; et l'utilisation d'estimateurs alternatifs, c'est-à-dire le système GMM et l'estimateur des effets fixes avec les erreurs standard de Driscoll-Kraay qui corrige simultanément l'hétéroscédasticité, la corrélation sérielle, et la dépendance transversale.

Au niveau local, les résultats indiquent une relation en U entre la décentralisation des recettes (mesurée par le ratio des recettes fiscales locales sur les recettes totales locales) et les déficits primaires locaux, ce qui suggère qu'il existe un certain niveau de décentralisation fiscale qui minimise les déficits locaux. Ces résultats sont conformes à la théorie de la contrainte budgétaire souple. Ces gouvernements estiment qu'ils ne sont qu'une extension du gouvernement central et que l'augmentation de leur autonomie en matière de recettes ne les empêchera pas de s'engager dans des dépenses inutiles. Néanmoins, ce biais de déficit peut être évité en ayant un certain niveau de responsabilité vis-à-vis de la population locale, par exemple en faisant élire localement les responsables exécutifs et législatifs des gouvernements régionaux. Ces résultats sont robustes à l'utilisation d'une variable alternative de performance fiscale locale, c'est-à-dire les déficits locaux (% des dépenses locales), d'un estimateur alternatif, c'est-à-dire le GMM systémique, et à travers différentes spécifications.

Les implications politiques de l'étude sont d'autant plus importantes dans le contexte actuel de la crise Covid-19 et des efforts de consolidation fiscale post-pandémique, qui ont mis en évidence le rôle clé des relations fiscales intergouvernementales et de la discipline fiscale dans la gestion de la dette et de la crise. Bien qu'il ait été démontré que la décentralisation présente de nombreux avantages qui influencent le comportement fiscal des gouvernements,

une décentralisation partielle peut conduire à une détérioration de la performance fiscale. À cet égard, il est important de prendre en compte les relations fiscales verticales lors de l'élaboration et de la mise en œuvre des politiques de décentralisation fiscale, en mettant en place des garde-fous explicites pour garantir une gouvernance locale efficace et responsable.

Chapitre 5¹⁰

Ce chapitre étudie l'impact des déséquilibres fiscaux sur la discipline fiscale locale, en particulier en ce qui concerne les efforts de collecte des recettes propres au Kenya. J'ai construit un ensemble de données de panel équilibré de 47 comtés de l'exercice 2013/14 à l'exercice 2020/21 (376 observations) pour examiner les effets des déséquilibres verticaux et horizontaux à l'aide d'une méthode GMM systémique. Les déséquilibres fiscaux verticaux (VFIs) sont dus à l'inadéquation entre les pouvoirs dévolus en matière de recettes et les responsabilités en matière de dépenses. L'étude mesure les VFIs comme la part des dépenses des comtés qui ne sont pas financées par des recettes propres. D'autre part, les déséquilibres fiscaux horizontaux (HFIs) sont dus aux différences de ressources disponibles entre les juridictions, c'est-à-dire que certains gouvernements locaux peuvent être plus "riches" que d'autres et donc disposer d'une plus grande capacité fiscale. Cette analyse adopte la méthodologie des indicateurs macroéconomiques qui propose certaines mesures de la richesse locale, telles que le PIB local par habitant (produit brut du comté), afin d'approcher la capacité fiscale. À cet égard, les HFIs sont représentés par une variable muette qui prend la valeur 1 lorsque le produit brut du comté par habitant du comté est inférieur au produit brut du comté moyen par habitant et la valeur 0 dans le cas contraire, c'est-à-dire qu'elle attribue la valeur 1 aux comtés "plus pauvres".

L'étude révèle une relation non linéaire en forme de U inversé entre les VFIs et la part des recettes propres, confirmant que les VFIs, grandes ou petites, sapent la discipline fiscale locale en réduisant l'effort fiscal. Cela implique qu'à mesure que l'VFIs augmente, l'efficacité des efforts de collecte des recettes s'améliore jusqu'à ce que de nouvelles augmentations de l'VFIs entraînent une baisse de l'effort fiscal. D'autre part, les collectivités locales "plus pauvres" exercent un effort fiscal plus important. Lorsque les VFIs et les HFIs interagissent, je constate que l'effet des transferts des gouvernements centraux est compensé par une diminution de l'effort fiscal dans les gouvernements locaux qui affichent les HFIs les plus élevés. Les résultats restent cohérents d'une spécification à l'autre, en tenant compte de l'endogénéité et en utilisant différentes mesures des VFIs et des HFIs.

¹⁰Je remercie les participants à la série de séminaires 2022 de l'African Fellowship BBL de la Banque mondiale et à la 5e conférence du Kenya Institute for Public Policy Research and Analysis (KIPPRA) (Nairobi) pour leurs commentaires et discussions utiles. Cet article est en cours d'examen par la Revue internationale d'administration publique.

En termes de suggestions politiques, les conclusions de ce chapitre sont essentielles pour les réformes intergouvernementales ultérieures au Kenya et dans d'autres pays en développement où des plans de décentralisation sont en cours. En effet, le contexte de l'analyse est celui d'un gouvernement local disposant d'une autonomie limitée en matière de recettes, comme c'est le cas dans de nombreux pays en développement. Bien que la littérature soit généralement prudente quant à l'attribution de bases de revenus essentielles aux gouvernements locaux, il est crucial de leur permettre de générer des revenus locaux adéquats, car cela les encourage à mieux absorber le coût de leurs dépenses. Cependant, est-il possible d'augmenter les affectations de recettes aux gouvernements locaux? Dans la pratique, la déconcentration des recettes comporte plusieurs défis, notamment les HFI évoqués plus haut. En outre, les collectivités locales kenyanes n'ont pas encore atteint leur potentiel en matière de génération de recettes locales. Sur la base de l'analyse, l'amélioration de la gouvernance, en particulier par la réduction de la corruption, améliorerait la performance de la collecte des recettes locales. Il est également essentiel d'améliorer la conception de la formule de partage des recettes, par exemple en rétablissant l'indice de l'effort fiscal.

Chapitre 6

Ce chapitre examine les principales contributions et implications politiques de la thèse, reflète certaines des limites de la recherche et suggère des orientations de recherche potentielles.

2

Remittances, Tax Capacity and Institutional Quality in Developing Countries

Taxes are one form of domestic revenue mobilization in developing countries that could create fiscal space for public investment and deficit financing. This paper explores the remittances-tax revenue relationship conditional on the institutional environment for a panel of 108 developing countries from 1996 to 2020. Using the System Generalized Method of Moments (GMM) estimation, we find that remittances positively impact non-resource tax-to-GDP ratios and tax effort (tax efficiency). Second, we demonstrate that this relationship is not monotonic and depends on the institutional environment, as measured by corruption, quality of government, and democracy. Specifically, our findings indicate that the marginal impact of remittances on tax receipts diminishes when the institutional environment stabilizes.

Keywords: Remittances, Non-Resource Taxes, Institutions, Non-linear relationship

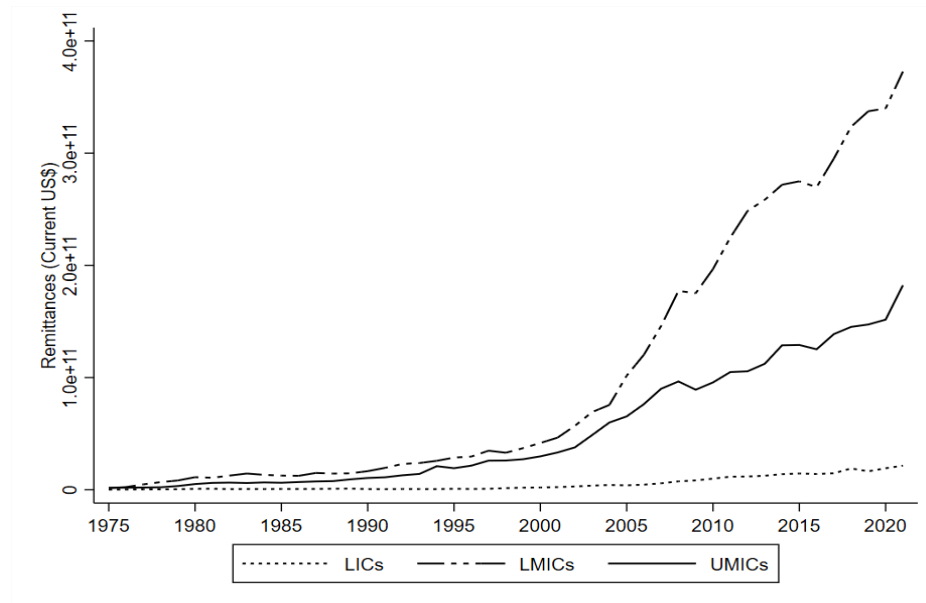
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2.1 Introduction

Enhancing the efficacy of Domestic Revenue Mobilization (DRM) is a central policy objective for many policymakers in developing countries and international development organizations. In the last two decades, various reforms have been implemented to enhance DRM in developing countries, for example, strengthening tax administrations and governance frameworks. Despite these efforts, there has been minimal headway to this end since revenue ratios in developing countries, particularly Low-Income Countries (LICs) and several Sub-Saharan countries, have dropped in the last decade (WorldBank, 2021). This paper focuses on the role of remittances in shaping the public finances of developing countries. Empirically, it investigates whether remittances increase the capacity of remittance-receiving states to collect tax and how political institutions shape the link between remittances and taxation.

Remittances have grown in importance, surpassing Official Development Aid (ODA) and Foreign Direct Investment (FDI) as a source of foreign funding to developing countries over the past three decades (Figure 2.1). Notwithstanding the disruptions of the Covid-19 pandemic, remittances sustained a strong momentum registering a robust gain of 9.4 percent from 2019 to reach US\$ 605 billion in 2021 (Ratha et al., 2022). The precise amount of these inflows is thought to be higher because remittance transfer costs remain considerably high in most developing countries, driving migrants to employ informal money transfer methods.

The literature on the micro and macroeconomic contributions of remittances to recipient countries can be split into two broad categories: the optimists and the sceptics. Taking an optimistic view, some authors argue that remittances may increase entrepreneurial activities, therefore, boosting investments (Woodruff and Zenteno, 2007); improve household welfare (Ambler et al., 2015); enhance economic growth (Ahamada and Coulibaly, 2013; Barajas et al., 2009; El Hamma, 2017; Giuliano and Ruiz-Arranz, 2009) and stabilize output volatility

Figure 2.1 Remittance flows into developing countries by income group

Source: Author's computation using World Development Indicators database (World Bank).

(Beaton et al., 2018; Chami et al., 2008; De et al., 2019; Ebeke and Combes, 2013). For the sceptics, these money transfers are both a blessing and a curse. They argue that remittances create upward pressure on the real exchange rate reducing competitiveness (Acosta et al., 2009; Daway-Ducanes, 2019; Hassan and Holmes, 2013); accelerate inflation (Khan and Islam, 2013); significantly reduce work effort (Chami et al., 2008) and lead to public moral hazards, including deteriorating institutional quality (Abdih et al., 2012; Ahmed, 2013; Berdiev et al., 2013; Ebeke and Combes, 2013).

Despite this substantial literature, the fiscal implications of remittances are less evident (Asatryan et al., 2017; Bangake et al., 2022; Chami et al., 2009; Ebeke, 2014; Singer, 2012). From a theoretical viewpoint, the literature identifies three main channels through which remittances can affect tax revenues. On the one hand, remittances could potentially increase tax receipts through recipients' consumption and saving decisions. Chami et al. (2008) note that remittances are mainly used for private consumption of domestic and imported goods and therefore governments can collect more indirect taxes from consumption and trade-based taxation. Second, remittances could facilitate entrepreneurial activities and in turn lead to

higher income tax revenue (Giuliano and Ruiz-Arranz, 2009; Woodruff and Zenteno, 2007). On the other hand, remittances could also lead to a reduction in tax revenues by either discouraging labour force participation or through the Dutch disease phenomenon (Acosta et al., 2009; Anwar and Mang, 2022; Chami et al., 2008; Hassan and Holmes, 2013).

Two questions arise amid a severe need for tax revenue mobilization and the growing importance of these flows in many developing countries. How do countries harness remittances? What role do political institutions play in moderating the relationship between remittances and recipient countries' tax capacity? So far, existing research documents ambiguous conclusions regarding the remittance-tax revenue nexus. Furthermore, previous studies do not take into account the potential nonlinearity of this relationship. It has been advanced that the relationship between remittances and tax revenues is far from being linear and may be influenced by the presence of a Value Added Tax (VAT) system (Ebeke, 2014) and other factors such as trade openness, the size of the informal sector and institutional quality (corruption and law and order) (Bangake et al., 2022).

The current study is closely related to this strand of literature. It contributes to the literature in three aspects. First, the analysis uses system GMM that better addresses the endogeneity issue. Bangake et al. (2022) uses the dynamic panel threshold model by Seo and Shin (2016) whose estimator is significantly affected in the presence of endogenous threshold variables. Second, we employ a rich set of institutional quality indicators (democracy, quality of government (average value of corruption, law and order and bureaucratic quality) and corruption). Third, we directly examine the effect of remittances on tax effort as an alternative measure of fiscal capacity. Undeniably, the revenue-to-GDP ratio is often used to measure fiscal capacity and evaluate domestic revenue mobilization efforts in developing countries. However, using revenue-to-GDP ratios downplays deliberate policy efforts with countries' fundamental economic and structural structures associated with different domestic

revenue-raising capacities. This is exceptionally vital since there is no straightforward mechanism to tax remittances, as governments have no direct claim on these inflows.

Our findings are as follows. First, our preliminary analysis reveals a lower non-resource tax collection among LICs relative to higher income groups and that the gap between the income groups has widened over time. Second, the analysis confirms a positive correlation between indirect taxes and remittances but finds no association with direct taxes. This confirms the theoretical underpinning that remittances impact taxes through their effect on consumption. Empirically, the results show that remittances' marginal impact diminishes in countries with more secure institutional environments. In other words, neither democracy nor state capacity seems to have any role in facilitating governments to harness remittance inflows through taxation. When we use tax effort as a substitute for fiscal capacity, the tax frontier analysis depicts that these countries still have room for DRM, given their structural and economic endowment, and the tax effort is evenly spread across the income groups. Furthermore, our empirical finding maintains that remittances have a negligible marginal impact in economies with stable institutional environments.

The rest of the paper is structured as follows. Section 2.2 reviews the literature. Section 2.3 presents our empirical strategy and provides the definitions and properties of the data employed. Section 2.4 discusses the estimation results and robustness checks. Section 2.5 concludes and underlines some policy implications.

2.2 Literature Review

Several studies have investigated the macroeconomic consequences of remittance inflows. Although some researchers have found that remittances have a significant influence on household well-being (Ambler et al., 2015); economic growth (Ahamada and Coulibaly, 2013; Barajas et al., 2009; El Hamma, 2017; Giuliano and Ruiz-Arranz, 2009); financial development (Aggarwal et al., 2011) and output stability (Beaton et al., 2018; Chami et al.,

2008; De et al., 2019; Ebeke and Combes, 2013), others demonstrate that remittances may impact negatively on competitiveness (Acosta et al., 2009; Daway-Ducanes, 2019; Hassan and Holmes, 2013).

Additionally, a growing body of literature has scrutinized the link between remittances and institutional quality and the findings are generally inconclusive (Abdih et al., 2012; Ahmed, 2013; Berdiev et al., 2013; Ebeke, 2012; Effiong and Asuquo, 2017). First, studies on the primary incentives to remit demonstrate that an increase in the home country's income per capita leads to fewer remittances, asserting that altruism is an essential element of motivations behind remittances (Azizi, 2017, 2019; Hagen-Zanker and Siegel, 2007; Mallick, 2017). Regarding their interaction with institutions, on the one hand, some empirical studies reveal an appreciable effect of institutional elements on the migrants' remittances (Ajide and Raheem, 2016; Lartey and Mengova, 2016). On the other hand, some studies reveal that remittance inflows may adversely influence institutions and displace public finances because governments face less pressure to increase public spending when private substitutes are available (Abdih et al., 2012; Ahmed, 2013; Berdiev et al., 2013; Ebeke, 2012). Abdih et al. (2012), in particular, show that accessing remittances renders corruption less expensive for recipient households. Thus, corruption will likely intensify as governments redirect resources to consumption instead of providing public goods. Furthermore, poor governance quality may lead to increased emigration and, as a result, increased remittances (Effiong and Asuquo, 2017).

As opposed to the extensively researched micro and macroeconomic effects of remittances, there has been little research on the fiscal implications of these inflows, particularly the impact of remittances on taxation. Extant theories have produced equivocal predictions concerning the influence of remittance flows on tax revenues thus far. For the optimists, remittances could increase tax revenues through the consumption decisions and saving patterns of recipient households (Chami et al., 2008). First, through the increased

private consumption of domestic and imported goods, governments collect more indirect taxes from consumption and trade-based taxation. Moreover, according to Gordon and Li (2009), nearly half of the fiscal revenues in developing countries result from consumption and production taxes; therefore, this indirect channel is vital in the remittances-indirect tax revenue relationship. Second, Woodruff and Zenteno (2007) and Giuliano and Ruiz-Arranz (2009) argue that remittances may encourage entrepreneurial activities by some recipient households, thereby leading to higher taxable incomes.

These arguments contradict the pessimists' view that remittances could decrease tax revenues. Chami et al. (2008) show that remittance access may discourage labour force participation. Households will likely replace unearned remittance income for labour income, thereby shrinking direct tax revenues from the labour tax base. Remittances have also been linked with the Dutch disease, damaging tax collection as economic activities are moved from tradable to non-tradable sectors. A large influx of foreign currency can cause real exchange rate appreciation, harming the receiving economy's external competitiveness and tradable sector (Acosta et al., 2009; Anwar and Mang, 2022; Hassan and Holmes, 2013). Due to the need for more theoretical consensus on the remittance-tax relationship, this paper attempts to resolve this debate by making an empirical contribution.

Only a few empirical studies have looked at how remittances affect tax revenues. Chami et al. (2009) demonstrate, using Lebanon as a case study, that by directly increasing the tax base and private savings and indirectly increasing seignorage, remittances change the fiscal adjustment necessary to place debt on a sustainable path. Abdih et al. (2012) focus on 17 Middle East and North African countries from 1990 to 2009 and show that remittances increase government revenues by expanding the tax base. Singer (2012) studies the association between remittances, tax revenues, and government spending using data on 76 developing countries from 1980 to 2007 and finds that remittances positively affect total revenues, which results in higher total expenditures. Ebeke (2014), using a sample of 98

developing countries from 1980 to 2005, studies whether remittances raise and stabilize tax revenues and whether these outcomes rely on the existence of a VAT system. By employing different estimators (LSDVC, difference and system GMM), the results show that remittances have an appreciative and stabilizing effect on tax ratios when VAT systems are in place. Asatryan et al. (2017) complement Ebeke's study using a panel of up to 129 countries from 1970 to 2013 and demonstrate that remittances positively impact VAT. In contrast, they have no impact on income-tax revenues. They further show that tax policymakers are likely to approve a VAT system, reduce VAT rates and raise income tax rates in response to remittance inflows.

A vital constraint of these analyses is that they fail to consider potential nonlinearity in the remittance-tax revenue relationship. Bangake et al. (2022) have recently incorporated potential nonlinearity in the relationship between remittances and tax revenues using the dynamic panel threshold model by Seo and Shin (2016) and Panel Smooth Threshold Regression (PSTR) method for 83 developing countries from 1990 to 2019. They show that this relationship is defined by the volume of remittances, and other factors, including the extent of the informal economy, governance (law and order and corruption), and trade openness.

While this study tackles potential nonlinearities in the remittance-tax revenue nexus, the estimation methods adopted do not sufficiently adjust for endogeneity biases in the model particularly in the threshold variables. First, the dynamic panel threshold model by Seo and Shin (2016) uses the first-difference GMM estimator which is argued by Bond et al. (2001) to be less efficient due to sample bias concerns and potentially many weak instruments. Moreover, Seo and Shin (2016) acknowledge that the estimator can be significantly affected by the presence of an endogenous threshold variables, as is the case of the institutional quality variables, and also by the presence of cross-sectionally correlated errors. Furthermore, the PSTR model is also flawed in the sense that it assumes that both the regressors and threshold

variables are exogenous therefore failing to sufficiently adjust for endogeneity biases in the model. We complement this study by first using system GMM that better corrects for the biases of the first-difference GMM and endogeneity and by employing a rich set of institutional quality indicators (democracy, quality of government (average value of corruption, law and order and bureaucratic quality) and corruption).

2.3 Data and Methodology

2.3.1 Data

The data used in this study is available from the sources described in Table 2.3. The table lists the variables, their description, and respective data sources grouped into four categories. Panel A describes our dependent variables: non-resource tax revenue (excluding social contributions) as a percentage of GDP obtained from UNU-WIDER Government Revenue Dataset (GRD) 2022 and tax effort computed using the Stochastic Frontier Approach (SFA) methodology described in the Appendix. Panel B lists the World Bank's World Development Indicators (WDI) variables, representing the economic, demographic, and structural factors that explain tax capacity and are used in estimating stochastic tax frontier. Panel C describes our variables of interest: remittances as a percentage of GDP and the institutional variables – corruption index, quality of government index, and the polity index. Panel D includes the instrument variable constructed as an exogenous instrument for remittances and an additional variable (revenue mobilization efficiency index) for the regression analysis with tax effort. Following Singer (2012), the instrument is computed as an interaction of the per-capita GDP of the top ten migrant-receiving countries in the sample period, weighted by the inverse of each country's distance to the remittance-recipient countries in the sample.¹

¹The justification is based on research on gravity models, which shows that bilateral trade flows, in this case, remittances increase with increasing geographic proximity between countries. This instrument generates variation over time through per capita GDP and across countries through the distance to migrant receiving

Remittance data is obtained from the WDI and primarily comprises both personal transfers and compensation due to employees. The corruption index is from the World Bank's Worldwide Governance Indicators (WGI) database. The index is measured in the standard unit of corruption perception ranging from -2.5 to 2.5. However, we scale this index to a range of 0 to 1 such that higher values reflect a higher institution quality. The quality of government and polity indices are from the Quality of Government dataset. The former is measured as the average value of the ICRG's indicators of corruption, law and order, and bureaucracy quality. The composite index is rescaled to range between 0 to 1, with higher values representing a better institutional environment. The polity index measures a country's democracy, with higher scores representing highly democratic countries.

The preliminary analysis includes data on non-resource tax revenues from the GRD dataset for 135 developing countries and 51 High-Income Countries (HICs). However, the core sample which is used in the regressions comprises 108 developing countries (20 LICs, 44 Lower-Middle Income Countries (LMICs), and 44 Upper-Middle Income Countries (UMICs)) over the period 1996 to 2020.² In addition, we have data on direct and indirect taxes from GRD for 108 developing countries. Table 2.4 provides the list of countries used in this study.

2.3.2 Empirical strategy

This paper aims to estimate the causal effect of remittance inflows on the recipient country's non-resource tax revenues. We adopt the GMM estimator, developed by Arellano and Bover (1995) and Blundell and Bond (1998). Three justifications inspire the choice of the

countries. Data on bilateral distance are from Mayer and Zignago (2011). The ten largest host countries for migrants in the sample period are France, Germany, Luxembourg, Kuwait, Russia, Saudi Arabia, Switzerland, United Arab Emirates, the United Kingdom, and the United States. The instrument generally performs quite well in predicting remittance inflows across developing countries. A simple regression of remittances as a share of GDP on this instrument shows that the instrument is a powerful predictor of remittances. This type of instrument has also been used in the literature by Acosta et al. (2009) and Singer (2012).

²The 2021 World Bank Group country classification by Income group was used as the criteria for country selection.

estimator. First, tax revenues are persistent; hence a dynamic model specification is necessary. Second, the GMM estimator addresses the endogeneity problem evident in the dynamic panel estimation, both with the lagged dependent variable and with the regressors, particularly remittances. Remittances may affect the growth and institutional quality of the recipient countries, affecting the volume of remittances received in the future (Azizi, 2019; Effiong and Asuquo, 2017). Finally, GMM is widely recognized as a solution to the problems of simultaneity bias, reverse causality, and omitted variable bias (Ebeke, 2014).

The study adopts the system GMM since, according to Blundell et al. (2001), it performs better than the differenced GMM by addressing sample bias and weak instrument concerns noted in the latter. Furthermore, we follow Combes and Ebeke (2011) and include an external instrument for remittances to limit the inefficiencies caused by endogeneity (see section 2.3.1). The reliability of GMM estimators leans on the validity of two indicators: there is no second-order auto-correlation, and the instruments used are valid. The baseline equation is given by:

$$Tax_{it} = \beta_0 + \beta_1 Tax_{it-1} + \beta_2 Rem_{it} + \beta_k X_{kit} + \varepsilon_{it} \quad (2.1)$$

where indices i and t denote countries and years, respectively. Tax is the non-resource tax revenue to GDP ratio. ε_{it} captures measurement errors and random shocks, and our variable of interest Rem is expressed as a ratio of GDP. X includes the control variables, which comprise:

- Economic factors: GDP per capita and trade openness as proxies for economic development and globalization, respectively. Both variables are expected to affect tax revenue positively (Fenochietto and Pessino, 2013).
- Demographic factors: The age dependency ratio is expected to affect the tax base negatively (Le et al., 2012).

- Structural factors: Agriculture-to-GDP ratio to measure the sectoral structure of the economy and total natural resource rents-to-GDP ratio to capture the resource curse phenomenon. Both variables are expected to impact non-resource tax revenue negatively (Langford and Ohlenburg, 2015).

In the baseline regression, we do not include any institutional indicators. However, in the subsequent regressions, we explore how the institutional quality level (IQ) of the recipient country modifies the impact of remittances on non-resource tax. To this end, we introduce in equation 2.1 an interaction term between remittances and institutional quality such that equation 2.1 is re-written as:

$$Tax_{it} = \beta_0 + \beta_1 Tax_{it-1} + \beta_2 Rem_{it} + \beta_3 (Rem_{it} \times IQ_{it}) + \beta_4 IQ_{it} + \beta_k X_{kit} + \varepsilon_{it} \quad (2.2)$$

In the robustness section, we analyze the direct impact of remittances on tax efficiency/effort (TE). Consequently, our third model with tax efficiency as the dependent variable is as follows:

$$TE_{it} = \beta_0 + \beta_1 Revmob_{it} + \beta_2 Rem_{it} + \beta_3 (Rem_{it} \times IQ_{it}) + \beta_4 IQ_{it} + \varepsilon_{it} \quad (2.3)$$

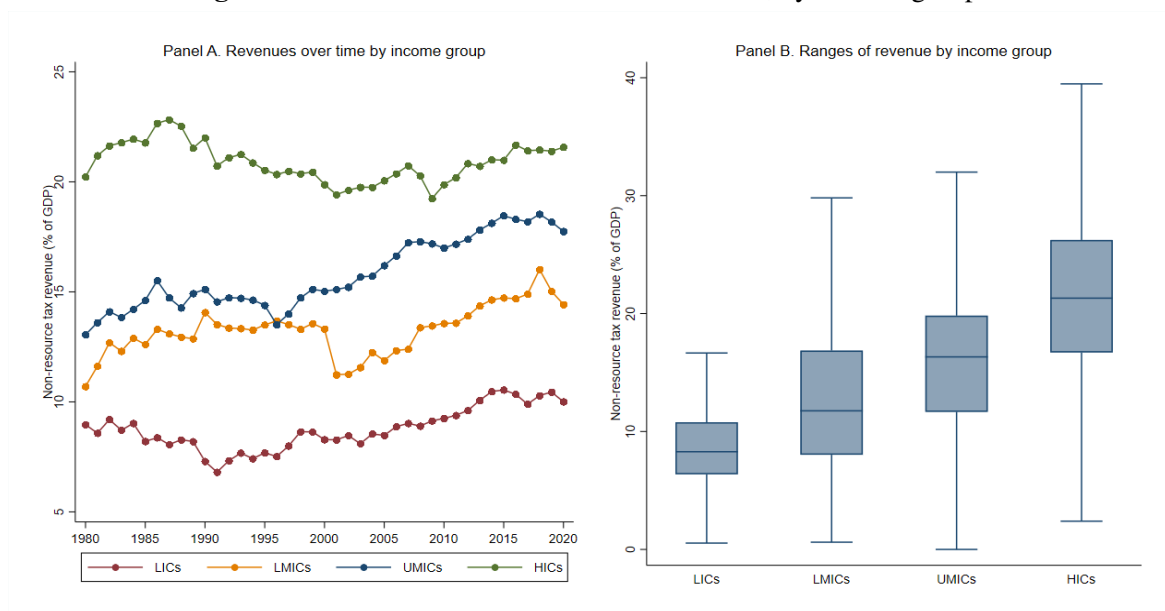
where $Revmob$ is revenue mobilization efficiency index. Parameters β_2 and β_3 provide information on the marginal impact of remittances on non-resource tax conditional upon the institutional environment. They make it possible to examine whether remittances affect tax revenue differently depending on a country's degree of institutional quality. A positive interaction suggests that remittances and institutional quality are complements, and when the interaction is negative, the institutional quality diminishes ($\beta_2 > 0$) or alleviates ($\beta_2 > 0$).

2.4 Results and Discussions

2.4.1 Non-resource tax mobilization across income groups

Figure 2.2 shows the trend of non-resource taxes for each income group (Panel A) and their respective ranges (Panel B). The figure depicts that LICs have consistently generated less non-resource taxes than countries in higher income groups. It is also evident that the gap in non-resource taxes generated by developing countries has widened over time. Regarding the ranges, LICs show less variation over the analyzed period, ranging from 0.5 percent of GDP (Democratic Republic of Congo) to 26 percent of GDP (Eritrea) compared to the other income groups that are much more dispersed.³ Given the statistics presented above, it appears reasonable to assume that mobilizing non-resource taxes is required for most LICs and LMICs.

Figure 2.2 Trends in Non-resource Tax Revenues, by Income groups



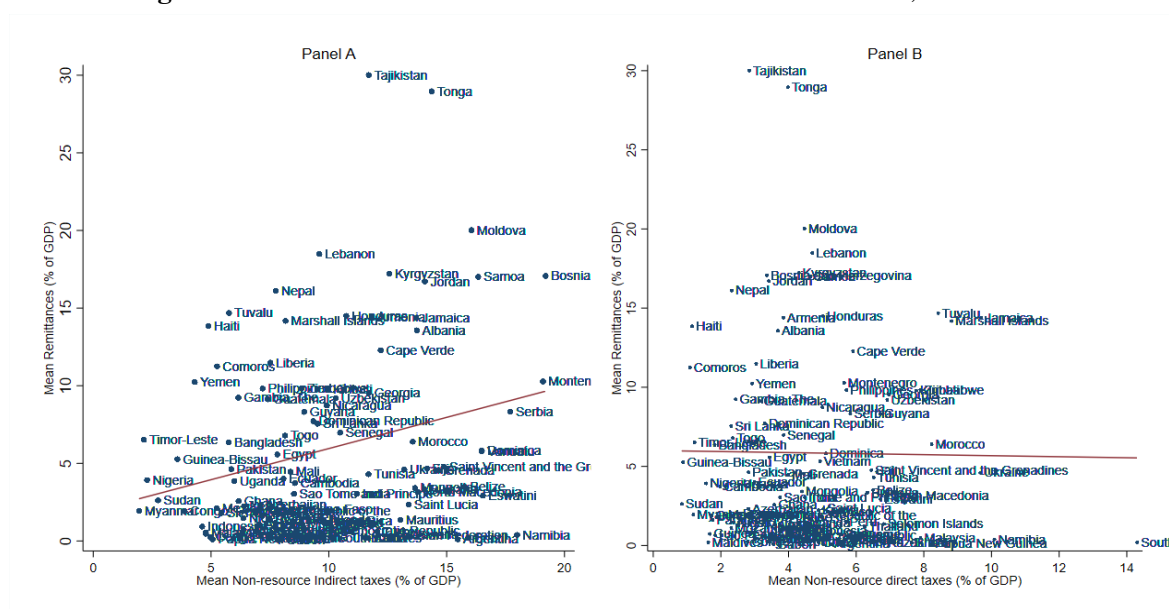
Notes: The sample consists of 186 developing and developed countries.
Source: Authors' compilations.

³The dispersion of non-resource tax levels in each income group is as follows: LIC (3.70), LMIC (9.24), UMIC (5.96), and HIC (8.13).

2.4.2 Remittances and Non-resource tax revenues

As depicted in Figure 2.3, the preliminary correlations in our sample between remittances and tax revenues are consistent with the literature discussed in Section 2.2. Despite the high dispersion observed, remittances and non-resource indirect tax revenues have a clear positive association in our data (Panel A). In contrast, remittance increases are not associated with increases in non-resource direct taxes (Panel B). While there is consensus on the relationship between remittances and indirect taxes (VAT and sales taxes), the literature documents ambiguous results regarding the relationship between remittances and direct taxes. For example, Chami et al. (2008) find a negative relationship while Ebeke (2014), Asatryan et al. (2017) and Bangake et al. (2022) confirm that governments raise the overall level of progressivity of the income-tax system in response to higher remittances. This data lends weight to the notion that capturing remittances through direct taxes is more complex than capturing them through their effect on consumption.

Figure 2.3 Remittances vs. Non-resource Direct and Indirect taxes, 1996-2020



Notes: The analysis is based on the core sample of 108 countries.

Source: Authors' compilations.

Table 2.1 Remittances, Institutional quality and Non-resource tax revenues (System GMM results)

Variable	Dependent Variable: Log of Non-resource tax revenues						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Remittances	0.014** (0.007)	0.018** (0.008)	0.024** (0.010)	0.023** (0.011)	0.046** (0.018)	0.065** (0.027)	0.072** (0.033)
Corruption		0.306** (0.153)	0.346** (0.162)				0.525*** (0.195)
Democracy			-0.002 (0.006)	0.007 (0.006)		0.012* (0.006)	
Quality of government				0.346** (0.136)	0.163 (0.158)		
Remittances*Quality of government					-0.105** (0.045)		
Remittances*Democracy						-0.008** (0.004)	
Remittances*Corruption							-0.155** (0.008)
Non-resource tax (t-1)	0.713*** (0.083)	0.676*** (0.093)	0.683*** (0.099)	0.693*** (0.091)	0.686*** (0.099)	0.760*** (0.079)	0.717*** (0.098)
GDP per capita	0.089*** (0.033)	0.091** (0.036)	0.087** (0.037)	0.037 (0.034)	0.090** (0.043)	0.075** (0.035)	0.064** (0.031)
Trade openness	0.093*** (0.029)	0.072*** (0.027)	0.063 (0.048)	0.162** (0.067)	0.109*** (0.039)	0.015 (0.048)	0.061*** (0.023)
Agricultural value added	0.051 (0.040)	0.038 (0.033)	0.043 (0.032)	-0.004 (0.030)	0.022 (0.042)	0.071 (0.054)	0.030 (0.018)
Age dependency ratio	-0.113** (0.049)	-0.095* (0.052)	-0.087* (0.049)	-0.089* (0.047)	-0.101* (0.059)	-0.067 (0.063)	-0.075** (0.037)
Resources rents ratio	0.004 (0.004)	0.008** (0.004)	0.007 (0.005)	0.005 (0.010)	-0.018 (0.014)	0.004 (0.004)	0.008** (0.004)
Countries	101	101	100	72	73	100	101
Observations	1935	1713	1096	924	1431	1477	1384
Instruments	73	61	74	66	62	46	63
Hansen statistic	56.47	48.24	67.48	58.48	50.63	38.12	49.47
Hansen p-value	0.792	0.660	0.392	0.421	0.567	0.418	0.649
AR1 p-value	0.000	0.000	0.000	0.003	0.003	0.000	0.000
AR2 p-value	0.122	0.651	0.238	0.263	0.183	0.167	0.855

Notes: All variables are logged except for the institution variables.

Standard errors are in parentheses *** p<0.01, ** p<0.05, * p<0.1

Subsequently, we present the system GMM results in Table 2.1 (using equations 2.1 and 2.2 above). Column 1 presents the direct impact of remittances on non-resource tax revenues. This linear specification enables us to assess the influence of remittances and the other control variables on tax revenues on their own. Columns 2 to 4 expand the control variables to include institutional variables, while columns 5 to 7 report the results for the specifications with interaction terms. In each model, we adjust for GDP per capita, trade, agricultural value added, age dependency ratio, and natural resources share of GDP. The regressions satisfy the necessary specification tests (second-order auto-correlation and Hansen tests).

As seen from Table 2.1, remittances are positively correlated with tax receipts across all specifications, lending credence to the idea that remittances raise total tax receipts in developing countries. The studies by Ebeke (2014), Asatryan et al. (2017) and Bangake et al. (2022), which demonstrate a positive association between remittances and tax revenues, are corroborated by this conclusion. Furthermore, from columns 2 to 4, we observe that corruption and the quality of government are fundamental institutional variables in explaining the performance of non-resource tax revenues. However, a linear specification falsely assumes that the link between remittances and tax revenues is uniform. In practice, countries that receive equal remittances may report varying amounts of tax revenue, resulting in variations that could lead to the two variables displaying a nonlinear relationship.

Columns 5 to 6 present the results for the specifications with interaction terms between remittances and the institutional variables. We present three specifications. In column 5, we use World Bank's WGI corruption index, which is rescaled to range 0 to 1. In column 6, we use polity 2 index of democracy published by the Quality of Government database, while in column 7, we use a composite index of the quality of government also published by the Quality of Government database. The index is the sum of ICRG's corruption, law and order, and bureaucratic quality. Higher values of these variables represent better quality of institutions.

The estimates show two very important results. First, the results show negative and significant interaction variables. This shows that remittances' marginal impact diminishes in countries with more secure institutional environments. In other words, neither democracy nor state capacity augments the government's ability to harness remittance inflows through taxation. Second, the results point toward the presence of a threshold value, after which the positive effect of remittances on non-resource tax receipts starts to diminish. Regarding the quality of government and corruption, these thresholds are 0.44 and 0.46, respectively. The

threshold value for democratic legitimacy is 7. Above these thresholds, the positive effect of remittances gradually diminishes.

Various factors can explain these findings. First, the literature demonstrates that the economic performance of recipient countries is positively and highly correlated with the volume of remittances. This means that countries that perform better economically, which in most instances correlates with countries with better institutional environments, receive fewer remittances (Azizi, 2017, 2019).⁴ Second, the literature documents that an influx of remittances may induce a policy reaction in the form of altered tax rates that are plausible in stable institutional environments. For instance, because remittances are channelled mainly into consumption, some countries may be influenced to introduce VAT systems (Ebeke, 2014). Some governments may want to exploit this expanded revenue base to reduce tax rates to stimulate their economies (Asatryan et al., 2017). Furthermore, as Gordon and Li (2009) note, huge informal sectors are a significant challenge that may impact the choice of tax structure in developing nations. Besides, a large informal sector increases the likelihood of the Dutch disease phenomenon caused by remittance inflows. These suggest, for example, that governments may want to reduce indirect taxes to encourage a shift to the formal economy (Emran and Stiglitz, 2005). These possibilities suggest reduced tax rates with increased remittance flows. Indeed, Schneider et al. (2019) show that remittances can only be fruitful and used in the formal economy if taxes are lower to discourage informal sectors. Such policies will only likely be undertaken in counties with stable institutional environments.

Third, previous studies have shown an ambiguous relationship between the behaviour of remittance flows at varying levels of institutional quality. While a few of these studies show that improving the institutional environment results in more remittances (Ajide and Raheem, 2016; Lartey and Mengova, 2016), most of them demonstrate that remittances and institutions could reinforce each other. That is, poor governance leads to increased migration

⁴The average values of corruption, quality of government, and democracy indices are 0.340, 0.358 and 4.797, respectively, for LICs, 0.375, 0.430, and 5.624, respectively for LMICs and 0.454, 0.468 and 7.044 respectively for UMICs.

and thus increased remittances, which in turn makes poor institutions even more tolerable in the sense that governments face less pressure to be accountable to the public (Abdih et al., 2012; Ahmed, 2013; Berdiev et al., 2013; Ebeke, 2012; Effiong and Asuquo, 2017).

Our findings on the marginal impact of remittances on non-resource tax revenues contrast with those of Bangake et al. (2022) who use the PSTR model to show that the impact of remittances on tax revenues turn negative when the institutions are poor (thresholds of about 0.7 for both corruption and law and order indicators). They also demonstrate that remittance inflows combined with an extensive informal economy enhance tax evasion and decrease tax revenues. However, the PSTR estimation does not take into account the potential reverse causality and endogeneity between remittances and institutional quality.

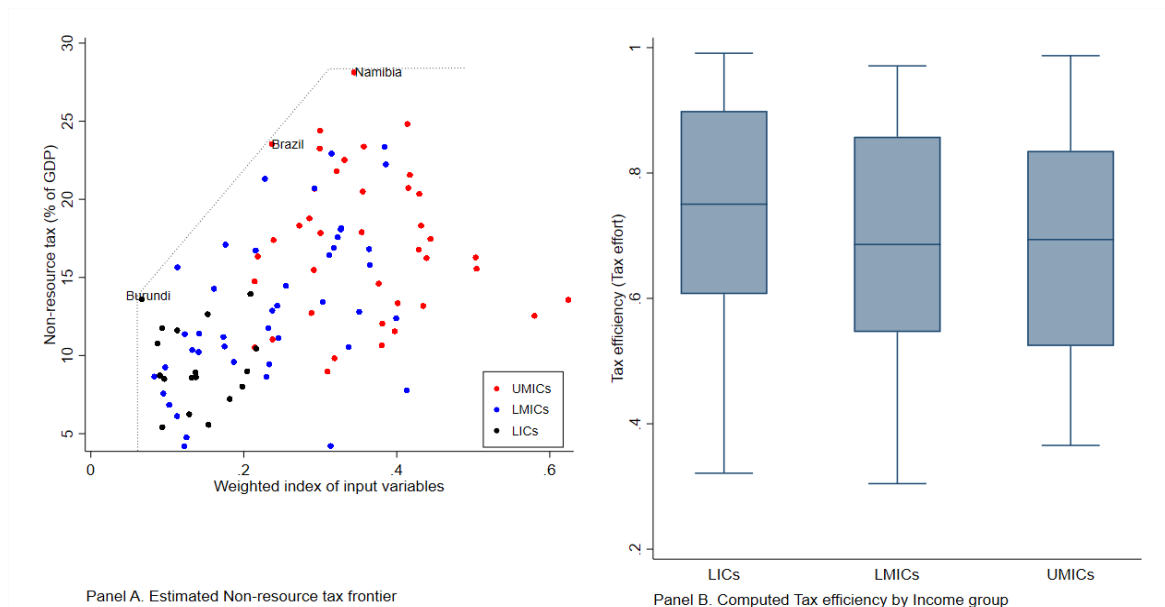
Before carrying out the sensitivity analysis in the next subsection, we briefly look at the results of the control variables in Table 1 and limit our focus to the variables that show significant effects in most regressions. The estimations show that the coefficient of the lagged non-resource tax is positive, indicating a considerable degree of persistence in the tax revenue variable. A positive correlation between GDP per capita and trade openness with tax revenues is found as expected, and a negative association is observed with the age dependency ratio.

2.4.3 Robustness Checks: Remittances and Tax efficiency/effort analysis

In this section, we discuss the findings of the robustness check conducted using tax efficiency as an alternative measure of tax capacity. Despite the tax-to-GDP ratio being the most popular and observable measure of fiscal capacity, its use misconstrues deliberate policy efforts with fundamental inequalities in the tax base. Indeed, as documented in Asatryan et al. (2017) and Ebeke (2014), remittance-dependent countries may indirectly try to tax remittances by incorporating this issue into their tax policies or tax bases and administration choices. These

factors are accounted for by the gap between actual tax revenue and predicted tax revenue (tax capacity). As a result, we use tax effort or tax efficiency to measure fiscal capacity.

Figure 2.4 Non-resource Tax Efficiency/effort



Source: Authors' analysis based on the data sources described in section 2.3.1.

Panel A of Figure 2.4 demonstrates the concept of tax capacity. Given the countries' fundamental factors influencing tax capacity, we adopt the SFA methodology which is a parametric frontier analysis (see Appendix A) to compute the frontier (dotted line) as the maximum attainable tax revenues and to estimate non-resource tax collection efficiency scores. To simplify the illustration, we aggregate our key determinants of tax (GDP per capita, trade openness, age dependency, agriculture value-added, and natural resources share of GDP) to a single index that acts as a proxy for the fundamentals that determine a country's non-resource tax potential. We standardize all variables such that higher values correlate to better circumstances by taking the inverse of the values for those variables with an expected negative relationship with revenue (i.e., agriculture resources and age dependency). We use min-max rescaling to standardize the values ranging from 0 and 1. We also winsorize all variables at the 98% level in advance because the standardization process is vulnerable to outliers. Lastly, we use an equal weighting approach (as in Bogetic et al. (2022)) to combine

Table 2.2 Remittances, Institutional quality and Tax efficiency/effort (System GMM results)

Variable	Dependent Variable: Tax efficiency/effort						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Remittances	0.003*	0.005*	0.012**	0.007**	0.040***	0.036***	0.028**
	(0.002)	(0.003)	(0.004)	(0.003)	(0.013)	(0.010)	(0.013)
Corruption				0.777***	1.020***	0.647**	0.835***
				(0.263)	(0.275)	(0.251)	(0.219)
Quality of government			1.093***	0.402**	0.345*	0.600***	0.260**
			(0.152)	(0.162)	(0.180)	(0.175)	(0.115)
Democracy		0.027**	0.021**	0.028***	0.021**	0.026***	0.039***
		(0.013)	(0.010)	(0.009)	(0.008)	(0.010)	(0.010)
Remittances*Corruption					-0.101***		
					(0.032)		
Remittances*Quality of government						-0.086***	
						(0.024)	
Remittances*Democracy							-0.004**
							(0.002)
Revenue Mobilization	0.203***	0.146***					
	(0.009)	(0.029)					
Countries	72	70	75	75	75	75	75
Observations	1,016	647	1,216	1,140	1,140	1,140	1,140
Instruments	12	23	32	29	30	30	30
Hansen statistic	11.66	18.95	37.48	29.03	27.15	27.21	31.66
Hansen p-value	0.308	0.525	0.134	0.262	0.349	0.345	0.168
AR1 p-value	0.011	0.007	0.006	0.229	0.871	0.834	0.176
AR2 p-value	0.195	0.321	0.154	0.538	0.490	0.087	0.294

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

the five normalized variables into a single composite measure. The distance between an observed combination of an input and an output value and the computed frontier is used to quantify each country's efficiency score.

As seen from the figure, developing countries still have room for revenue mobilization since most of them are far from the tax frontier, i.e., they are currently collecting less than potential given their economic structures. Panel B in Figure 2.4 provides insights into the ranges of the tax efficiency scores computed by the SFA method. The figure demonstrates that countries with low and high tax efforts are evenly spread across the income groups as the median scores are consistent across income levels. The efficiency scores acquired are then employed as the explained variable based on equation 2.3 using system GMM. The results are presented in Table 2.2.

The results confirm the findings in the previous section. Remittances show a consistently positive effect on non-resource tax efficiency. This signifies that in the presence of abundant

remittance inflows, policymakers attempt to tax these transfers by introducing consumption taxes with VAT systems, as argued in Ebeke (2014) or improve indirect tax administration systems. Similarly, improvements in the institutional environment and revenue mobilization efficiency are correlated with increases in tax efficiency. The results also show statistically significant correlations between the interaction variables and remittances (columns 5-7). This means remittances have a marginally lesser impact in countries with more stable political environments. The threshold values are 0.40 for corruption and quality of government and 7 for the democracy index.

2.5 Conclusions and Policy Suggestions

While there is significant literature documenting the welfare-enhancing effects of remittances for economies, less is known about their influence on tax receipts. This paper evaluates the effects of remittances on non-resource tax receipts conditional to the level of institutional quality for 108 developing countries from 1996 to 2020. In other words, we examine if and to what extent the stability of the institutional environment in remittance-recipient countries modifies the effect of remittances on non-resource tax receipts. We estimate models in which non-resource taxes (and tax efficiency in the robustness section) are explained by institutional quality, remittances, interaction terms, and other standard control variables employed in the literature. We control for endogeneity in the models by using system GMM estimation and, in addition to using lags of the variables as instruments, we instrument for remittances with the mean per-capita GDP of the top 10 migrant-receiving countries weighted by the inverse of each country's distance to the remittance-receiving countries in the sample.

Our results show that remittances increase non-resource tax revenue in developing countries. Furthermore, our results suggest a non-linear relationship conditioned by the institutional environment. More precisely, the positive impact of remittances on non-resource tax receipts diminishes when the institutional environment stabilizes. The threshold levels

after which the diminishing returns are observed are about 0.4 for corruption and quality of government and about 8 for the democracy index. These findings remain the same even when tax efficiency is used to measure fiscal capacity. Considering the discussions raised in section 2.4.2, this finding lends credence to the interpretation that while some policymakers in remittances-receiving countries may want to tax remittances through the introduction of VAT systems, for example, others may consider reduced tax rates to foster participation in the formal economy. In fact, Schneider et al. (2019) recommends reduced indirect tax rates to prevent remittances from being channelled to the informal economy. Moreover, it goes without saying that poorer countries have the lowest institutional quality and receive more remittances, as these two could be reinforcing each other.

From a policy standpoint, developing countries must adopt strong and effective steps to capitalize on remittance inflows over time to increase tax revenue collection. As remittances are personal transfers and are yet to be considered for formal taxation, the channel through which they impact tax receipts is indirect. As a result, recommendations for improvement in institutions to make indirect tax mobilization efficient are obvious (e.g., electronic scanners, cash register machines, digital payment methods, and objective exemption criteria). This includes taking into consideration ways of reducing the informal sectors as the proliferation of informality normally leads to tax evasion and is, therefore, a tradeoff with the potential benefits of remittance flows.

Appendix

A. Stochastic Tax Frontier

Analyzing the technical efficiency of production/decision-making units has gained a substantial attention in empirical studies and management science. From a methodological perspective, two major strands of literature can be distinguished: (i) Analyses that are founded on parametric based regression methods such as the SFA (Aigner et al., 1977). Parametric methods require the specification of some parameters before they can be used to make predictions. (ii) Analyses based on non-parametric regression methods such as Data Envelopment Analysis (DEA) (Charnes et al., 1978). The pros and cons of each approach have also been discussed in the literature (Alfirman, 2003; Hjalmarsson et al., 1996; Yesmine et al., 2023). For example, while SFA requires an imposition of a specific functional form of the frontier function, the DEA does not and it can handle multiple inputs and outputs without specifying a functional form. However, for the DEA models, tests of hypothesis regarding determinants of inefficiency are out of their scope. Indeed, they do not permit for random errors, does not allow statistical hypothesis to be contrasted, and does not require specifying a functional form that is sensitive to the number of variable measurements. As such they can result to a misleading positioning of the frontier. Although SFA has some limitations in terms of the assumptions that must be made about the distribution of the inefficiency term, it is predominantly used because it considers statistical noise and thus allows for the testing of certain assumptions. In conclusion, neither of the models can be said to be significantly dominant over the other.

We adopt the parametric frontier analysis (SFA) to estimate the tax frontier function (Caldeira et al., 2019; Fenochietto and Pessino, 2013; Langford and Ohlenburg, 2015). The tax frontier function is founded on the notion that a production function defines the maximum potential output (tax capacity) that a country can achieve considering a country's

institutional, demographic and economic features. In this regard, the difference between the actual collected revenue and tax capacity (i.e., tax effort) includes the existence of technical inefficiencies as well as policy issues (for example, differences in tax policy, tax administration performance, or natural resource discovery and commodity price booms).

Following Aigner et al. (1977), the tax frontier function takes the following form:

$$Tax_{it} = f(X_{it}\beta)exp^{(v_{it}-\mu_{it})} \quad (2.4)$$

Tax_{it} is the ratio of non-resource tax ratio for country i at time t . $f(X_{it}\beta)$ captures the factors determining tax capacity, i.e. GDP per capita, trade openness, agriculture, resources and age dependency ratios, and β represents a vector of unknown parameters to be estimated. $v_{it} \sim N(0, \sigma_v^2)$ is the random shock and $0 > \mu_{it} \leq 1$ is the time-varying inefficiency term assumed to take a truncated-normal distribution.⁵

Following equation 2.4, we specify the model below to estimate the tax frontier:

$$ln_{tax}_{it} = \beta_0 + \beta_k X_{kit} + v_{it} - \mu_{it} \quad (2.5)$$

where ln_{tax} is the log of non-resource tax-to-GDP ratio and X is the vector of covariates mentioned above, all expressed in log form. The tax function in equation 2.4 is assumed to take a Cobb-Douglas form and is therefore linear in logs.

Equation 2.5 is estimated using the parametrization of Battese and Coelli (1988), which utilises the maximum likelihood estimator. The prediction of tax effort/technical efficiency is computed using the formula provided by Jondrow et al. (1982) given the observable value of $v_{it} - \mu_{it}$ as follows:

⁵Greene (2008) noted that the different assumptions about the distribution of the inefficiency term (exponential, half normal or truncated normal) do not significantly impact the size of inefficiency estimates. Furthermore, Coelli et al. (2005) recommends a more general distribution, such as the truncated-normal distribution.

$$TE_{it} = \frac{\exp[\ln tax_{it}]}{\exp[\ln f(X_{it}; \beta) + v_{it}]} = \frac{f(X_{it}; \beta) \exp(v_{it} - \mu_{it})}{f(X_{it}; \beta) \exp(v_{it})} = \exp(-\mu_{it}) \quad (2.6)$$

Hence, higher TE implies higher efficiency/effort, or tax revenue closer to the frontier.

B. Tables

Table 2.3 List of Variables, Summary Statistics and Data Sources

Variable	Description	Obs	Mean	SD	Min	Max	Source
Panel A: Dependent variables							
Non-resource tax	Non-resource tax excluding social contributions	2463	14.21	5.79	0.54	33.27	GRD
Tax effort	The ratio between actual tax revenue and SFA tax capacity	2700	0.70	0.19	0.31	0.99	Author's construction
Panel B: Economic, demographic and structural fundamentals							
Resources	Total natural resources rents (% of GDP)	2700	6.91	9.05	0	81.91	WDI
Trade openness	Sum of exports and imports of goods and services (% of GDP)	2372	74.305	34.02	0.76	220.41	WDI
Agriculture	Agriculture, forestry and fishing, value added (% of GDP)	2631	17.50	11.79	1.57	79.04	WDI
Age	Age dependency ratio (% of working age population)	2700	68.77	18.22	35.4	114.69	WDI
GDP per capita	GDP per capita (constant 2015 US\$)	2684	3300.11	2795.62	234.71	14200.3	WDI
Panel C: Variables of interest							
Remittances	Personal remittances, received (% of GDP)	2524	5.55	6.74	0.001	44.13	WDI
Quality of government	Mean value of ICRG's Corruption, Law and Order, and Bureaucracy Quality	1861	0.43	0.11	0.11	0.88	QOG
Polity2 index	Measures degree of democracy	2012	6.04	2.67	0.25	10	QOG
Corruption	Corruption perceptions index	2341	-0.5	0.58	-1.70	1.33	WGI
Panel D: Additional variables							
Direct taxes	Excludes non-resource taxes and social contributions	2242	4.59	2.68	0	21.18	GRD
Indirect taxes	Excludes non-resource taxes	2349	9.90	4.33	0.37	24.72	GRD
Instrument	Exogenous instrument for remittances	2700	93.10	61.59	25.27	326.97	Author's construction
Revenue mobilization	CPIA efficiency of revenue mobilization rating (1=low to 6=high)	1036	3.46	0.48	2.5	4.5	WDI

Table 2.4 List of countries

Upper Middle Income Countries

Albania, Argentina, Armenia, Azerbaijan, Bosnia and Herzegovina, Botswana, Brazil, Bulgaria, China
Costa Rica, Dominica, Dominican Republic, Ecuador, Fiji, Gabon, Georgia, Grenada, Guatemala, Guyana
Jamaica, Jordan, Kazakhstan, Lebanon, Malaysia, Maldives, Marshall Islands, Mauritius, Mexico, Moldova
Montenegro, Namibia, North Macedonia, Paraguay, Peru, Russian Federation, St. Vincent and the Grenadines
St. Lucia, Serbia, South Africa, Suriname, Thailand, Tonga, Turkey, Tuvalu

Lower Middle Income Countries

Algeria, Bangladesh, Belize, Benin, Cambodia, Cameroon, Cape Verde, Comoros, Rep. of Congo
Cote d'Ivoire, Egypt, Eswatini, Ghana, Haiti, Honduras, India, Indonesia, Kenya
Kiribati, Kyrgyzstan, Lao People's Dem. Rep., Mongolia, Morocco, Myanmar, Nepal, Nicaragua
Nigeria, Pakistan, Papua New Guinea, Philippines, Samoa, Sao Tome and Principe, Senegal, Solomon Islands
Sri Lanka, Tajikistan, Tanzania, Timor-Leste, Tunisia, Ukraine, Uzbekistan, Vanuatu, Vietnam, Zimbabwe

Low Income Countries

Burkina Faso, Burundi, Dem. Rep. of Congo, Ethiopia, Gambia, Guinea, Guinea-Bissau, Liberia
Madagascar, Malawi, Mali, Mozambique, Niger, Rwanda, Sierra Leone, Sudan, Togo, Uganda, Yemen, Zambia

3

Fiscal Convergence and Public Debt Sustainability in Africa

The use of macroeconomic convergence programs to harmonize domestic macroeconomic variables, as well as promote the monetary integration process, is well recognized in the regional integration literature. This paper analyzes fiscal convergence and sustainability in African Regional Economic Communities (RECs) from 1995 to 2021. The convergence in government debt, revenues, and expenditures is measured using a nonlinear approach that accommodates heterogeneity and allows for endogenously identified convergence clubs. While we do not find any strong evidence of absolute fiscal convergence, we do find evidence of conditional convergence in government debt in all the RECs and government revenue and expenditures in some of the RECs. Club clustering reveals homogeneity in the convergence clubs in all the fiscal variables, albeit with a few divergent countries in ECOWAS and SADC. Furthermore, we fail to validate the hypothesis that belonging to a monetary union augments the response of fiscal policy to rising public debt. Nonetheless, fiscal sustainability is found to be sustainable in the combined monetary union (WAEMU, CEMAC, and the Rand zone).

Keywords: Fiscal convergence, Convergence clubs, Public debt sustainability, Africa

JEL Codes: E62, H60, O55

3.1 Introduction

There is growing consensus among policymakers in Africa on the importance of enhancing fiscal convergence owing to its importance in the realization of the African Monetary Union and the success of the recently launched African Continental Free Trade Area (AfCFTA) (Wassie et al., 2022).¹ The concern regarding the extent of fiscal convergence among African RECs is not surprising considering the determinations of earlier analyses that associate the absence of fiscal convergence as an impeding factor to creating monetary unions (Asongu et al., 2017; Masson and Pattillo, 2004). Fiscal convergence, as defined in Darvas et al. (2005), occurs because a fiscally irresponsible country undertakes necessary reforms and merges the gap with other member states.

The literature underscores the importance of fiscal convergence in the context of a monetary union. First, the traditional theory of Optimum Currency Areas (OCA) provides insight into the design of monetary unions by identifying the preconditions for an optimal monetary area. However, Frankel and Rose (1998) argue that convergence is an endogenous process as entering a monetary union arrangement incentivizes participating countries to embark on critical reforms to ensure they meet the convergence criteria. Empirical evidence of this theory is well documented in the literature (Beck et al., 2019; Bibow, 2022; Crespo-Cuaresma et al., 2011; Darvas et al., 2005; Grochová et al., 2022; Onorante, 2006; Tapsoba et al., 2019). Consequently, macroeconomic convergence programs, often influenced by European Union (EU)'s Maastricht Treaty and Stability and Growth Pact, have frequently been used to foster the integration process among RECs. Such programs are intended to align policies regarding macroeconomic variables, with fiscal deficits being the most important condition which aims to converge fiscal stances.

¹Africa has three monetary unions that have existed for over six decades: the two CFA Franc zones and the Rand zone between South Africa, Eswatini, Namibia and Lesotho, in which South Africa sets monetary policy. The other RECs plan to establish other currency unions that would ultimately culminate in a single African currency, as established in the 1991 Abuja Treaty.

In Africa, a large body of literature has relied on the OCA theory to evaluate the suitability of currency unions in the various RECs.² Similarly, the literature also documents the existence of fiscal convergence and its lack thereof in African RECs (see Table 3.5). Despite this large body of literature, whether regional integration has led to real fiscal convergence in Africa remains an open question. Moreover, there is a dearth of empirical research on whether fiscal convergence can, in principle, support fiscal discipline and sustainability as seen with the explicit fiscal constraints raised in the European Monetary Union (EMU) literature (Morris et al., 2006). In their analysis of African RECs, Tapsoba et al. (2019) demonstrate that RECs, particularly monetary unions, significantly reduce fiscal divergence between countries and in fact auto-validate their formation.

This paper focuses on fiscal convergence and sustainability in Africa from 1995 to 2021. Africa has several RECs in different integration stages and has adopted macroeconomic convergence programs to coordinate the convergence of fiscal stances (see Table 3.4). Since these programs are embedded in their setup, we seek to answer whether the fiscal stances of the member countries of these RECs are diverging or converging following decades of strengthening economic ties. In addition to existing monetary unions and RECs with convergence programs, we explore the possibilities of convergence in the proposed Africa Economic Community and COMESA-EAC-SADC tripartite (henceforth the Tripartite). The former is considered because of the ongoing efforts to establish the AfCFTA that will eventually culminate in an African Monetary Union. The latter aims to merge the three existing RECs that have continuously struggled to resolve the challenge of multiple and overlapping memberships that complicate integration implementation (Wassie et al., 2022). We analyze convergence in government debt, revenues, and expenditures using the model advanced by Phillips and Sul (2007, 2009), which allows for time-varying individual transition effects and endogenously identified convergence clubs. We also conduct simple sigma and beta convergence tests for comparison purposes.

²Asongu et al. (2017) provides a literature survey.

Subsequently, we investigate whether belonging to a monetary union, which is considered the deepest form of economic integration, is beneficial in the fiscal policy response to increases in public debt. In this regard, we estimate a fiscal response reaction suggested by Bohn (1998) for two models: a benchmark model in which an interaction term between public debt and a dummy variable for the monetary union countries is included; and a test model consisting of countries belonging to the monetary unions. This hypothesis is validated by a statistically significant positive value of the interaction term.

The main findings of the convergence tests are as follows. Similar to the simple sigma convergence tests, we do not find compelling proof in favor of absolute convergence in government debt, revenues, and expenditures across the sub-samples. This conclusion is also confirmed by the relative transition curves that do not converge over the sample period. However, the log-t regressions support conditional convergence in public debt in all the sub-samples tested. As for government expenditures and revenues, there is weak evidence of conditional convergence in most sub-samples except for ECOWAS, WAMZ, SADC, and the proposed Tripartite, whose club clustering patterns show divergent countries. Our conclusion of conditional convergence in government debt across the sub-samples, for example, with government debt, is comparable and confirmed by the unconditional beta convergence tests, which show negatively sloping graphs.

Regarding whether the reaction of fiscal policy to increases in government debt is enhanced when a country belongs to a monetary union, we do not find any evidence supporting this hypothesis in the benchmark models. However, fiscal policy is sustainable in the sub-sample of monetary union countries. These findings are robust even when we use cyclically adjusted primary balance (CAPB) as an alternative measure of fiscal deficit and when the system GMM estimator is employed.

This study adds to the research on African integration by using Phillips and Sul's model to determine fiscal convergence. To the best of our knowledge, this study is among the first

to attempt to employ the methodology to understand structural convergence across African countries besides Olowofeso et al. (2021) who applied it to the WAMZ countries. Moreover, the study expands the literature by also highlighting what happens in Eastern and Southern Africa, where the current literature has notably neglected. The paper also broadly adds to the fiscal policy sustainability literature in Africa.

The remainder of the paper is organized as follows. Section 3.2 presents an overview of African RECs and their respective scorecards on advancing convergence goals. This section also discusses related literature on fiscal convergence and sustainability. Section 3.3 provides an overview of the data and outlines the methodology. Section 3.4 presents the results and detailed discussions on fiscal convergence results, the convergence clubs, and fiscal sustainability. Section 3.5 concludes the study with some policy insights.

3.2 Literature Review

3.2.1 Overview of African Regional Economic Communities

Integration initiatives in African RECs are undertaken to transition from establishing free trade areas, customs unions, and common markets to eventually culminating in monetary unions. The African Union (AU) acknowledges eight regional communities as the foundation of the African Economic Community (AEC), initiated by the Abuja Treaty of 1991. These include the COMESA, EAC, SADC, ECOWAS, Arab Maghreb Union (UMA), the Economic Community of Central African States (ECCAS), the Intergovernmental Authority on Development (IGAD), and the Community of Sahel-Saharan States (CENSAD) (see Table 3.4).

The Abuja Treaty envisioned the continent progressing from a common market to a monetary union by 2028 (Yang and Gupta, 2005). In practice, that has not happened. It is documented that African Regional Trade Agreements do not meet member

states' economic expectations, partly owing to limited market integration, which mirrors substantial trade barriers (Wassie et al., 2022). Furthermore, the continent continues to be politically fragmented, with fewer connected markets than other countries with comparable characteristics in the 1980s (De Melo and Tsikata, 2015; Ngepah and Udeagha, 2018; Wassie et al., 2022). Nevertheless, some RECs have individually achieved deeper integration, while others still need to.

The depth of regional integration in Africa is diversified (Table 3.4). Three monetary unions currently operate in Africa - the West African Economic and Monetary Union (WAEMU) covering eight countries; CEMAC covering six countries and the Rand zone covering Eswatini, Lesotho, Namibia and South Africa.³ Comoros, which is also a member of the CFA Franc zone, is neither a member of WAEMU nor CEMAC but utilizes the CFA Franc and has a distinct pegging rate with the Euro. However, none of the monetary unions are matched to any of the AU-acknowledged RECs. Nonetheless, future monetary unions are envisioned for COMESA, EAC, ECOWAS, and SADC. These RECs have established macroeconomic targets influenced by the Maastricht Treaty and the Stability and Growth Pact of the European Union aimed at harmonizing economic indicators.

A common challenge within these RECs is the existence of overlapping integration initiatives and memberships. For example, WAEMU overlaps with ECOWAS, and both have macroeconomic convergence programs but are not identical. COMESA includes eight of the SADC countries and four of the EAC countries. Overlapping initiatives, often with conflicting provisions, pose implementation obstacles by jeopardizing policy coordination and wasting resources that are often limited in Africa. In light of the above, an agreement to form the Tripartite among the member states of SADC, EAC, and COMESA was signed in 2015. The proposed Free Trade Area (FTA) aims to enhance the region's integration processes by eliminating the obstacle of members having overlapping memberships, thereby

³In the Rand zone, each country can issue its currency, which is only usable in its own country. However, the Rand is a legal tender in the monetary union, and all member countries follow South Africa's monetary policy.

subscribing to conflicting macroeconomic convergence programs. Furthermore, the revival of the pursuit of an African monetary union has emerged with the launch of AfCFTA. As of February 2023, 54 of the 55 AU member states had signed the AfCFTA agreement. However, the AfCFTA still needs ratification by the parliaments of at least ten countries.

3.2.2 Related Literature

Convergence literature

For decades, growth convergence among nations has been a major subject in neoclassical growth theory (Barro, 1991; Barro and Sala-i Martin, 1992a; Barro et al., 1991; Mankiw et al., 1992). According to the theory, “poorer” nations tend to grow faster compared to “richer” nations. This is referred to the absolute or unconditional convergence hypothesis. Nonetheless, several empirical research have shown no meaningful relationship between the beginning level of GDP per capita and GDP growth rates in a number of nations. Because elements related to economic development paths differ among countries, an economy is likely to have both a high starting income and rapid growth merely because its present income is substantially lower than its steady state income.

Conditional convergence, on the other hand, occurs when economies tend to converge quicker to their own steady state the further they are from it. In other words, conditional convergence permits each nation to converge at a distinct level of per capita income. This means that each nation approaches its own steady state and in the long term, all growth rates are equalized. These findings inspired many scholars to empirically verify the presence of per capita convergence using different methodologies: beta (β), sigma (σ), stochastic and club convergence. The popular concepts of convergence discussed in the literature are the σ and β convergence. β convergence mainly focuses on the relationship between growth rate and the initial value of the variable of interest (the “catch up” growth process) and therefore only focuses on the average values in the analyzed time period (i Martin, 1995). The σ

convergence test examines whether the dispersion of variable of interest across a group of countries falls over time.

The concepts of σ convergence and absolute β convergence are related such that β convergence is a necessary condition for the existence of σ convergence, but it is not sufficient (i Martin, 1995). This is because, if the former poorer country's growth rate is so high in comparison to the former richer country, the gap between the two countries' per capita GDP levels may remain the same despite β convergence suggesting that the former poorer country is now much richer. When countries are at different stages of development the idea of absolute convergence is questionable, but it holds for countries in the same region with similar levels of economic and institutional development. In African RECs, with the exception of a few countries such as South Africa, Seychelles, Mauritius and Botswana, the rest of the member states have broadly similar levels of economic and institutional development. We can therefore expect σ and β convergence in the RECs. Moreover, scholars began to use the convergence notion in a variety of economic fields, including energy economics, finance and public economics.

Studying convergence in public finances can be regarded, to some extent, as the consequence of theoretical studies on endogenous growth demonstrating the effect of fiscal policy on economic growth (Barro, 1990; Barro and Sala-i Martin, 1992b). Researchers also started to monitor the trend of public finances to test fiscal convergence especially after the 2008 financial crisis (Buiter and Rahbari, 2010; Pisani-Ferry, 2012). The threat posed by unsustainable public debt in a monetary union agenda cannot be overemphasized given its potential to create negative spillover effects is real.

The traditional OCA theory serves as the pillar for analyzing the viability of a monetary union. The theory provides acumen on the design of monetary unions by identifying the preconditions for an optimal monetary area. These preconditions include trade intensity, the similarity of economic cycles of member countries, financial markets, and fiscal and political

integration, among others. However, the traditional OCA criteria have been criticized since the preconditions for membership could be endogenous. Countries could attain the criteria through strong economic ties after joining a monetary union even though they could not satisfy it before joining the union (Frankel and Rose, 1998). Furthermore, the OCA theory does not define a limit beyond which shocks become excessively asymmetric or specify mitigating variables. This has culminated in introducing convergence criteria as a method for evaluating the suitability of membership of a monetary union (Masson, 2016).

Convergence criteria are intended to ensure macroeconomic stability and align domestic policies concerning macroeconomic targets that candidate countries must satisfy before the formal launch of a monetary union (Jayaraman et al., 2007; Tapsoba et al., 2019). As documented in Asongu (2014) and Arčabić (2018), fiscal convergence encompasses reducing fiscal deficits and public debt and has been the most essential criterion in convergence treaties that member countries must meet before establishing monetary union. As such, the satisfaction of the fiscal convergence criteria – an indication of fiscal shock synchronization – allows candidate countries to achieve fiscal discipline, which is vital to the effective inception of a common currency (Beck et al., 2019; Bibow, 2022; Crespo-Cuaresma et al., 2011; Darvas et al., 2005; Grochová et al., 2022; Tapsoba et al., 2019).

The empirical literature on fiscal convergence is biased toward the experience of the EMU and the CFA monetary zones. Some of the recent works in the EMU include Arčabić (2018); Baldi and Staehr (2016); Bertarelli et al. (2014); Blanco et al. (2020); Kočenda et al. (2008); Kouba et al. (2016); Schalck (2012), among others. These studies find conflicting evidence based on the analysis period and the adopted empirical approach (for example, the popular β and σ convergence and cointegration tests). Most of these authors confirm poor fiscal convergence in the EMU, suggesting that economic integration and monetary unification in the EMU do not necessarily lead to fiscal convergence for member states. However, a few studies, such as Darvas et al. (2005), demonstrate that the convergence criteria used to vet

candidates for the EMU encouraged fiscal consolidation, obliquely advancing Europe closer to an OCA. Bertarelli et al. (2014) observes a fast convergence of public deficits in the EMU in the nineties, followed by a divergence trend in the 2000s. They argue that the common currency triggered convergence of total expenditure and revenue but could not achieve the same with public debt. Equally, Bucur and Dragomirescu (2013) add that the fiscal stability requirement has instilled budgetary discipline in EU member states, even though this has worsened since the 2008 global financial crises and the extended slump. In addition, Ferreiro et al. (2013) provided evidence of convergence in taxes and public expenditures in the Euro area.

In Africa, several studies have assessed the issue of macroeconomic convergence and the proposed currency unions. These studies have concentrated on the CFA monetary zones, where the integration process is more advanced. Similar to the convergence literature in the EMU, empirical works cutting across the different RECs indicate considerable divergence in opinions regarding the convergence of member countries of African RECs (see Table 3.5 for a summary).

Tanimoune and Plane (2005) and Sarr and Ndiaye (2011) and Cabrillac and Rocher (2013) show that since the adoption of the macroeconomic convergence program, the fiscal performance of the WAEMU and the CFA currency union, respectively, has improved and that fiscal balances and debt ratios have converged remarkably. Sarr and Ndiaye (2011) attributed the convergence to IMF structural adjustment programs that were concurrently being implemented in these countries during the same period. In the case of CEMAC, N'Kodia (2011) finds evidence of convergence from 1989 to 2009 and attributes the convergence to many factors, including IMF's structural adjustment programs and the devaluation of the CFA Franc. Mpatswe et al. (2011) shows that fiscal policies in CEMAC are predominantly pro-cyclical, as the member states use windfall profits from commodity exports for extra expenditures, making fiscal convergence difficult. Corroborating Mpatswe et al. (2011),

Dessus et al. (2016) show that public investment and expenditure have been pro-cyclical in WAEMU, thus posing challenges to meeting the fiscal convergence criteria.

For ECOWAS and WAMZ, there is a considerable consensus in the literature for lack of fiscal convergence in the member states (Asongu, 2014; Cham, 2009; Coulibaly and Gnimassoun, 2013; Ekpo and Udoh, 2014; Olowofeso et al., 2021; Semedo et al., 2012; Sodokin and Gammadigbe, 2021; Tsangarides and Qureshi, 2008). In the EAC region, Mafusire and Brixiova (2013) and Asongu (2014) demonstrate a profound lack of fiscal convergence nor an avenue of alleviating idiosyncratic fiscal shocks due to business cycle discord in the proposed East African Monetary Zone (EAMZ).

There are a few studies for COMESA and SADC regions. Carmignani (2006) focuses on COMESA member states and demonstrates that while some macroeconomic variables do display a tendency to converge across member states, the fiscal indicators are still characterized by substantial divergence. Buigut and Valev (2006), Jefferis (2007) and Mhambi and Mishi (2019) find evidence of a tendency of macroeconomic divergence, including fiscal policy divergence, in SADC and suggest a selective expansion of the existing Rand zone. Tapsoba et al. (2019) investigate the role of African RECs in the divergence of fiscal stances from 1990 to 2015. Their findings show that monetary unions are the most effective in fostering fiscal convergence between countries and that belonging to a REC significantly reduces fiscal divergence between member states.

While there is a consensus on the significance of fiscal convergence for successful monetary unions, there appears to be divergence in the consensus on the existence of fiscal convergence in African RECs. Furthermore, the literature has shown that there needs to be more research on fiscal convergence in the Eastern and Southern regions. Recent research has also stressed the need to accommodate heterogeneity when evaluating fiscal convergence among countries. This study exploits such heterogeneity using the log-t tests introduced by Phillips and Sul (2007, 2009) to assess the extent of fiscal convergence among African

RECs. It also tackles the issue of club clustering concerning fiscal policy, which is implicitly discussed in the EMU literature.

Fiscal sustainability literature

Fiscal sustainability literature largely builds on the fiscal reaction function approach developed by Bohn (1998) to assess debt sustainability. While rich literature identifies cross-country links between fiscal behavior and economic and institutional characteristics, the empirical literature on fiscal sustainability within an economic union is biased toward the EMU experience. Recent studies in this area include Aldama and Creel (2022); Arčabić (2018); Beqiraj et al. (2018); Checherita-Westphal and Žďárek (2017); Larch et al. (2021), among others. Broadly, their findings show that fiscal policy is sustainable. The conclusions reached in the literature are also mixed regarding the cyclicity of fiscal policy (Aldama and Creel, 2022).

In Africa, the literature includes a few cross-country analyses and several country-specific cases. For instance, Adedeji and Williams (2007) focus on CFA zones and incorporate institutional arrangements, compliance with fiscal convergence criteria, and economic characteristics of these countries. The findings suggest a strong persistence that could result in pro-cyclical fiscal policy when these countries face adverse exogenous shocks. Diallo (2009) explores the implications of institutions on the cyclicity of fiscal policy in African countries, finds evidence of pro-cyclical fiscal policy, and concludes that strong institutions can reverse this. Egbuna et al. (2019) show that public debt is sustainable across WAMZ countries. Olaoye and Olomola (2022) also find that public debts in SSA are weakly sustainable and highly pro-cyclical. Small et al. (2020) examine fiscal policy response to debt in 53 developing countries using different measures of fiscal responses, such as primary balance, general revenue, tax revenue, and spending. The study finds evidence supporting a nonlinear fiscal response to debt with a threshold of 90 percent of GDP. Fiscal sustainability

has also been extensively researched for individual countries, for example, Akosah (2015); Burger et al. (2012); Irungu et al. (2020), among others.

According to the review of the empirical literature, there needs to be more evidence on the role of macroeconomic programs in encouraging fiscal convergence and, therefore, fiscal discipline for its members. Against this background, the present paper complements the insights on fiscal sustainability in the African continent by investigating public debt sustainability in African RECs and fiscal convergence clubs.

3.3 Data and Methodology

3.3.1 Data Overview

The empirical analysis uses a panel of 52 African countries observed from 1995 to 2021.⁴ For the convergence analysis, we use government revenue, government debt, and government expenditure, all expressed as a percent of GDP, from IMF's WEO database.

For the public debt sustainability analysis, our dependent variable is the primary balance as a ratio of GDP. Two main variables are often employed in the fiscal sustainability literature as the dependent variable – primary balance and CAPB. Since primary balance has been used in most studies and is less prone to ex-post revisions, we adopt it in our baseline regression and reserve the CAPB for robustness checks. On the explanatory side, our main variables of interest are the lagged public debt and the output gap. Output gap captures the effects of business fluctuations. In the robustness check with CAPB, we use GDP growth to measure fiscal policy response to varying economic environments since variations in business cycles are already removed in the CAPB variable. We also include expenditure gap to capture temporary influences on primary fiscal balances such as the effect of military spending and

⁴Somalia (member COMESA since 2018) and South Sudan (member EAC since 2016) are excluded due to data unavailability. However, we include the Maghreb countries - Algeria, Morocco, Mauritania, and Tunisia (member of COMESA since 2018), which, although belonging to a REC without a macroeconomic program, are part of the bigger AfCFTA agenda.

expansionary fiscal stance during election times, etc. (Bohn, 2008; Debrun et al., 2019; Ghosh et al., 2013).

We estimate each country's output and expenditure gaps by implementing the Hodrick and Prescott (1997) HP filter to decompose real GDP and government expenditure into trend and cyclical components. Real GDP and government expenditure (expressed in constant 2015 USD) data are obtained from the World Bank's WDI. Since we are working with annual data, we follow Ravn and Uhlig (2002) and adopt a smoothing parameter to 6.25.⁵

In addition to output and expenditure gap, following the literature, we include several control variables that are predicted to explain fiscal policy behavior: (i) current account balance to capture the twin deficits hypothesis (Checherita-Westphal and Žd'árek, 2017) and cross-country spillover effects; (ii) political stability as a proxy for the quality of institutions⁶; (iii) a dummy variable to capture the effects of the debt relief initiatives on fiscal policy, which include the Heavily Indebted Poor Countries (HIPC) and Multilateral Debt Relief Initiatives (MDRI); (iv) Inflation rate as an indicator of overall macroeconomic instability; and (v) a binary variable for the presence of an IMF program. The data sources for our control variables are the World Bank's WDI and the WGI.

A concise description of the data, its sources, and summary statistics are provided in Table 3.6 in the Appendix.

3.3.2 Model Specification

The analysis is split into two parts. The first part explores convergence analysis using the log-t convergence and clustering tests developed by Phillips and Sul (2007, 2009). While the log-t regression improves upon the standard σ and β convergence tests, these tests remain the two

⁵The HP filter has been criticized for having to choose a smoothing parameter, as it may yield filtered data with effects that vary across the sample. Despite these critiques, this filter is commonly used throughout the literature. For an overview of HP's merits and demerits, see Hamilton (2018) or Phillips and Shi (2021).

⁶The Political Stability indicator from WGI captures perceptions of the likelihood of political instability, including terrorism. It initially ranges between -2.5 and 2.5, but we re-scale it to range between 0 and 1, with high values indicating political stability.

intensively used concepts in the literature and their results are broadly compatible with the log-t test results. We therefore conduct the weak sigma and unconditional β convergence tests as robustness checks. In the second part of the analysis, the study tests fiscal (un)sustainability in identified convergence clubs.

Log-t convergence and clustering tests

We test for fiscal convergence in African RECs by applying the log-t convergence test introduced by Phillips and Sul (2007, 2009), henceforth P&S, and made applicable in the Stata package by Du (2017). This approach uses a nonlinear time-changing factor model that has several advantages over the σ and β tests. First, it allows for country heterogeneity (Du, 2017). Second, it does not impose any assumptions concerning trend stationarity or stochastic nonstationarity and is therefore robust to the stationarity property of the variable of interest (Akram and Ali, 2021; Brock and Taylor, 2010; Friedman, 1992). Another often discussed subject in convergence research is the possibility of convergence clubs. Previous research often separated all countries into subgroups based on some previous knowledge (e.g., geographical region, institution), and then evaluated the convergence hypothesis separately for each category. The log-t test developed by P&S incorporates endogenous club clustering via a relative transition parameter method (Du, 2017).

P&S build upon the neoclassical growth model by allowing for time-heterogeneous technology. This approach differs from other methods in that transitional divergence is treated as a possible outcome that does not preclude growth convergence. As a result, the actual transition path of the log of per capita income takes the following functional form:

$$\log y_{it} = \log \tilde{y}_i^* + \log A_{i0} + [\log \tilde{y}_{i0} - \log \tilde{y}_i^*] e^{-\beta_{it} t} + x_{it} t \quad (3.1)$$

where y_{it} is the real income per capita of country i at time t ; \tilde{y}_{i0} and \tilde{y}_i are the initial and steady-state levels of income per capita respectively; A_{i0} is the initial technology level and

β_{it} is the speed of convergence. The output growth rate x_{it} and convergence parameter β_{it} vary across countries capturing heterogeneity over time. To capture the common and country-specific components, equation 3.1 is rewritten as:

$$\log y_{it} = \alpha_{it} + x_{it}t \quad (3.2)$$

where $\alpha_{it} = \log \tilde{y}_i^* + \log A_{i0} + [\log \tilde{y}_{i0} - \log \tilde{y}_i^*]e^{-\beta_{it}t}$ and $x_{it}t$ are assumed to contain some elements that are common across countries μ_t . Equation 3.2 can further be rewritten as:

$$\log y_{it} = \left(\frac{\alpha_{it} + x_{it}t}{\mu_t} \right) \mu_t = \beta_{it} \mu_t \quad (3.3)$$

In this paper, we consider fiscal convergence instead of convergence in per capita income. Equation 3.3 captures the common component μ_t and time-varying individual transition effect β_{it} , which measures the heterogeneous transition path of country i to μ_t . If the country converges to μ_t , the individual transition coefficient β_{it} converges toward β as $t \rightarrow \infty$. The common factor is unobservable; hence, P&S chose a formulation to eliminate it from the estimation. They do so by considering the relative transition coefficient h_{it} , given by:

$$h_{it} = \frac{fiscal_{it}}{N^{-1} \sum_{i=1}^N fiscal_{it}} = \frac{\beta_{it}}{N^{-1} \sum_{i=1}^N \beta_{it}} \quad (3.4)$$

where $fiscal_{it}$ is a measure of countries' fiscal variables (government revenue, debt or expenditure ratio) and h_{it} traces out the transition path of individual country i relative to the panel mean at time t . Countries converge when the relative transition coefficient approaches unity. Alternatively, relative transition curves can be utilized to estimate a measure for the panel from the common limit with the following transformation:

$$H_t = \frac{1}{N} \sum_{i=1}^N (h_{it} - 1)^2 \quad (3.5)$$

Countries converge when H_t approaches zero over time. P&S developed a log-t regression to test the null of convergence as follows:

$$\log \frac{H_1}{H_t} - 2\log(\log t) = \alpha + \gamma \log t + v_t \quad (3.6)$$

We follow the suggestion by P&S and Du (2017) and filter out the cyclical component of the data using Hodrick and Prescott (1997) filter⁷, and discard the first 30 percent of observations because 0.33 is preferred when $T \leq 50$. The test for fiscal convergence is interpreted by evaluating the significance and sign of γ . Negative and statistically significant γ implies fiscal divergence. $0 \leq \gamma < 2$ indicates conditional convergence, and if $\gamma \geq 2$, there is absolute convergence in levels. The critical value at a 5 percent significance level is ± 1.65 .

Club clustering is initiated when the log-t test null hypothesis of convergence is rejected. P&S illustrate the iterative procedure for detecting clubs in detail as follows. (i) Countries are ranked in descending order. (ii) The log-t test is applied, and a core group is established based on the highest value of t statistic while the rest of the countries form the complementary group. (iii) Countries from the complementary group are individually added to the core group, and the convergence test is applied. If $t > -1.65$, the country joins the core group. When all countries that meet the criterion are admitted to the core group, the first club is established. (iv) The remaining complementary countries are tested for convergence, and if $t > -1.65$, a second club is formed. If not, steps (i) to (iii) are repeated on the group of remaining countries to identify other convergence clubs. Each club must have at least two countries. Some countries may not converge with others at the end of the clustering process, forming a divergent group. To minimize the number of clubs, they are also tested for merging using the log-t test. Club 1 and Club 2 are merged if the null hypothesis is accepted. They form a new Club 1, which is tested for merging with Club 3.

⁷See section 2.3.1 for the discussion on the choosing a smoothing parameter with HP filter.

We first test for convergence by applying the log-t regression on the predetermined RECs without the clustering algorithm, and after report the results of identified and merged clubs.

Fiscal Reaction Function for the debt sustainability analysis

To assess fiscal sustainability, we build on the fiscal policy reaction function developed by Bohn (1998, 2008) as specify our empirical model as follows:

$$Pb_{it} = \beta_0 + \beta_1 Pb_{it-1} + \beta_2 Debt_{it-1} + \beta_3 Interact_{it} + \beta_j X_{jit} + \mu_i + \gamma_t + \epsilon_{it} \quad (3.7)$$

where indices i and t denote countries and years, respectively. Pb is the primary balance to GDP ratio and $Debt_{it-1}$ is the one year-lagged debt-to-GDP ratio. $Interact$ is an interaction term between the debt ratio and a dummy variable that takes the value of 1 if a country belongs to a monetary union (i.e., WAEMU, CEMAC, or the Rand zone), and 0 otherwise. X denotes a set of predicted determinants of primary balance, including output and expenditure gap. μ_i are fixed effects to account for unobserved country differences (complemented in some specifications by time-fixed effects to capture time-specific shocks affecting all countries, γ_t) and ϵ_{it} capture measurement errors and random shocks.

The coefficient of interest β_2 measures the reaction of primary balance to higher public debt. Fiscal policy is sustainable if a statistically significant value of this parameter is positive and lies within the range of zero and unity. According to the government's inter-temporal budget constraint, this implies that the government increases taxes or reduces spending in reaction to debt accumulation. Alternatively, fiscal policy unsustainability is implied when this coefficient is negative.

The estimation of equation 3.7 needs to consider two possible sources of endogeneity. First, the lagged primary balance might be correlated with the country-specific Fixed Effects (FE) or some of the regressors. Second, the output gap may be correlated with fiscal policy

shocks and other explanatory variables. Furthermore, including fixed effects in our models is necessary since the set of N individuals is drawn specifically from African countries and is therefore not random.

A possible solution is the system GMM estimator invented by Blundell and Bond (1998). However, Roodman (2009) only recommends GMM estimators to “small T , large N ” panels. If T is relatively large, dynamic panel bias becomes insignificant, and the FE estimator works (Roodman, 2009). Therefore, we start with the FE Instrument variable (FE-IV) estimation in the main regressions to avoid endogeneity problems with the lagged dependent variable and robust standard errors to counter heteroscedasticity, cross-sectional dependence, and serial correlation.⁸ As a robustness check, we employ the system GMM estimator using forward orthogonal deviations, which are more suited for panels with gaps (Roodman, 2009). While the two-step system GMM estimator is documented as superior to IV models, we estimate our regressions using the one-step version as it is more reliable in small samples (Blundell et al., 2001; Roodman, 2009). To avoid the problem of instrument multiplication which lowers efficiency in finite samples, we employ the collapse command and limit the number of lags as recommended in Roodman (2009).

3.4 Results and Discussions

Section 3.4.1 discusses the log- t convergence test results. We compare our results with the weak σ and unconditional β convergence tests as a sensitivity analysis. In Section 3.4.2, we discuss the results of the debt sustainability test.

⁸The findings of our diagnostic tests are as follows: (i) The Hausman test favors the FE model; (ii) Pesaran (2015) test finds evidence of cross-sectional dependence; and (iii) The model also tests positive for serial correlation and heteroskedasticity.

3.4.1 Fiscal convergence results

Figures 3.1 and 3.2 and Table 3.1 present the log-t test results for all the sub-samples tested. The sub-samples include the African Economic Community (AEC, 52 countries), RECs with macroeconomic programs (EAC, COMESA, ECOWAS, and SADC), the proposed WAMZ, and the Tripartite, and the CFA Franc zones (individually and combined). While fiscal deficits is the commonly used indicator to assess the stance of fiscal policy, the decision to follow the approach of analyzing convergence of government revenue, expenditures and debt separately is inspired by the work of Arčabić (2018) who argues that analyzing revenues and expenditures separately gives you a better understanding of the source of asymmetry in fiscal divergence.

The relative transition curves in Figures 3.1 and 3.2 indicate the absence of absolute convergence in public debt, government revenues and expenditures since they do not tend to 1 in the observed period. On the contrary, the curves are dispersed at the start and end of the sample. This conclusion is further supported by the γ coefficients and the corresponding t-statistics from the log-t tests presented in Table 3.1. The lack of absolute convergence aligns with the outcome obtained in Gammadigbe et al. (2018) and Tapsoba et al. (2019), who find strong evidence that African countries are divergent in terms of fiscal stances, including debt-to-GDP ratios.

However, we find strong evidence of conditional convergence ($0 \leq \gamma < 2$) for government debt in all the sub-samples tested and weak evidence of absolute convergence in some RECs. Indeed, $\gamma \geq 2$ for government debt in WAEMU (column 2), the joint CFA zone (column 4), WAMZ (column 6), and EAC (column 8) confirming weak evidence of absolute convergence. While the results of previous convergence analyses in the CFA monetary zone area (individually and combined)⁹ were mixed with consecutive periods of convergence and

⁹See for example Asongu (2014); Cabrillac and Rocher (2013); Mpatswe et al. (2011); N'Kodia (2011); Sarr and Ndiaye (2011); Tanimoune and Plane (2005).

Table 3.1 Log t fiscal convergence test

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	AEC	WAEMU	CEMAC	CFA zone	ECOWAS	WAMZ	SADC	EAC	COMESA	Tripartite
Log (t) Revenue										
γ	0.110	0.787	0.841	1.393	-0.562*	-1.683*	-0.196*	0.031	0.005	-0.252*
t-stat	1.280	4.498	1.748	4.941	-5.604	-5.739	-2.419	0.058	0.032	-3.697
Log (t) Debt										
γ	0.969	3.233	1.468	2.309	1.896	2.346	0.568	2.987	-0.301	-0.010
t-stat	8.578	8.695	6.746	7.637	11.956	7.920	4.723	9.806	-1.366	-0.048
Log (t) Expenditure										
γ	0.036	0.638	-0.179	-0.331	-0.058	-2.396*	-0.456*	0.995	0.267	-0.083*
t-stat	0.938	14.005	-0.607	-1.529	-1.387	-5.800	-5.378	3.747	3.188	-1.769

Notes: * denotes rejection of convergence at 5% level. A statistically significant $\gamma < 0$ implies divergence, $0 \leq \gamma < 2$ means conditional convergence and $\gamma \geq 2$ is evidence of absolute convergence.

divergence, the log-t tests confirm conditional convergence in all the fiscal variables (columns 2 to 4).

Concerning the convergence of revenues and expenditures, we find evidence of conditional convergence in most of the RECs, except for ECOWAS (column 5), WAMZ (column 6), SADC (column 7), and the proposed Tripartite (column 10). The club convergence patterns in Table 3.2 also show strong divergence patterns of a few countries in these RECs. These findings are comparable with existing convergence literature, which has often documented inconclusive evidence supporting convergence in these RECs. For example, the literature finds Liberia and Nigeria diverging from the other countries in ECOWAS and WAMZ. Coulibaly and Gnimassoun (2013) even proposes the exclusion of Nigeria in the proposed WAMZ. While convergence results from EAC (column 8) are encouraging, previous findings show that the proposed East African Monetary Union is unfeasible due to a lack of policy synchronization in the region (Asongu, 2014; Asongu et al., 2017; Lepetit et al., 2015; Mafusire and Brixiova, 2013).

As for SADC, studies that have attempted to analyze the feasibility of the proposed monetary union generally recommended selective clustering due to the evident asymmetries in the economic performance of these countries (Jefferis, 2007; Mhambi and Mishi, 2019; Pindiriri and Zhou, 2021). In COMESA, we only find evidence of conditional convergence in the fiscal variables (column 9), which concurs with previous conclusions that document a

Table 3.2 Club classification

	(1) AEC	(2) WAEMU	(3) CEMAC	(4) CFA zone	(5) ECOWAS	(6) WAMZ	(7) SADC	(8) EAC	(9) COMESA	(10) TFTA
Revenue										
Club 1	0.110 [52] 1.280	0.787 [8] 4.498	0.841 [6] 1.748	1.393 [14] 4.941	0.028 [14] 0.447	1.019 [4] 2.303	0.186 [14] 3.332	0.031 [5] 0.058	0.005 [19] 0.032	-0.093 [25] -1.155
Divergent					Nigeria	Liberia Nigeria	Lesotho			Sudan
Debt										
Club 1	0.969 [52] 8.578	3.233 [8] 8.695	1.468 [6] 6.746	2.309 [14] 7.637	1.896 [15] 11.956	2.346 [6] 7.920	0.568 [15] 4.723	2.987 [5] 9.806	-0.301 [19] -1.366	-0.010 [26] -0.048
Expenditure										
Club 1	0.036 [52] 0.938	0.638 [8] 14.005	-0.179 [6] -0.607	-0.331 [14] -1.529	-0.058 [15] -1.387	-2.198 [2] -1.375	-0.030 [13] -0.375	0.995 [5] 3.747	0.267 [19] 3.188	0.324 [4] 1.582
Club 2						4.412 [2] 2.537				0.545 [22] 4.470
Club 3						-1.000 [2] -1.022				
Divergent							Lesotho Madagascar			

Note: [] represent the number of countries in the club. We only present final club classification after club merging.

lack of absolute convergence in fiscal variables (Asongu et al., 2017; Carmignani, 2006). Our findings for the proposed tripartite (column 10) show a divergent trend in government revenue and expenditure and weak conditional convergence in debt ratios. For example, Sudan is found to diverge from the rest of the countries regarding government revenue. Previous literature on the combined region has only focused on the welfare gains of the tripartite and not the convergence of countries.

For comparison purposes, we conduct the weak σ and unconditional β convergence tests which are presented in Figures 3.3 and 3.4 for the σ test and Figure 3.5 for the β test respectively. The σ tests do not show evidence of convergence in the fiscal variables as the results are mixed with consecutive periods of convergence and divergence. In the Eastern and Southern regions (i.e., EAC, COMESA, SADC, and the tripartite in Figure 3.3), only EAC shows a decline in standard deviation after 2010, and this trend seems to reverse after 2020. In the West African region (i.e., WAEMU, CEMAC, ECOWAS, and WAMZ in Figure 3.4), government debt shows noticeable signs of sigma convergence across the RECs after 2005, coinciding with the completion of the HIPC initiative, and after that remains constant until 2020.

Furthermore, Figure 3.5 presents the scatter plots of initial government debt level and debt growth rate between 1995 and 2021, similar to the unconditional β convergence test. The graphs for each REC slope downwards, implying convergence in government debt in the RECs as in the standard β convergence test.

Despite the convergence frameworks for the RECs being broadly similar (see Table 3.4), the convergence results show that macroeconomic convergence programs and monetary zones indeed support fiscal convergence as seen by the presence of conditional convergence for the monetary zone areas. There are various reasons why monetary zones outperform RECs in terms of fiscal convergence. First, in monetary zones members lose their monetary sovereignty by accepting a common exchange rate system therefore laying the stage for the fiscal convergence process (Tapsoba et al., 2019). Second, as part of regional attempts to coordinate economic policies and to avoid conflicting goals when conducting the common monetary policy, the convergence requirements in monetary zones are rigorously monitored than in other RECs therefore streamlining public finances. However, one question that arises from this analysis is why there is persistent divergence in government revenues and expenditures in the other RECs.

Most African countries have open economies with varying growth and population sizes and their foreign exchange earnings are based on primary products. Furthermore, despite being geographical close, the member states of a REC are naturally unevenly endowed. As such, countries may comply the fiscal deficit criteria, but divergence results from the lack of coherence in business cycles, as demonstrated by the Darvas et al. (2005) study. A quick cast on the convergence frameworks of the RECs reveals a big challenge in the adherence of the convergence criteria set by each REC, especially the public debt and inflation criteria. This might be ascribed to disparities in member states' economic foundations and vulnerability to external shocks that impact prices and public expenditure patterns, as well as insufficient revenue mobilization due to inefficiencies in tax collection and administration (Olowofeso

et al., 2021). For example, the 2014/2015 fall in commodity prices had a negative effect on commodity exporting countries' export revenues, resulting in these countries' current account deficits widening. Furthermore, net oil exporters also face a period of recession from 2017 resulting from a drop in global oil prices. The endless cycle of fiscal deficits results to accumulating debt and inflationary pressures.

In conclusion, the differences in fiscal stances in the existing RECs are still substantial, a finding often confirmed in the literature. Considering the great differences in social and economic backgrounds, fiscal policy harmonization could take too long to converge. This is against ambitious goals that envisage currency unions in these RECs.

3.4.2 Fiscal (Un) Sustainability

This section presents the main results and robustness checks for the fiscal sustainability analysis in Table 3.3. Model 1, the benchmark model, comprises the whole sample and the interaction term between public debt and monetary union dummy variable. Gammadigbe et al. (2018) and Tapsoba et al. (2019) demonstrate that monetary unions are the most efficacious forms of integration in furthering fiscal convergence between countries compared to RECs. This is also confirmed in our convergence results discussed in the previous section, where we find stronger evidence of fiscal convergence in the CFA monetary zone. Consequently, this implies more stringent control of public finances than in other RECs. A positive and statistically significant value of this interaction term implies a better fiscal response to increases in public debt in the monetary union and validates this hypothesis.

Columns 1 and 2 are the baseline specifications for the benchmark and test models. In columns 3 and 4, we re-estimate the models with CAPB as the dependent variable, while in columns 5 and 6, the models are re-estimated using the system GMM estimator. The baseline models check against various diagnostic tests, such as the Kleibergen-Paap test for weak instruments and the Sargan-Hansen test for over-identifying restrictions.

Table 3.3 Main Results and Sensitivity tests of the Fiscal Sustainability analysis

Variables	Baseline: Dep. Variable		Robustness: Dep. Variable		GMM: Dep. Variable	
	Logged Primary balance		Logged CAPB		Logged Primary balance	
	(1)	(2)	(3)	(4)	(5)	(6)
	Benchmark	Monetary zone	Benchmark	Monetary zone	Benchmark	Monetary zone
Logged primary balance (t-1)	0.248* (0.128)	0.500*** (0.096)	0.372*** (0.080)	0.320*** (0.113)	0.532** (0.201)	0.892*** (0.139)
Logged public debt (t-1)	0.031** (0.012)	0.023** (0.010)	0.067** (0.028)	0.075** (0.036)	0.044** (0.016)	0.018*** (0.005)
Output gap	0.788 (0.487)	0.133 (0.124)			-0.086 (0.367)	0.043 (0.441)
Logged GDP growth			0.169 (0.122)	0.388** (0.155)		
Debt*monetary zone	-0.002 (0.016)		0.060 (0.047)		0.001 (0.004)	
Expenditure gap	-0.201*** (0.052)	-0.238*** (0.045)	-0.533*** (0.135)	-0.925*** (0.229)	-0.153*** (0.057)	-0.265*** (0.079)
Logged current account balance	0.322*** (0.099)	0.150*** (0.049)	0.879*** (0.324)	0.482* (0.256)	0.324** (0.159)	0.093 (0.056)
HIPC dummy	0.019 (0.016)	0.027* (0.015)	0.087** (0.038)	0.043 (0.057)	0.025 (0.021)	0.008 (0.007)
Political stability	0.123*** (0.045)	0.097 (0.037)	-0.033 (0.091)	0.025 (0.120)	0.306** (0.150)	0.025** (0.011)
IMF program	0.026*** (0.007)	0.016 (0.011)	0.077*** (0.023)	0.082 (0.051)	-0.002 (0.019)	-0.002 (0.008)
Logged Inflation rate	0.019** (0.007)	-0.011 (0.092)	0.036** (0.018)	0.049 (0.303)	-0.002 (0.032)	-0.021 (0.082)
Constant	1.217* (0.688)	1.187** (0.541)	-3.608** (1.631)	-2.487 (1.835)		
Observations	1,107	391	933	347	1,147	406
Number of countries	52	18	52	18	52	18
No. of instruments					26	14
Country Fixed Effects	Yes	Yes	Yes	Yes	No	No
Time Fixed Effects	Yes	Yes	Yes	Yes	No	No
R-squared	0.254	0.619	0.563	0.576		
Kleibergen-Paap LM stat	17.95	28.28	51.21	21		
Kleibergen-Paap p-value	0.000	0.000	0.000	0.000		
Hansen statistic	3.524	0.169	2.442	0.149	21.63	5.928
Hansen p value	0.172	0.681	0.295	0.700	0.155	0.313
AR1 p-value					0.018	0.009
AR2 p-value					0.109	0.081

Note: Robust standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Country FE and time FE are not reported. The F test validates the inclusion of time FE in the regression. Kleibergen-Paap LM test H0: Instruments are weak. Hansen test H0: Instruments are valid instruments.

As seen from Table 3.3, we fail to validate the hypothesis that belonging to a monetary union improves fiscal policy response to debt accumulation. The interaction variable is insignificant both in the baseline results and the sensitivity tests carried out.

We also find that fiscal policy is sustainable in the whole sample and the monetary union sub-sample. Our findings reveal that the coefficient on government debt is positive and statistically significant, indicating that over the period 1995 to 2021, governments increased primary surpluses in response to higher public deficits. Its magnitude, however, is not

economically large. The fiscal policy reaction to a unit increase in the lagged debt-to-GDP ratio is limited to about 0.03 unit change in the primary balance after including other controls. However, when we use CAPB as the dependent variable instead (columns 3 and 4), the effect is strengthened. Our results on the sustainability of fiscal policy in Africa align with the findings in existing literature (Egbuna et al., 2019; Olaoye and Olomola, 2022; Small et al., 2020).

As for the other explanatory variables, we find confirmation of the persistence of fiscal policy and the appreciation effects of political stability, inflation, and IMF and HIPC programs (positive signs). We also find evidence of the twin deficit hypothesis, i.e., better external balances are associated with improved fiscal balances) and the negative impact of the expenditure gap. We do not find convincing proof for the nature of the cyclicity of fiscal policy in our analysis, as indicated by the non-significant sign of the output gap variable in most of the specifications.

As discussed in section 3.3.2, we also examine the robustness of our conclusions by employing the system GMM estimator to rule out any potential biases that may be associated with the baseline estimator (FE-IV). Public debt remains statistically significant and broadly similar to our baseline findings regarding economic significance. Regarding the other explanatory variables, they largely keep their significance levels and signs.

3.5 Conclusions

Macroeconomic convergence criteria are often implemented as a straight-jacket to ensure sound and sustainable public finances in African RECs. This study tests the empirical merit of this assertion. Specifically, we investigate whether there is fiscal convergence and club convergence in Africa from 1995-2021. This paper contributes to the fiscal convergence literature in two ways. First, it exploits the heterogeneity in fiscal policies to empirically establish whether Africa and African RECs are fiscally converging or diverging over time.

Second, it tests the hypothesis of whether belonging to a monetary union, considered the deepest form of integration, enhances fiscal discipline, promoting public debt sustainability.

Our convergence tests reveal the following. First, we do not find strong evidence of convergence in the fiscal variables using simple sigma convergence, as the results show consecutive periods of convergence and divergence. Similarly, the superior log-t tests do not strongly support the absolute convergence of the fiscal variables. This deduction is reiterated in the relative transition curves that show the absence of convergence since they do not converge to 1 in the observed period. Nonetheless, the log-t regressions reveal strong evidence of conditional convergence for government debt in all the sub-samples tested and weak evidence of absolute convergence in some RECs (WAEMU, WAMZ, joint CFA zone, and EAC). As for government revenues and expenditure, we also find evidence of conditional convergence in most of the RECs, except for ECOWAS, WAMZ, SADC, and the proposed Tripartite. Specifically, the club clustering patterns show diverging countries in these RECs. Our conclusion of conditional convergence in government debt across the sub-samples is comparable and supported by the unconditional β -convergence tests, which show negatively sloping graphs. Additionally, we show that while convergence programs and monetary unions promote fiscal convergence, they do not necessarily promote public debt sustainability, as the interaction term between public debt and the monetary union dummy variable remains statistically insignificant. Nonetheless, fiscal policy is found to be sustainable across all the specifications.

The findings have imperative inferences for integration initiatives in African RECs and their participation in the proposed African Monetary Union, which has recently been renewed with the establishment of the AfCFTA. Our main results show persistence in the divergence of government revenues and expenditures. This might be explained by the fact that these nations have distinct homogeneous export structures that make them susceptible to outside shocks (Olowofeso et al., 2021). Given these insights, one important policy action that the

RECs need to consider is strengthening fiscal consolidation measures to improve the primary balance to enhance fiscal convergence. The paper also takes note of the consistent breach by most member states of the public debt criteria set by the respective RECs, reiterating the need for fiscal consolidation during the coming years and strengthening the RECs' compliance frameworks. On the brighter side, we note a significant degree of homogeneity in the club clustering patterns, i.e., similar countries tend to form similar clubs. These findings are positive, especially in the context of hope for a future African monetary Union.

Appendix

Figure 3.1 Relative transition paths: East and Southern Africa region.

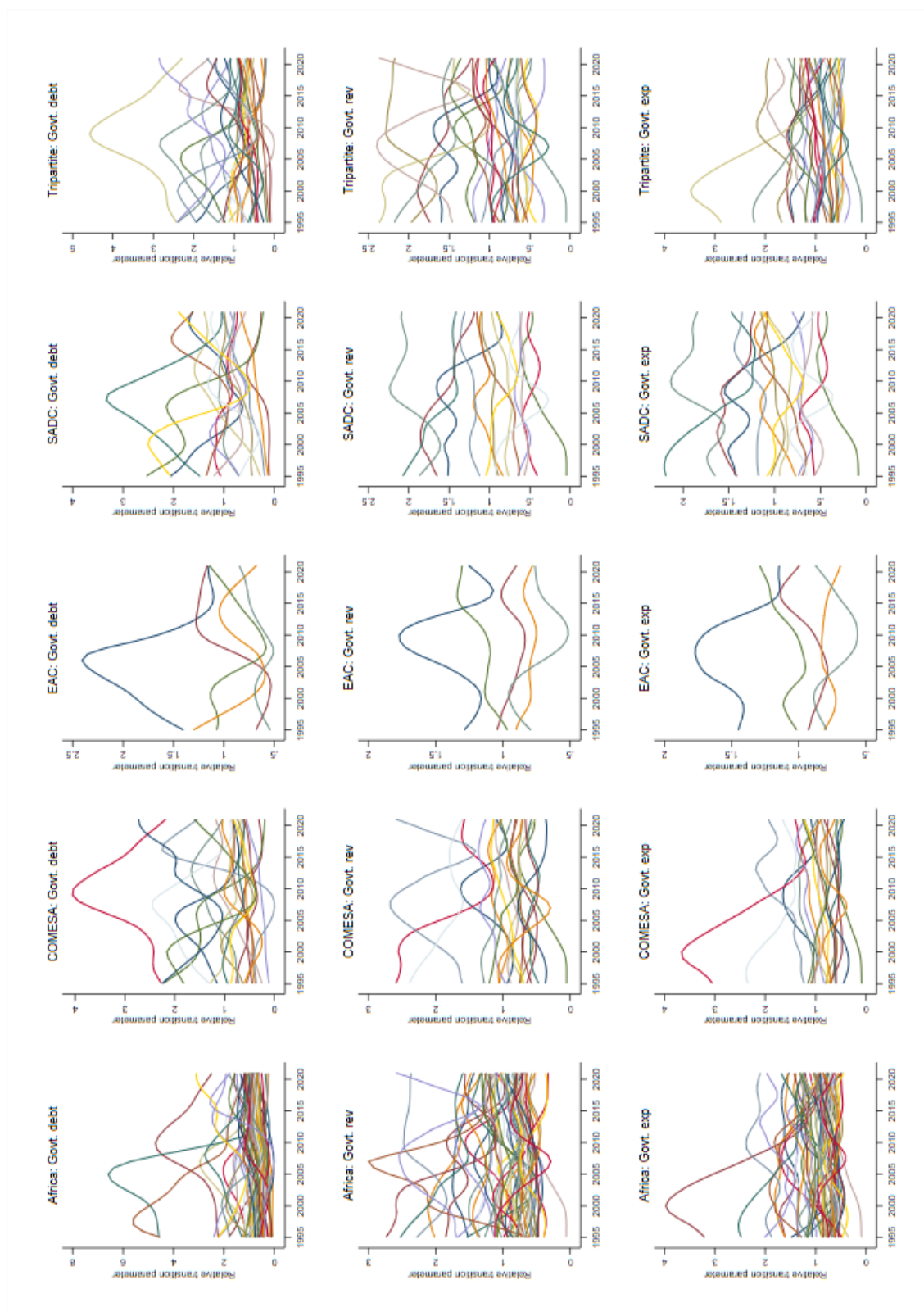


Figure 3.2 Sigma convergence results: West African RECs.

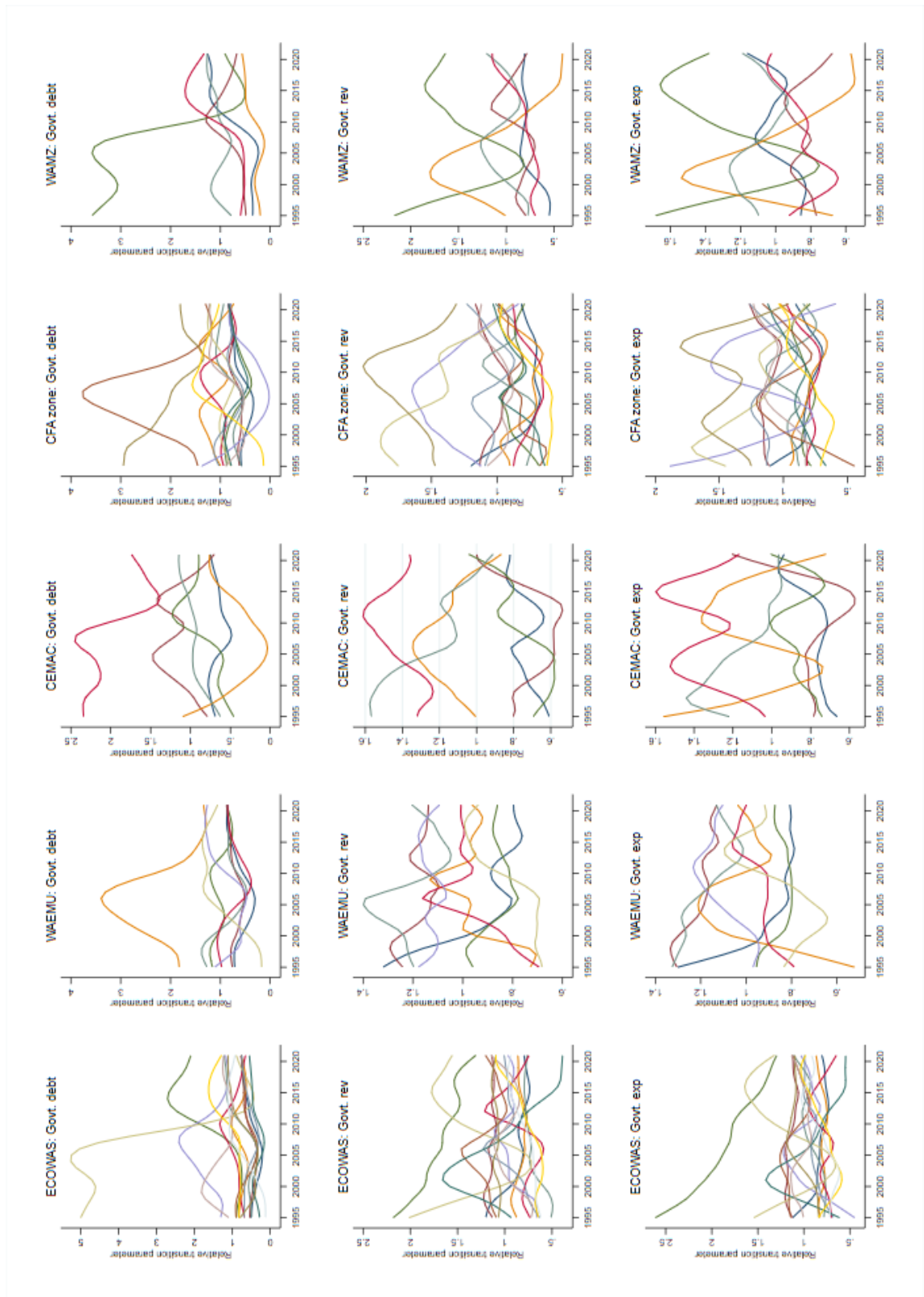


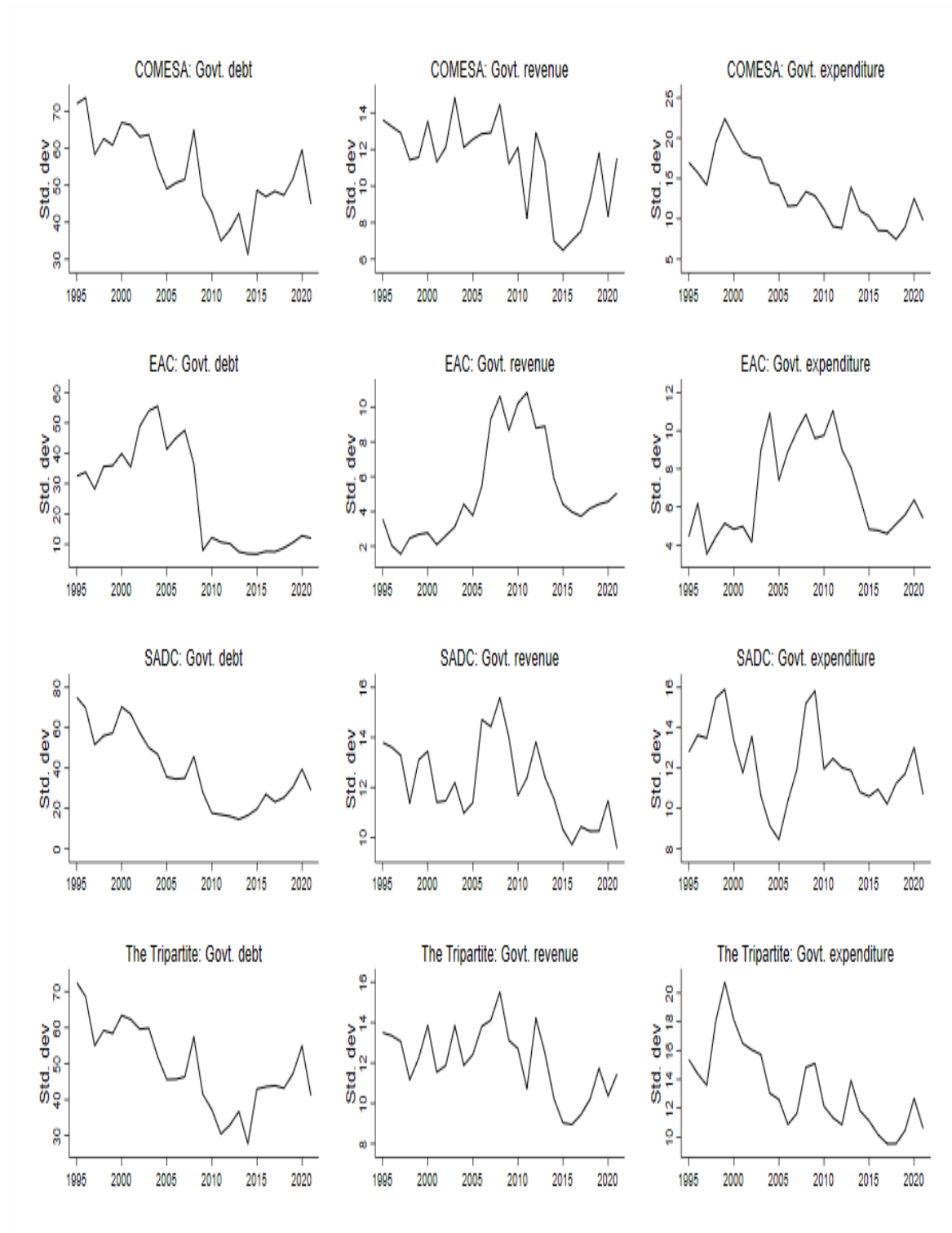
Figure 3.3 Sigma convergence results: East and Southern Africa region.

Figure 3.4 Sigma convergence results: West African region.

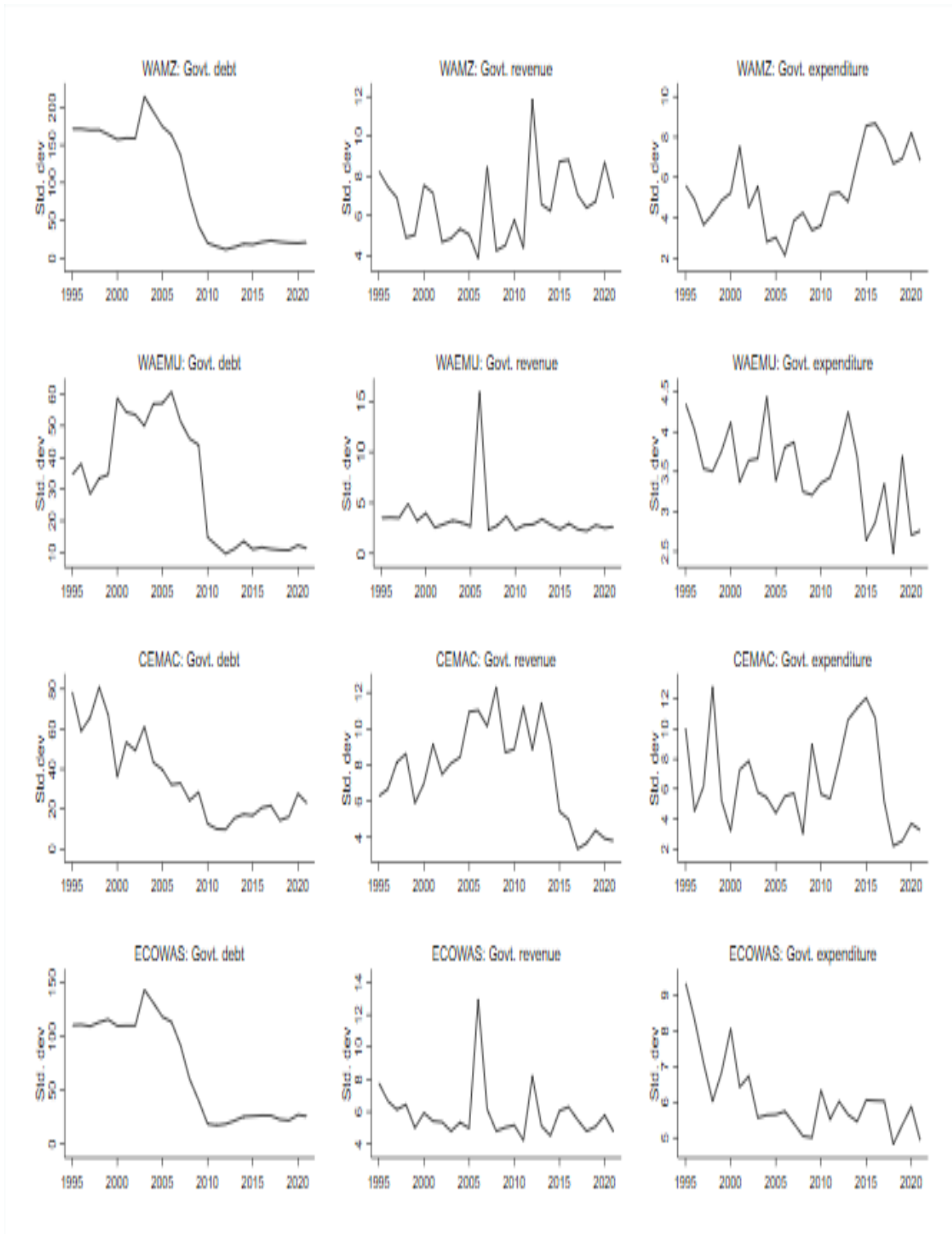


Figure 3.5 Beta convergence in Government debt.

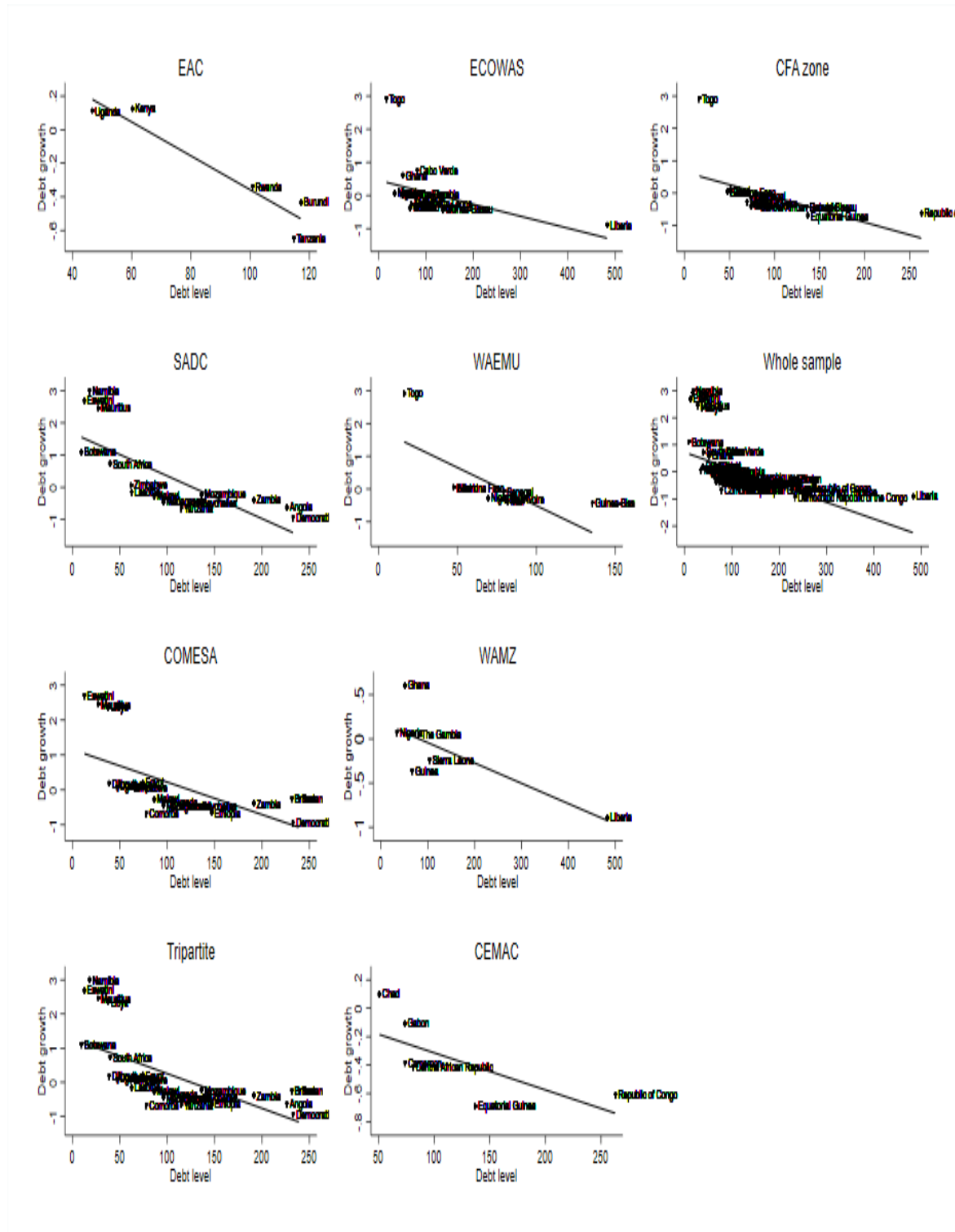


Table 3.4 Overview of Regional Economic Communities in Africa

REC	Type	Member countries	Year	Macroeconomic convergence program
ECOWAS	REC	Benin, Burkina Faso, Cape Verde, Cote D'Ivoire, Ghana, Gambia, Guinea, Guinea-Bissau	1975	Macroeconomic convergence program since 2002 and revised in 2012:
	CU (project)	Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo		Average Inflation $\leq 5\%$ Fiscal deficit ratio $\leq 3\%$ Public debt ratio $\leq 70\%$ Gross Reserves ≥ 3 months of imports Central Bank financing of budget deficit $\leq 10\%$ of previous year's tax revenue
	REC	Kenya, Uganda, Tanzania, Burundi, Rwanda and South Sudan (2016)	1967	Macroeconomic convergence program since 1997 and revised in 2015:
COMESA	CU (project)	Burundi, Comoros, DRC, Djibouti, Egypt, Eritrea, Eswatini, Ethiopia Kenya, Malawi, Madagascar, Mauritius, Uganda, Zambia, Zimbabwe Rwanda, Sudan, Seychelles (2001), Libya (2005), Tunisia (2018) and Somalia (2018)	1994	Average Inflation $\leq 8\%$ Fiscal deficit ratio $\leq 3\%$ Public debt ratio $\leq 50\%$ Gross Reserves ≥ 4.5 months of imports Macroeconomic convergence program since 1993 and revised in 2012:
	REC	Angola, Botswana, DRC, Eswatini, Lesotho, Malawi, Madagascar, Mauritius Mozambique, Namibia, Seychelles, South Africa, Tanzania, Zambia, Zimbabwe and Comoros (2017)	1980	Average Inflation $\leq 5\%$ Fiscal deficit ratio $\leq 3\%$ Gross Reserves ≥ 6 months of imports Central Bank financing of the fiscal deficit limited to 0 Macroeconomic convergence program since 2004
SADC	CU (project)	Algeria, Libya, Mauritania, Morocco and Tunisia	1989	Average Inflation $\leq 10\%$ Fiscal deficit ratio $\leq 5\%$ Public debt ratio $\leq 60\%$ Gross Reserves ≥ 3 months of imports
UMA	REC	Djibouti, Ethiopia, Kenya, Somalia, Sudan, Uganda, South Sudan (2011) and Eritrea (2011)	1996	None
IGAD	REC	Angola, Burundi, Cameroon, Central African Rep., Chad, Congo Rep., DRC Equatorial Guinea, Gabon, Rwanda and São Tomé and Príncipe	1983	None
ECCAS	REC	Benin, Burkina Faso, Cape Verde, Central African Rep., Chad, Comoros, Djibouti, Egypt, Guinea-Bissau Cote D'Ivoire, Kenya, Eritrea, Gambia, Ghana, Guinea, Liberia, Libya, Mali, Mauritania, Morocco, Niger Nigeria, São Tomé and Príncipe, Senegal, Sierra Leone, Somalia, Sudan, Togo and Tunisia	1998	None
CENSAD	REC	Benin, Burkina Faso, Cote D'Ivoire, Guinea-Bissau (1997) Mali, Niger, Senegal and Togo	1962	Macroeconomic convergence program since 1994 and revised in 2015:
WAMZ	CU (project)	Ghana, Guinea, Gambia, Nigeria Sierra Leone and Liberia (2010)	1999	Average Inflation $\leq 3\%$ Fiscal deficit ratio ≥ 0 Public debt ratio $\leq 70\%$ No accumulation of domestic and external arrears Macroeconomic convergence program since 2002:
CEMAC	CU	Cameroon, Congo Rep., Gabon, Central African Rep. Chad and Equatorial Guinea	1964	A single digit average inflation Fiscal deficit ratio ≥ 0 Public debt ratio $\leq 70\%$ No accumulation of domestic and external arrears Gross Reserves ≥ 3 months of imports Central Bank financing of budget deficit $\leq 10\%$ of previous year's tax revenue

REC stands for Regional Economic Community and CU for currency union.

Table 3.5 Summary of empirical studies on convergence in African RECs

Author (s)	Period	Countries	Methodology	Feasibility	Findings
Bamba (2004)	1980-2001	WAEMU	Convergence criteria	Indifferent	Phases of convergence and divergence
Tanimoune and Plane (2005)	1994-2002	WAEMU	Convergence criteria	Yes	Improved fiscal performance
Carmignani (2006)	1980-2002	COMESA	Convergence criteria	Indifferent	Convergence in other macroeconomic variables but not fiscal variables
Buigut and Valev (2006)	1970-2002	21 East and South African countries	VAR	Indifferent	Three clusters are feasible for monetary unions.
Jefferis (2007)	1990-2002	SADC	Macroeconomic & monetary convergence	Indifferent	Selective expansion of the existing Rand zone
Tsangarides and Qureshi (2008)	1990-2004	ECOWAS	Clustering analysis	No	Dissimilar economic characteristics between WAMZ and WAEMU
Cham (2009)	1980-2005	ECOWAS	Exploratory Convergence criteria	No	Significance absence of convergence
Sarr and Ndiaye (2011)	1995-2005	WAEMU	sigma-convergence tests	Yes	Presence of convergence of fiscal variables
N'Kodia (2011)	1989-2009	CEMAC	sigma-convergence tests	Yes	Presence of convergence of fiscal variables
Semedo et al. (2012)	1980-2007	ECOWAS	HAC methods and Cluster analysis	Indifferent	Selective clustering required
Mafusire and Brixiova (2013)	1980-2010	EAC	Structural VAR	No	Lack of macroeconomic convergence
Cabrillac and Rocher (2013)	1994-2011	WAEMU and CEMAC	Convergence criteria	Indifferent	Public debt and fiscal balances have moved close together in WAEMU for but for CEMAC only debt levels
Ekpo and Udoh (2014)	2005-2010	ECOWAS	Convergence criteria	Indifferent	Yes, but at the price of monetary policy
Coulibaly and Gnimassoun (2013)	1985-2009	ECOWAS	Convergence criteria	Indifferent	WAEMU could be joined by Ghana and Gambia and to a lesser extent by Sierra Leone and Senegal but excludes Nigeria
Asongu (2014)	1981-2009	WAMZ & EAC	GMM	No	Lack of real, monetary and fiscal policy convergence.
Tapsoba et al. (2019)	1990-2015	African RECs	System GMM and panel LSDVC	Yes	African RECs significantly reduced fiscal divergence between countries and that common monetary areas are more effective in fostering fiscal convergence
Olowofeso et al. (2021)	2001-2019	WAMZ	log t convergence test	No	Strong fiscal divergence in WAMZ countries over the period and for different sub-periods considered

Table 3.6 Variable description, Data sources and Summary Statistics

Variable	Description	Obs	Mean	Std. dev.	Min	Max	Source
Government debt	General government gross debt % of GDP	1,404	69.892	71.588	0.488	789.021	WEO, IMF
Government revenue	General government total revenue % of GDP	1,404	21.594	11.288	0.637	164.054	WEO, IMF
Government expenditure	General government total expenditure % of GDP	1,404	24.099	11.895	2.147	106.062	WEO, IMF
GDP	GDP, at 2015 constant USD prices	1,404	3.52E+10	7.41E+10	1.60E+08	5.20E+11	WDI
Government final expenditure	General government final consumption expenditure in 2015 constant USD prices	1,404	1379.408	3360.014	0.063	33369.7	WDI
Output gap	GDP minus potential GDP over potential GDP	1,404	0.000	0.037	-0.442	319	Author's computation
Expenditure gap	Government expenditure minus potential expenditure over potential expenditure	1,404	0.000	0.113	-1.013	0.644	Author's computation
GDP growth	Annual percentage growth rate of GDP, at 2015 constant prices	1,315	4.242	7.500	-50.339	149.973	WDI
Current account balance	Current account balance in percent of GDP	1,399	-4.517	11.763	-124.557	84.849	WEO, IMF
Primary balance	Primary balance as a share of GDP	1,325	-0.727	7.146	-57.223	126.464	WEO, IMF
CAPB	Cyclically-adjusted balance, % of potential GDP	1,117	-2.366	4.845	-21.425	30.791	World Bank Fiscal space data
Inflation	Annual percentage change of consumer price index	1,399	16.026	137.033	-72.729	4146.01	WEO, IMF
Political stability	Index capturing perceptions of the likelihood of political instability and/or politically-motivated violence, including terrorism	1,196	-0.528	0.870	-2.848	1.283	WGI
IMF program	Dummy which equals 1 if a country is under a IMF program and 0 otherwise	1,404	0.543	0.498	0	1	IMF
HIPC	Dummy which equals 1 for the years after the completion of HIPC initiative and 0 otherwise	1,404	0.311	0.463	0	1	Author's computation

Note: Calculated with all available observations.

4

Fiscal Performance and Intergovernmental Fiscal Relations in Developing Countries

This paper investigates the effect of fiscal decentralization on public finance performance for two levels of government on a panel of 33 developing economies over the period 2000 to 2020. Using the bias-corrected Least Square Dummy Variable estimator (LSDVC), we demonstrate that fiscal decentralization could enhance fiscal performance. The main findings are as follows: First, a larger share of decentralized expenditure is associated with a stronger central fiscal balance, but this effect diminishes with increased transfer dependency of subnational governments. The findings also show that vertical fiscal imbalances and revenue decentralization undermine fiscal positions at central government level. At the subnational level, we find a U-shaped relation between revenue autonomy (measured as the subnational governments' share of tax revenues) and subnational budget deficits. Nonetheless, deficits of sub-national governments can be avoided through increased local accountability, for example, by having regional governments' executive and legislative officials locally elected.

Keywords: Fiscal Decentralization, Central Government Balance, Sub-national Balance, Developing Countries

JEL Codes: H62, H71, H77

4.1 Introduction

The trend toward more decentralized government structures since the 1980s has resulted in a situation where sub-national governments (henceforth SNG) now make a substantial contribution to public sector indebtedness (Ivanyna and Shah, 2014; Rodden, 2006). The decentralization of expenditure and revenue functions also calls for the delegation of fiscal policy-making. The latter allows for greater autonomy in debt management, tax administration, and budget execution, such that the duty for public service delivery is shared between tiers of government (Borrett et al., 2021; OECD, 2019). The research on fiscal decentralization examines both its determinants (Bodman and Hodge, 2010; Canavire-Bacarreza et al., 2017) and its effects on other economic factors such as fiscal deficits, government size and public spending composition, economic growth, inequality, governance and corruption (Martínez-Vázquez et al., 2017).

In this paper, we re-visit the relationship between fiscal decentralization and its policy-making with fiscal performance where no inferences can be drawn from the published literature, either theoretically or empirically (Martínez-Vázquez et al., 2017). We examine this relationship from a multidimensional viewpoint that recognizes fiscal performance both at the central and sub-national government levels, and also considers different measurements of fiscal decentralization. In addition, we attempt to account for the degree of SNG autonomy over fiscal policy at the subnational level, in contrast to previous analyses that have used revenue decentralization to depict SNG autonomy, a measure widely panned for failing to differentiate between the functions of the two government levels. By focusing on decentralized developing countries, we provide new evidence on whether fiscal decentralization reforms should be promoted in this group of countries where it is less advanced than in their developed counterparts.

Two strands of literature provide contradicting views of the impact of fiscal decentralization on fiscal performance. On one hand, fiscal decentralization could improve overall fiscal performance by augmenting the efficiency in public service delivery (Oates, 1972). Moreover, the geographical closeness to voters fosters accountability, as the competition at decentralized levels provides incentives for efficient provision of public services and this helps limit public sector growth (Brennan and Buchanan, 1980). On the other hand, coordination failures between central and subnational governments are likely to result in SNGs not entirely being accountable for their public financial decisions and results. Decentralization may thus exacerbate, instead of limit, fiscal imbalances and consequently endanger overall fiscal stability (Dreher et al., 2018; Guo et al., 2022; Thornton, 2009).

The empirical evidence also reports ambiguous findings, and seems to be affected by the scope of the sample, estimation methods, choice of decentralization measures and the institutional context of decentralization. For example, Neyapti (2010), Sow and Razafimahefa (2017) and Bartolini et al. (2018) find that revenue and expenditure decentralization improve general government balance, in contrast to Rodden (2002) and Escolano et al. (2012), who find that revenue decentralization worsens fiscal balances. According to Rodden (2002) and Escolano et al. (2012), revenue decentralization does not affect the primary balance, while higher expenditure decentralization worsens it (for high debt levels). Additionally, Thornton (2007) and Presbitero et al. (2014) finds no discernible impact in decentralizing revenues. Baskaran (2010) evaluates the effect on debt rather than the fiscal balance and uncovers that decentralizing expenditures greatly reduces government indebtedness, whereas decentralizing taxes has no influence. Notably, owing to data constraints, econometric cross-country work on emerging and developing economies is scarce and existing studies have focused mostly on advanced economies.

Theoretical research on SNGs, on the other hand, has linked SNG fiscal discipline to the degree of SNG autonomy over its tax resources for two main reasons. First, SNG revenue

autonomy implies greater budgetary flexibility (IMF, 2009). Second, more revenue autonomy may imply more responsibility (Asatryan et al., 2015). When SNGs have their authority to tax limited, voters and politicians tend to shift the responsibility of unhealthy fiscal positions to the central government. Although these theoretical arguments are gaining popularity, empirical evidence for these hypotheses is lacking. To the best of our knowledge, De Mello (2000), Rodden (2002), Foremny (2014), Presbitero et al. (2014) Asatryan et al. (2015) and Van Rompuy (2016) are the only studies that utilize cross-country samples to investigate the importance of revenue decentralization for SNGs fiscal performance. Their conclusions are nevertheless mixed, and only two out of these studies include developing countries in their samples.¹

Against this background, we shed more light on the relationship between fiscal decentralization and budget balances using the bias-corrected Least Square Dummy Variable estimator from a cross-country perspective. When the country dimension is moderately large, Judson and Owen (1999) demonstrates that LSDVC estimator performs better than the popular Generalised Method of Moments (GMM) estimators. Attention is focused on a sample of 33 developing countries for which public finance indicators are available for a sufficiently long period (2000 - 2020) and for at least two levels of government.

Our findings suggest that fiscal decentralization could improve fiscal performance. First, a higher share of decentralized expenditure is associated with better national fiscal performance, particularly when SNGs' transfer dependency is low. However, revenue decentralization and transfer dependency undermines the fiscal positions at the central government level. These findings are robust to a series of sensitivity analysis including: different measures of revenue decentralization and fiscal performance; use of an alternative estimators (system GMM and Fixed Effects with Driscoll-Kraay standard errors that simultaneously correct for heteroscedasticity, serial correlation and cross-sectional dependence) and analysis over

¹De Mello (2000) and Rodden (2002) conducted their analysis on a panel of developed and developing countries, while the rest of the studies limit their analysis to the Organization for Economic Co-operation and Development (OECD) and EU countries.

different sub-samples. At SNG level, we find evidence of a U-shaped relationship between revenue autonomy and SNG primary deficits, which implies that there is a degree of tax decentralization that minimizes SNG deficits. These findings are robust across different sub-samples, use of SNG deficits as a ratio of SNG spending as an alternative indicator of SNG fiscal performance and use of system GMM as an alternative estimator.

The rest of the paper is structured as follows. Section 4.2 analyzes some stylized facts, and the literature is reviewed in section 4.3. Section 4.4 presents the data and methodology. Section 4.5 discusses the estimation results and robustness checks for both the central government and sub-national levels. Section 4.6 concludes and underlines some policy implications.

4.2 Stylized Facts

This section presents stylized facts on fiscal decentralization variables, their progression over time, regional distribution, and their relation to fiscal performance using IMF's GFS data. The main findings are as follows:

Stylized fact 1: The size and financing of sub-national governments vary across countries, resulting in significant differences in vertical imbalances. First, the relative importance of different levels of government in service delivery is reflected in their size. Size can be measured in absolute terms, as in the case of the expenditure-to-GDP ratio, or more interestingly, in relative terms, as in the case of sub-national spending relative to central government spending. In terms of relative government sizes, Figure 4.1 in the Appendix suggests that SNGs tend to be smallest in sub-Saharan Africa (SSA, 25 percent), followed by Latin America and the Caribbean (LAC, 30 percent), and highest in Europe and Central Asia (ECA, 36 percent) region. It is widely accepted that the demand for public goods and services increases with income such that government spending tends to be larger in richer

countries, *ceteris paribus*. On the other hand, the average VFI presents a large dispersion, varying from 39 percent in ECA to 54 percent in LAC and 75 percent in SSA. Additionally, overall fiscal positions are worse at higher levels of VFI, as suggested by Figure 4.1.

Stylized fact 2: Expenditure decentralization has overtaken the decentralization of revenues to sub-national governments. Sub-national spending as a share of general government spending rose by 0.032 percentage points between 2000 and 2020 (Figure 4.2a), whereas the average sub-national tax revenues as a share of general government spending receded by 0.047 percentage points (Figure 4.2b). This implies either or both of the following: that own revenue sources did not keep up with the increase in sub-national spending, or transfers fell behind the widening vertical imbalances, measured as the share of SNG own spending not financed through its own revenues.

Stylized fact 3: Spending decentralization is associated with better fiscal performance at the central government level. Over the sample period, central government primary balances were higher among more decentralized countries such as South Africa, Kazakhstan, and Brazil and lower among less decentralized counties such as Afghanistan, Costa Rica, and Azerbaijan (Figure 4.3a). Moreover, increases in spending decentralization do not seem to be associated with increases in public debt (Figure 3, Panel B). SNGs' do not show any specific trend with varying degrees of decentralization (Figure 4.3b). This is not strange considering that SNGs are often constrained in their borrowing power and are generally reliant on fiscal transfers, with their spending closely related to transfer availability.

4.3 Literature Review

4.3.1 Theoretical Background

Based on the seminal works of Oates (1972) and Brennan and Buchanan (1980), a prolific literature has emerged documenting the consequences of fiscal decentralization on public

sector finances. One strand of the literature argues that fiscal decentralization could improve overall fiscal performance by providing public goods and services that match local preferences (Oates, 1972). Moreover, the geographical closeness to voters fosters accountability, as the competition at decentralized levels provides incentives for the efficient provision of public services. This helps constrain the size of the public sector (Brennan and Buchanan, 1980). This effect is robust if SNG's spending is funded by local taxation, as a stronger tax-benefit link improves local government accountability.

Another body of literature examines whether fiscal decentralization can induce coordination challenges between different tiers of government, resulting in a deficit bias in fiscal policy-making (Bird and Smart, 2002). Public finances differ significantly across government levels for several reasons. First, in terms of revenue mobilization, the tax bases that are efficient and simple to administer by local governments tend to be few and narrow (Mikesell, 2012). Non-tax revenues, on the other hand, tend to be limited in scope and revenue-generating capacity (De Mello, 2000). As a result, it becomes necessary for higher-level jurisdictions to share their revenues with SNGs in order to close the gap between their spending and revenues. Second, if budgets are to be balanced, sub-national spending is constrained by the revenue-raising capacity of SNGs and vertical and horizontal revenue-sharing.

Consequently, the composition of sub-national revenues plays a crucial role in determining the level of autonomy over expenditure management enjoyed by SNGs. For instance, local revenue mobilization is boosted when sub-national governments control important tax bases, giving them more legitimacy over these resources. Conditionality on how sharable funds are used by SNGs may diminish their autonomy in managing expenditures when they rely on revenue-sharing to support spending. In this situation, fiscal decentralization is a mere delegation. While "delegation" does not reflect the preferences of local governments, it has the advantage of increasing accountability. However,

without conditionality, revenue-sharing may also provide additional incentives for SNGs to mismanage shared funds and weaken the scope for coordination across government levels.

Another important strand of the literature, albeit pessimistic, argues that decentralization threatens fiscal sustainability through the potentially detrimental effects of partial fiscal decentralization. This term has been used in the literature by authors such as Brueckner (2009) and Borge et al. (2012) to describe situations where decentralization has materialized more substantially on the expenditure side whilst major sources of revenues are retained and controlled by the central government. Although some degree of mismatch between sub-national own revenue and expenditure is inevitable and may even be desirable (Boadway, 2008), large gaps present the risk of local governments relaxing fiscal discipline.

The common pool problem and soft budget constraint are two theoretical concepts that exemplify the partial decentralization concern. Transfers from the central government are often seen as a “common pool” of resources where the central government receives total revenues collected and uses part of it to fund SNGs’ expenditures through transfers. Since the entire population shares costs, theoretical models, such as those of Hallerberg et al. (2009) and Krogstrup and Wyplosz (2010), emphasize that local policymakers may fail to fully internalize the entire cost of local spending. This behavior can lead to overspending, relaxation of tax effort on own revenue, or deficit bias, thereby shifting part of the cost of their expenditures to the general government’s fiscal balance (Bird and Smart, 2002; Oates, 2006).

The literature on soft budget constraints also argues that the existence of high transfer dependence may make it difficult for the central government to enforce hard budget constraints on SNGs. The soft budget constraint is a concept that was first introduced by Kornai (1986) to illuminate a situation where state owned enterprises survive persistent losses since they are often bailed out by the central government in case of financial difficulties. As with state owned enterprises, local governments face the same problems: the central

governments' inability to commit not to bail out SNGs affects their incentives. Bordignon (2006), Crivelli and Staal (2013), Ter-Minassian (2015) and Goodspeed et al. (2017) provide an overview of this literature. Specifically, given SNGs' limited capacity to raise revenues, they are more likely to expect their financing gap to be bailed out by central governments, deteriorating local fiscal discipline and aggravating the transfer dependency problem among local governments (Goodspeed et al., 2017).

Against this background, the present paper aims to test the impacts of fiscal decentralization on fiscal policy performance at the central level. It further provides an empirical analysis of whether a higher autonomy over SNGs' tax resources mitigates SNG deficit bias which arises from a soft budget problem. This emphasis results from the observation that "partial" fiscal decentralization is widespread among developing countries, likely incentivizing SNGs to underutilize their tax bases at the expense of shareable national revenues (Devarajan et al., 2009).

4.3.2 Related Empirical Literature

The empirical evidence on the effect of decentralization on fiscal performance has yet to provide clear-cut results. First, due to data constraints, cross-country work is limited and primarily focuses on OECD countries (Asatryan et al., 2015; Bartolini et al., 2018; Foremny, 2014; Makreshanska-Mladenovska and Petrevski, 2019; Presbitero et al., 2014; Thornton, 2009; Van Rompuy, 2016). Nonetheless, the empirical results are inconclusive and seem to be dependent on the varying intergovernmental and institutional arrangements in these countries. Furthermore, only a few existing studies overtly deal with SNG revenue autonomy and fiscal performance. These contributions are either cross-country comparisons or are based on analyses of one country. While the former allows for more general conclusions, one is able to deduce practical issues affiliated with institutional heterogeneity across countries with the latter.

De Mello (2000) analyses data for 17 OECD and 13 developing countries from 1975 to 1995 and finds evidence of the deficit bias (at both national and sub-national governments) arising from fiscal decentralization. He finds that subnational tax autonomy generally increases subnational deficits, implying that decentralization may exacerbate soft budget constraints and coordination failures. This effect is found to be more pronounced in developing countries. In their study on 32 developing and industrial countries, Fornasari et al. (2000) show that expenditure decentralization funded by transfers is associated with a larger government sector as it is only an addition to central government spending and not a substitute. On the other hand, decentralization is negatively related to central government budget deficits. Rodden (2002) employs a dataset of 43 developed and developing countries from 1986 to 1996 and finds that higher reliance on transfers reduces the general government's overall balance and that sub-national fiscal discipline improves only when higher taxing autonomy is combined with increased borrowing autonomy of SNGs.

Basing on the argument that compounding subnational finances do not necessarily result in subnational fiscal imbalances, Baskaran (2010) employs government debt as the dependent variable using a panel of 17 OECD countries. Baskaran (2012) conducts a similar study on the same database and allows for non-linear effects. The 2010 article illustrates that expenditure decentralization considerably reduces public indebtedness, whereas tax decentralization (revenue autonomy) and vertical fiscal imbalances have no significant (linear) relation to public indebtedness. The 2012 article finds a U-shaped relationship between revenue autonomy and general government budget deficits. Still, both papers do not consider the sub-national government's budget position separately from that of the general government. Eyraud and Lusinyan (2013) demonstrate that vertical fiscal imbalances deteriorate aggregate fiscal deficits and are more pronounced in OECD countries with large horizontal imbalances. Eyraud and Badia (2013), on the other hand, shows that expenditure decentralization that is financed through transfers and/or borrowing is associated with weaker fiscal outcomes.

Based on a panel of both developing and advanced economies, Neyapti (2010) and Sow and Razafimahefa (2017) find that fiscal decentralization can strengthen fiscal discipline if the design and pace are designed to the structural and institutional characteristics of each country. These studies, however, do not confirm whether the results would hold for different subsamples since the results could be driven by the inclusion of advanced countries in their samples. Escolano et al. (2012) confirm the positive relationship between fiscal decentralization and fiscal balance for the European Union (EU) Member States, especially when the transfer dependency of SNGs is low. However, they also confirm that fiscal position appears to deteriorate with the degree of revenue decentralization.

A few studies investigate the Leviathan hypothesis (Choudhury and Sahu, 2022; Makreshanska-Mladenovska and Petrevski, 2019; Qiao et al., 2019).² Overall, these analyses demonstrate that fiscal decentralization reduces the government size but the strength of the relationship tends to depend on other institutional factors such as the level of democracy, ethnic, SNG autonomy etc.

Focusing solely on sub-national fiscal deficits, Foremny (2014) and Asatryan et al. (2015) study SNGs' budget deficits using a revenue autonomy measure based on the OECD (1999) methodology employed by (Stegarescu, 2005). Foremny (2014), using 15 EU local governments from 1995 to 2008, shows a negative relation between revenue autonomy and SNG balances in unitary states and that fiscal rules effectively constrain the excessive indebtedness. Asatryan et al. (2015) find evidence supportive of the idea that higher revenue decentralization (measured as the SNGs' share of own source tax revenues) is associated with improved sub-national government budget balances on a sample of 23 OECD countries over the period 1975 to 2000.

²The theory provides insights on the link between fiscal decentralization and the size of government. It predicts that fiscal decentralization can increase efficiency for two reasons: (i) Competition at the SNG level offers incentives for the efficient provision of public services, which helps to limit the size of the public sector; and (ii) The direct relationship between taxpayers and local authorities increases local government responsibility, and this effect is expected to be higher if local taxes are used to fund SNG spending.

Looking at single country studies, mostly from European countries, Argimón and Cos (2012) find that greater discretionary revenue-raising capacity for Spanish regions is associated with more disciplined sub-national governments. Freitag and Vatter (2008) and Schaltegger and Feld (2009) find that more autonomous Swiss cantons - in terms of their revenue independence and administrative decentralisation - are more likely to maintain balanced budgets and have minimal debt. Geys et al. (2010), Alexeev et al. (2019) and Bucci et al. (2023) also find that there are efficiency gains that come with higher revenue decentralization for the German, Russian and Italian SNGs respectively.

Other studies focus on the effects of fiscal imbalances on subnational fiscal performance. For example, Jia et al. (2021) find that higher VFI induces a form of fiscal indiscipline - a reduction of tax collection effort by Chinese cities over the period 1999 to 2009. Similarly, Koley and Mandal (2019) reveal that for every percentage point decrease in VFI, the primary deficit of Indian SNGs shrink by 15 percentage points. Di Liddo et al. (2019) demonstrate that VFI has a negative direct effect on Italian municipalities' fiscal effort, and that this effect is exacerbated in municipalities with the largest horizontal fiscal imbalances.³

According to the review of the empirical literature, some studies conclude that fiscal decentralization jeopardizes general government fiscal sustainability, while others conclude the opposite. Since each study estimates different models and utilize various datasets, the existing literature is inconclusive, implying that gathering additional evidence on this subject is indeed worthwhile. We find three major drawbacks of existing studies. First, econometric cross-country work is limited and focuses mostly on OECD countries. Second, most studies use varying variables for measuring the fiscal decentralization and might thus provide erroneous conclusions. Third, the focus on aggregate, rather than distinguishing between levels of government, might be problematic because fiscal decentralization, if it only causes inefficiencies, may not necessarily lead to worsening sub-national finances.

³Horizontal Fiscal Imbalance (HFI) occurs when there exist inequalities in the revenue raising abilities of same level of local government in different regions of a country.

4.4 Data and Methodology

4.4.1 Data

To empirically analyze the relationship between fiscal decentralization and fiscal discipline, we construct a panel dataset including 33 developing countries from various geographical locations and stages of development, spanning the period 2000 to 2020.⁴ The main data sources are the IMF's GFS and World Economic Outlook (WEO) and the World Bank's World Development Indicators (WDI). Data on institutional and political indicators come from the Database of Political Institutions (DPI) 2020 and the World Bank's Worldwide Governance Indicators (WGI). Our panel is unbalanced due to variations in the fiscal decentralization data's time series; thus, most countries are missing observations at the beginning of the sample period.

Our indicator for fiscal policy performance at the central government level is primary net lending/borrowing as a share of GDP. Three aspects of fiscal decentralization are examined in this study. (i) Expenditure decentralization (ED), measured as the share of expenditure executed by sub-national authorities in General Government (GG) expenditure; (ii) Revenue decentralization (RD) which is measured as the share of own revenues of SNGs as a proportion of GG revenue. Own revenues exclude the portion received from other levels of government or non-resident governments and international organizations; and (iii) Vertical Fiscal Imbalance (VFI), measured as the ratio of the difference between SNG's spending and own revenue.

We employ four variables from the IMF's GFS yearbook to measure the degree of decentralization. In addition to VFI and ED, we adopt two measures of revenue autonomy. RD, which considers other shared revenues and is a less stringent definition of SNG autonomy,

⁴The 2021 World Bank Group country classification by Income group was used as the criteria for country selection. The panel includes 14 countries in Europe and Central Asia, 5 Sub Saharan Africa countries, 8 from the Latin America and Caribbean region, 1 from South Asia and 5 from East and South Asia.

and tax decentralization (TD) which includes only SNG tax revenue as a ratio of GG tax revenue. However, it is widely documented that these measures do not always accurately reflect the true level of sub-national autonomy (Ebel and Yilmaz, 2002; Liu et al., 2013; Voigt and Blume, 2012). On the revenue side, for example, they fail to distinguish whether SNGs have autonomy over revenue-raising powers or whether revenues are primarily derived from grants and tax-sharing arrangements. Despite these flaws, they provide an adequate approximation of these critical aspects of subnational autonomy. We confine ourselves to RD in the baseline analysis and TD as a robustness check variable mainly because, in our sample, most countries do not have control over taxation.

For the analysis at the sub-national level, two indicators are computed to investigate the effects of revenue autonomy on SNG fiscal performance. First, we compute a measure of sub-national budgetary position as deficits denominated by total sub-national revenues as the dependent variable. Defining the dependent variable as a share of revenues measures differences in capabilities to raise government income and relates the size of deficits to the capacity of the sub-national sector.⁵ Second, we compute an indicator for sub-national revenue autonomy as the share of own-source tax revenues in total revenues at the sub-national level. Unfortunately, the classification of own-source revenues is not straightforward and may include shared taxes.⁶ Even with this, and in the presence of shared taxes, our measure of SNG tax revenues as a total revenue ratio does not overestimate the revenue autonomy. As sub-national levels of government are not uniform across countries, for consistency, the study takes the sum of local and state, and provincial levels of government where both data are available as the indicator of SNG activity.

A concise description of the data coverage is provided in Table 4.6, variable description, sources, and summary statistics in Table 4.7, and diagnostic tests in Table 4.8.

⁵This is the measure that has been used in the previous literature. A measure denominated by GDP is appropriate from a general government perspective.

⁶A categorization of the taxing power of SNGs is provided by OECD (1999) and Stegarescu (2005) but their database only covers the OECD countries.

4.4.2 Methodology

The Models

Building on the fiscal reaction function developed by Bohn (1998), we estimate a dynamic panel specification (to account for persistency in the fiscal policy) that takes the following form for the analysis at the CG level:

$$Pb_{it} = \beta_0 + \beta_1 Pb_{it-1} + \beta_j Dec_{jit} + \beta_k X_{kit} + \mu_i + \gamma_t + \epsilon_{it} \quad (4.1)$$

Where indices i and t denote countries and years, respectively. Pb is the central government's primary balance to GDP-ratio. Dec is a vector comprising, depending on the specification, spending decentralization, revenue/tax decentralization, transfer dependency (VFI), and interactions among these variables. X denotes a set of various macroeconomic, institutional, and political determinants of primary balance, including lagged gross government debt-to-GDP ratio and output gap (a proxy for cyclical conditions).⁷ μ_i are fixed effects to account for unobserved heterogeneity across countries (complemented in some specifications by time-fixed effects to capture time-specific shocks affecting all countries, γ_t) and ϵ_{it} capture measurement errors and random shocks.

The other control variables that we employ include (i) current account balance to control for the twin deficits hypothesis; (ii) age dependency ratio; (iii) trade openness to control for the effect of globalization on fiscal outcomes; (iv) a political risk variable (legislative and executive election year dummy); (v) Herfindahl index (the sum of squared seat shares

⁷We estimate the output gap for each country by applying the Hodrick-Prescott (HP) filter to decompose real GDP into trend and cyclical components (Hodrick and Prescott, 1997). Since we are working with annual data, we follow Ravn and Uhlig (2002) and set the smoothing parameter to 6.25. For an overview of HP merits and demerits, see Hamilton (2018) or (Phillips and Shi, 2021). The HP has been criticized due to the choice of the smoothing parameter, as it may generate spurious dynamics, or even generate a filtered data with properties that differ across the sample. Despite these critiques, this filter is commonly used throughout the literature. Phillips and Shi (2021) show, through machine learning techniques, that the use of the HP filter is appropriate to be applied in macroeconomics.

of all parties in the government), which measures the extent of government fragmentation. According to the literature, the more fragmented a government is the more vulnerable it is to common pool problems and fiscal indiscipline (Volkerink and De Haan, 2001). This index assumes higher values when the government is less fragmented; and (vi) corruption index as a measure of the scope of governance.⁸

In this model, we expect a positive coefficient for the lagged debt variable as long as the government responds to the existing debt stock to ensure long-term sustainability. A positive (negative) value for output gap would indicate that the fiscal policy is counter-cyclical (pro-cyclical). The impact of fiscal decentralization is, however, ambiguous *ex-ante* (as discussed before). A positive (negative) value for the estimated coefficients in β_j would indicate that decentralization improves (worsens) fiscal performance.

As mentioned above, we also analyze the role of SNG revenue autonomy for SNG fiscal balances. Consequently, our second model has SNG primary balance to revenue ratio as the dependent variable:

$$SNGbal_{it} = \beta_0 + \beta_1 SNGbal_{it-1} + \beta_2 autonomy_{it} + \beta_k X_{kit} + \mu_i + \gamma_t + \epsilon_{it} \quad (4.2)$$

The set of control variables that we employ in this specification include: lagged gross government debt-to-GDP ratio and output gap, age dependency ratio and trade openness expressed in log form, the election dummy, and central government balance. This is in line with the so-called "copycat" hypothesis, which states that SNG's fiscal good and bad times might be linked to higher-level governments Asatryan et al. (2015); Foremny (2014); Rodden (2002). We also experimented with including the squared value of the revenue autonomy

⁸The indicator control of corruption from WGI captures the perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as the "capture" of the state by elites and private interests. It initially ranges between -2.5 and 2.5 but it has been re-scaled to range between 0 and 1, with high values indicating a low level of corruption.

variable to assess potential nonlinearity in the relationship between revenue autonomy and SNG balances (Baskaran, 2012).

Estimation Method

The inclusion of fixed effects in our dynamic panel models is appropriate since the set of n individuals is not drawn at random from a larger population. Since the sample data is specifically from devolved developing countries, the fixed effects model is more appropriate for the analysis.⁹ Three issues emerge from our dynamic models described in (1) and (2) above: (i) the cross-sectional dimension of our panel is small, such that n consistent GMM estimators may be affected by severe sample bias and therefore do not seem appropriate for our analysis; (ii) as a result of the unbalanced nature of our panel, we cannot correct the within estimator by applying the bias approximation formula derived in Kiviet (1995), Bun and Kiviet (2003), and Bun and Carree (2005), which are only valid for balanced panels; and (iii) Flannery and Hankins (2013) demonstrate that Least Square Dummy Variable (LSDVC) is the most accurate estimator in the case of missing values (which is also a feature of our sample.)¹⁰

We therefore employ the bias-corrected LSDVC estimator proposed by Bruno (2005), which improves the work by Bun and Kiviet (2003) to accommodate unbalanced panels. The estimator is implemented through the Stata command 'xtlsdvc', and its performance is evaluated via Monte Carlo experiments.¹¹ In our case, the LSDVC estimator is initialized by a dynamic panel estimate (system GMM) and then relies on a recursive correction of the bias of the fixed effects estimator. The robustness section includes further estimators and specifications to provide results comparable with the literature.

⁹The Hausman test rejects the null hypothesis at one percent level of significance in favor of the Fixed Effect (FE) model. See Table 4.8 for the diagnostic tests.

¹⁰See also Escolano et al. (2012), Debrun et al. (2008), Debrun and Kinda (2017) and Cordes et al. (2015).

¹¹Bruno (2005) uses a bias-corrected estimator for $n=29$ and $t=9$ dimensions. Bruno et al. (2017) applied the estimator for $n=27$ and $t=29$. Buddelmeyer et al. (2008) showed that LSDVC is preferred for $n=20$ and $t=5$ in dynamic panels.

4.5 Empirical Results

4.5.1 Central government budget balances

Baseline Results

We present the central government budget balance results in Table 4.1 (using equation 5.1 above). Column 2 can be considered as the baseline specification. Columns 3 and 4 expand the control variables to include macroeconomic, demographic, and institutional variables, while columns 5 and 6 report the results for the specifications with interaction terms. Columns 7 and 8 replicate the specifications of columns 2 and 3 using lagged values of the decentralization variables to account for potential reverse causality and endogeneity of the fiscal decentralization variables.¹²

As can be seen from Table 4.1, spending decentralization improves fiscal performance irrespective of the model specification, in line with stylized fact 1. Nevertheless, not all aspects of decentralization are positive. First, we report evidence of coordination failures due to SNG fiscal dependency, where reliance on intergovernmental transfers by SNGs is found to worsen fiscal positions at the central government level. Second, transfer dependency also diminishes the positive impact of spending decentralization on fiscal performance (Table 4.1, columns 5 and 6). One possible explanation for this result is that when spending increases are financed by transfers from the center, subnational governments do not fully internalize the costs. These findings align with the common pool hypothesis and the conclusions arrived in the existing empirical literature (see Afonso and Hauptmeier (2009); Bartolini

¹²We acknowledge that this is not the best approach to explicitly take into account the potential endogeneity of the fiscal decentralization variables (Bellemare et al., 2017), and as such, our results should be interpreted with caution. Besides, the literature on the determinants of fiscal decentralization found no evidence of reverse causality between decentralization and fiscal performance (see Panizza (1999), Treisman (2006) or Debrun et al. (2008)). Some studies (see, for example, (Gemmell et al., 2013; Kappeler et al., 2013; Qiao et al., 2019)) have avoided potential endogeneity by taking the lags of the explanatory variables.

Table 4.1 Baseline Results: Fiscal decentralization and Central government fiscal performance

Variable	Dependent Variable: Log of central government primary balance							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Exp. decent.	0.935*** (0.186)	1.430*** (0.164)	1.616*** (0.271)	1.541*** (0.238)	2.909*** (0.463)	2.471*** (0.443)	0.867*** (0.260)	0.567** (0.223)
Rev. decent.		-1.867*** (0.386)	-2.216*** (0.365)	-2.120*** (0.385)	-2.501*** (0.421)	-2.565*** (0.456)	-1.081** (0.491)	-1.045*** (0.366)
VFI	-0.228*** (0.055)	-0.349*** (0.059)	-0.453*** (0.069)	-0.379*** (0.071)			-0.261*** (0.075)	-0.207*** (0.061)
Exp. decent.*VFI					-2.518*** (0.457)	-2.072*** (0.474)		
Ln. CG bal (t-1)	0.148*** (0.011)	0.144*** (0.013)	0.140*** (0.013)	0.402*** (0.056)	0.139*** (0.013)	0.435*** (0.055)	0.145*** (0.013)	0.429*** (0.058)
Ln. GG debt (t-1)	0.037* (0.021)	0.036* (0.020)	0.040* (0.022)	0.035* (0.019)	0.044** (0.022)	0.043** (0.020)	0.055*** (0.021)	0.057*** (0.021)
Output gap (t-1)	-0.482*** (0.169)	-0.478*** (0.166)	-0.371** (0.171)	-0.328** (0.146)	-0.491*** (0.172)	-0.410*** (0.143)	-0.532*** (0.187)	-0.390*** (0.136)
Ln. CA bal.			0.027** (0.012)	0.025** (0.011)	0.016 (0.012)	0.016 (0.011)		0.035*** (0.011)
Ln. age dependency			0.144 (0.131)	0.040 (0.144)	0.131 (0.132)	0.056 (0.142)		-0.043 (0.161)
Ln. trade			0.087 (0.066)	0.091 (0.064)	0.097 (0.066)	0.090 (0.061)		0.098 (0.072)
Election				-0.025* (0.013)		-0.026* (0.013)		-0.022 (0.014)
Herf. index				-0.009 (0.034)		0.020 (0.035)		0.002 (0.033)
Corruption				0.333** (0.167)		0.182 (0.175)		0.189 (0.183)
Observations	479	477	463	427	463	427	478	429
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

et al. (2018); Choudhury and Sahu (2022); Escolano et al. (2012); Eyraud and Badia (2013); Makreshanska-Mladenovska and Petrevski (2019)).

Third, the fiscal position appears to deteriorate with the degree of revenue decentralization. This is suggestive of coordination failures due to moral hazards in decentralized policy-making, as discussed in (Baskaran, 2012; De Mello, 2000; Escolano et al., 2012; Rodden, 2002), who obtained similar results. The results are in keeping with the theory that agency issues arise when tax bases are transferred to SNGs since the central government may not be able to supervise how effectively SNGs utilize their revenue sources. If revenue decentralization is accompanied by a loss of efficiency in revenue mobilization across government levels, then central and sub-national budget positions will likely deteriorate.

The results are robust in terms of size and statistical significance of the coefficient estimates across all specifications, even with the most extensive control variables. Employing the lags of the fiscal decentralization variables in Columns 7 and 8 keeps the conclusions of our results the same.

Before testing the robustness of our findings in the next subsection, we briefly look at the results for the control variables in Table 4.1 and limit our focus on the variables that show significant effects in most regressions. As expected, there is a significant degree of persistence in the central government budget balance. Our results are consistent with the stabilization response of budget balances to higher debt stocks. Discretionary fiscal policy tends to be procyclical, as indicated by the lagged output gap's negative and statistically significant coefficient. The positive coefficient of the current account balance supports the twin-deficit hypothesis. Although not robust, electoral cycles (legislative and executive) hurt fiscal positions, while a lower degree of corruption improves the central government's primary balances.

Robustness Checks

This section discusses several sensitivity analyses performed to check the robustness of the results reported above. We begin by re-estimating the model with the GG debt-to-GDP ratio change as a performance measure as in Baskaran (2012). This variable may be an appropriate alternative in capturing true fiscal performance, as debt increases in many developing countries exceed their fiscal deficits, particularly in times of crisis. Broadly consistent with the message in our previous results, spending decentralization reduces debt accumulation. This benefit is reduced when transfer dependency is high (Table 4.3, Columns 1 to 4). We also find that revenue decentralization and transfer dependency induce debt increases.

Second, we re-estimate equation 1 using a narrower definition of revenue decentralization, i.e., tax decentralization (see section 4.4.1). The main variables are still significant and with the expected signs (Table 4.3, Columns 5 and 6). However, the coefficient estimates of tax decentralization and VFI are noticeably lower than in the baseline specification.

Third, we test our model with the Fixed Effects estimator with Driscoll-Kraay standard errors (Table 4.3, Columns 7 and 8). The intuition behind this estimator is to deal with heteroscedasticity, serial correlation, and cross-sectional dependence that may affect estimation efficiency.¹³ For comparison purposes, we also re-estimate our models with the system GMM (Table 4.5, Columns 1 and 2). Since our results do not differ substantially, we conclude that these defects have not biased our previous results.

Finally, the panel approach raises the question of whether the results would hold for different subgroups of countries sharing some common economic characteristics or institutional arrangements. For example, Escolano et al. (2012) split their sample into subgroups of countries that joined the EU in 2004 or after that, and Foremny (2014) differentiates between unitary and federal states. The guiding criteria is membership in a specific region or countries located above or under a certain cutoff of a specific economic or institutional variable or period.

We therefore re-estimate equation 1 over sub-samples (Table 4.4). First, we split our sample into Europe and Asia, and Latin America and Caribbean (LAC) regions. We do not run regressions for the sub-Saharan sub-sample as this sample is too small. Second, we split the sample according to the extent of spending decentralization. Our estimates are generally unchanged for Europe and Asia sub-sample (Columns 1 and 2). In the case of the LAC sub-sample, decentralization variables lose their significance except for spending decentralization which seems to improve fiscal performance even in this sub-sample (Columns 3 and 4). When we split the sample according to the extent of

¹³The findings of our diagnostic tests as presented in Table 4.8 are as follows: (i) The Hausman test rejects the null hypothesis in favor of the FE model; (ii) We reject the null hypothesis of cross-sectional independence using Pesaran (2015) test; and (iii) The model also tests positive for serial correlation and heteroskedasticity.

spending decentralization, we come to the same conclusion as in the baseline analysis for the highly decentralized sub-sample (Columns 5 and 6). However, spending decentralization and its interaction term lose significance for the less decentralized sub-sample, although results still hold for the transfer dependency and revenue decentralization variables (Column 7).

4.5.2 SNG budget balances

In this section, we present in Table 4.2 the results on the role of SNG tax autonomy for SNG fiscal balances. Column 1 can be considered as the baseline model. In column 2, we allow for a non-linear relation between tax autonomy and SNG budget balances, while in column 3, we include an interaction with a dummy for state elections. In Columns 4 and 5, we replicate the specifications of columns 1 and 2 using the lagged tax autonomy.

As can be seen from Table 4.2, SNG tax autonomy shows a significantly negative association with SNG budget balances across all specifications in columns 1 through 5. This is contrary to our expectation that SNG autonomy could strengthen their fiscal accountability since sub-national governments seem to run higher fiscal balances when their share of own-source tax revenues in total revenues is relatively large (Asatryan et al., 2015; Bartolini et al., 2018; Presbitero et al., 2014; Van Rompuy, 2016). All these studies, however, are focused on the OECD and EU countries where decentralization is at an advanced level. Nonetheless, this is in line with the hypothesis of soft budget constraints. These governments believe that they are only an extension of the central government and that increasing their revenue autonomy will not prevent them from engaging in wasteful spending. Similar conclusions were reached by De Mello (2000) who found that, for his sample of developing countries, sub-national tax autonomy worsens fiscal positions at the sub-national level, and Foremny (2014), who found similar results in the OECD unitary states sub-sample.

Table 4.2 Sub-national gov. autonomy and budget balances: Dep. Variable – Sub-national deficits (% of SNG spending)

Variable	Dependent variable: SNG primary balance/SNG total revenue												
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Lagged tax autonomy			Excl. autonomy >48%			Excl. autonomy <15%			Dep. var.: Deficit % SNG spending			
Tax autonomy	-0.289*** (0.068)	-0.752*** (0.224)	-0.523*** (0.095)	-0.179*** (0.058)	-0.495** (0.201)	-0.737*** (0.223)	-0.777*** (0.129)	-0.304*** (0.090)	-0.956*** (0.232)	-0.532*** (0.119)	-1.314*** (0.277)	-4.365*** (0.963)	-2.200*** (0.376)
Tax autonomy sq.		0.615** (0.266)		0.622** (0.292)	0.402* (0.228)	0.622** (0.292)			0.847*** (0.257)			3.914*** (1.130)	
Autonomy*State_elect			0.477*** (0.132)				0.734*** (0.172)			0.473*** (0.159)			2.183*** (0.491)
SNG balance (t-1)	0.432*** (0.053)	0.403*** (0.054)	0.401*** (0.054)	0.442*** (0.054)	0.419*** (0.054)	0.398*** (0.060)	0.355*** (0.062)	0.447*** (0.063)	0.401*** (0.057)	0.415*** (0.064)	0.227*** (0.046)	0.153*** (0.047)	0.179*** (0.047)
Ln. GG debt (t-1)	0.024 (0.015)	0.022 (0.015)	0.014 (0.015)	0.027* (0.015)	0.029* (0.015)	0.024 (0.018)	0.013 (0.017)	0.025 (0.016)	0.022 (0.016)	0.013 (0.016)	0.056 (0.058)	0.026 (0.058)	0.03 (0.057)
Output gap (t-1)	-0.300** (0.118)	-0.276** (0.117)	-0.282** (0.118)	-0.280** (0.116)	-0.248** (0.119)	-0.320** (0.144)	-0.331** (0.138)	-0.281** (0.139)	-0.239* (0.140)	-0.255* (0.141)	-0.905** (0.444)	-0.771* (0.444)	-0.786* (0.448)
Ln. dependency	-0.204** (0.089)	-0.176** (0.088)	-0.147 (0.090)	-0.227** (0.090)	-0.201** (0.090)	-0.180** (0.089)	-0.134* (0.082)	-0.204* (0.110)	-0.179 (0.110)	-0.136 (0.111)	-0.607* (0.317)	-0.292 (0.317)	-0.328 (0.316)
Ln. CG balance	0.018 (0.034)	0.014 (0.034)	0.012 (0.034)	0.004 (0.035)	0.002 (0.034)	-0.012 (0.046)	-0.014 (0.043)	0.032 (0.041)	0.029 (0.041)	0.029 (0.040)	0.083 (0.127)	0.036 (0.127)	0.0512 (0.124)
Ln. trade	0.035 (0.052)	0.052 (0.052)	0.026 (0.051)	0.032 (0.052)	0.038 (0.051)	0.046 (0.045)	0.046 (0.043)	0.016 (0.053)	0.035 (0.054)	0.007 (0.053)	-0.024 (0.163)	0.138 (0.164)	-0.100 (0.168)
Election	-0.001 (0.010)	-0.001 (0.010)	-0.002 (0.010)	-0.001 (0.010)	-0.001 (0.010)	-0.002 (0.010)	-0.003 (0.010)	-0.001 (0.011)	0.000 (0.011)	-0.003 (0.012)	-0.010 (0.030)	-0.008 (0.029)	-0.009 (0.030)
Observations	449	449	449	449	449	377	377	329	329	329	425	425	425
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	No	No	No	No	No	No	No	No	No	No	No	No	No

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Note that the quadratic form of tax autonomy is significant (see columns 2 and 5), thus validating the nonlinearity hypothesis. The sign on the square is positive, whereas the base effect is negative. This points to a U-shaped relationship between tax autonomy and SNG primary balance. The optimal level of own tax as a ratio of total SNG revenues is about 61 percent. Since the average country in our sample has a tax revenue to total revenue ratio of about 27.4 percent (see Table 4.6), it is not surprising that our estimates suggest an increase in tax autonomy to reduce SNG deficits.

In Column 3, we test whether local accountability, such as when regional governments' executive and legislative officials are locally elected, mitigates the deficit bias in SNGs. The positive and statistically significant signs of the interaction variable show that the negative relation between tax autonomy and SNG balances can be constrained by local accountability. Turning to the control variables included and limiting ourselves to the variables that show significant effects, we find that the lagged output gap has a negative and statistically significant coefficient in most model specifications. This indicates that SNGs tend to take a procyclical policy stance. We notice an inertia in SNG primary balances since we get a significant coefficient for the lagged value of SNG balances in all the estimations. The results also show that the age dependency ratio is important to SNG fiscal balances.

As robustness checks, we first replicate our specifications for different sub-samples in Table 4.2, columns 6 to 10. Second, in columns 11 through 13, we define the dependent variable as deficits to SNG total spending as provided in IMF's fiscal decentralization dataset. This measure relates the sub-national sector's deficits to the size of the government and has been used in (Rodden, 2002). Finally, in Table 4.5 columns 3 to 4, we reestimate our models with the system GMM estimator for comparison purposes. Consistent with our previous results, we find that tax autonomy is associated with lower fiscal deficits at the sub-national government level and that this relationship follows a U-shaped curve. Also, some form of local accountability constrains this negative behavior, such as having local elections.

4.6 Conclusions and Policy Discussions

Despite recent advances in sample size, measurement, and methods in the literature on the relationship between fiscal decentralization and fiscal performance, there remains no consensus on the direction of the effect. Both theoretical and empirical papers present contradictory findings. Furthermore, the empirical studies are mainly focused on the advanced economies where data is evidently available. To address this theoretical and empirical ambiguity, this paper investigates the impact of fiscal decentralization on fiscal behavior from a multidimensional viewpoint that recognizes fiscal performance both at the central and sub-national government levels. By focusing on decentralized developing countries, we provide new evidence that could guide policy makers on whether to promote decentralization reforms in this group of countries where it is less advanced.

While we do not have a priori hypothesis on the impact of fiscal decentralization at the central government level, we do hypothesize that increased revenue autonomy at the subnational government level would improve SNG fiscal performance. We test these hypotheses by estimating LSDVC models initialized by a dynamic panel estimate (system GMM) on a dataset of 33 developing countries spanning the time period of 2000–2020.

Our findings show that fiscal decentralization has the potential to improve fiscal performance. First, we find that decentralizing spending strengthens the central government's finances, which aligns with the efficiency justifications for spending decentralization. However, the risks of improving expenditure decentralization are substantial when transfer dependency by SNGs is high. Transfer dependency tends to strain intergovernmental relations and deepens fiscal imbalances at the central government level. We also find that revenue decentralization undermines fiscal performance at the central government level. This finding shows that, in general, coordination failures due to agency problems that arise when revenue sources are delegated to SNGs, often lead to fiscal pressures at the sub-national level and

ultimately at the central government level (Baskaran (2012); De Mello (2000); Eyraud and Lusinyan (2013); Foremny (2014)). These findings are robust to a series of robustness checks including: alternative measures of fiscal performance and revenue decentralization; use of an alternative estimators and analysis over different sub-samples.

However, our results at the subnational government level do not hold our postulated hypothesis, where greater revenue autonomy is associated with higher SNG budget discipline. We find U-shaped relationship between revenue autonomy and SNG primary deficits, which suggests that there is some level of tax decentralization that minimizes SNG deficits. But at the same time, the empirical studies that support this hypothesis are all focused on the OECD and EU countries where decentralization is at a much advanced level. Nonetheless, this is in line with the hypothesis of soft budget constraints. These governments believe that they are only an extension of the central government and that increasing their revenue autonomy will not prevent them from engaging in wasteful spending. Results are robust to the use of different sub-samples, an alternative estimator and an alternative indicator of SNG fiscal performance.

Our study contributes to the literature on fiscal federalism, shedding light on the ambiguity in the relationship between fiscal decentralization and fiscal deficits particularly in developing countries, while distinguishing between levels of government. This has political economy implications as well, since the literature suggests fiscal decentralization as a solution to some of the factors that limit the efficiency of fiscal policy in developing countries. A closer fiscal management could help boost tax revenues while also incentivizing prompt and effective delivery of quality public goods that the population requires (Junghun et al., 2019).

Our results suggest a call for caution when advocating for fiscal decentralization in developing countries as partial decentralization may lead to deterioration in fiscal performance. In this regard, it is important to consider vertical fiscal imbalances when developing and implementing fiscal decentralization policies, with explicit safeguards in

place to guarantee effective and accountable sub-national governance. Countries with some level of accountability to the local population can benefit from fiscal decentralization –for example, by having regional governments’ executive and legislative officials locally elected.

Appendix

Figure 4.1 Relative expenditure, GG fiscal balance and VFI, by region

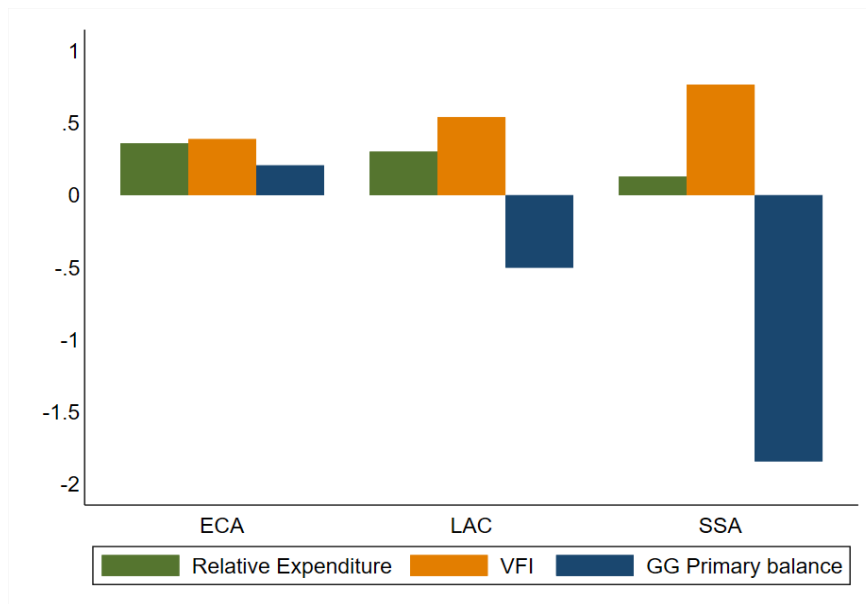


Figure 4.2 Changes Spending and Revenue Decentralization(In percent of general government spending)

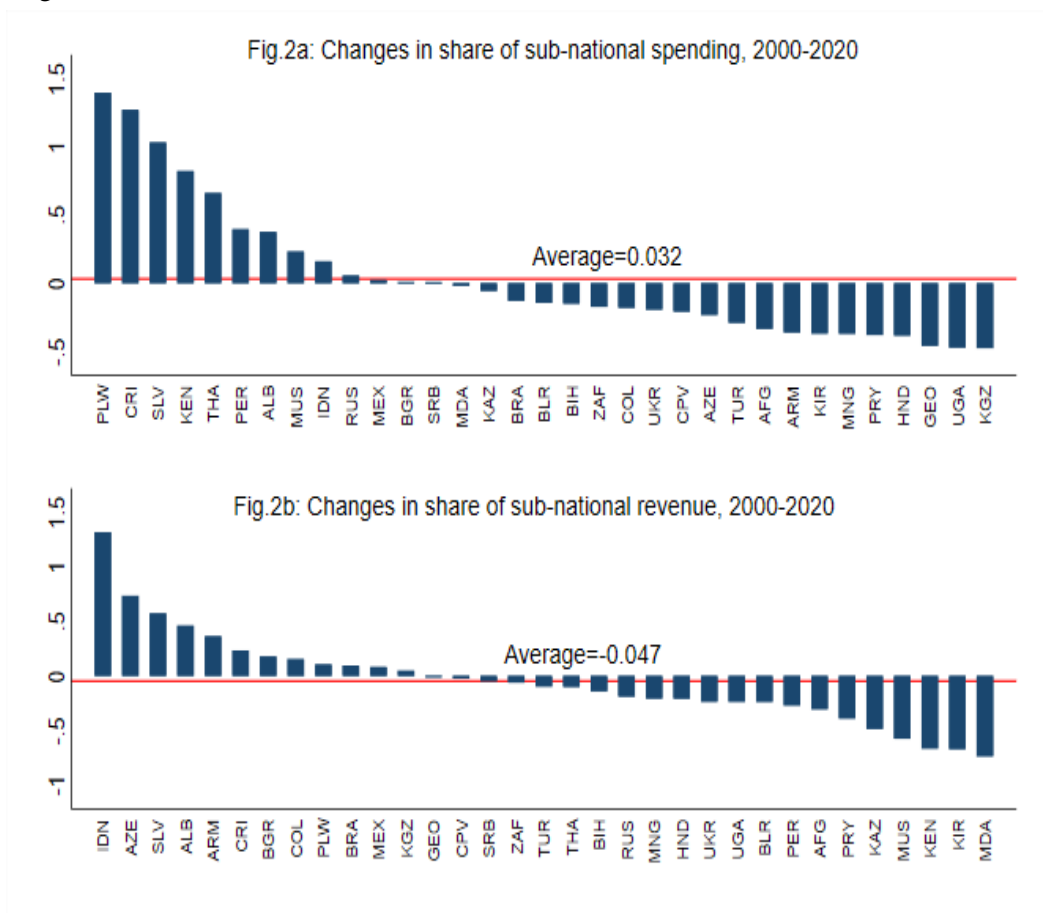
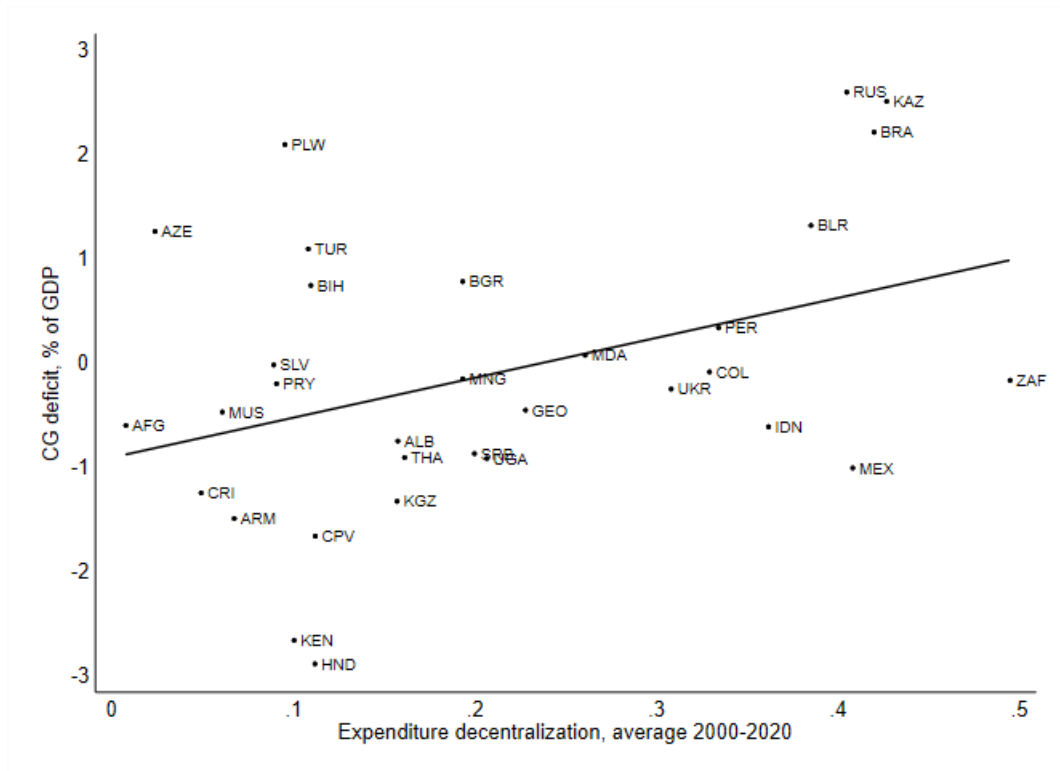
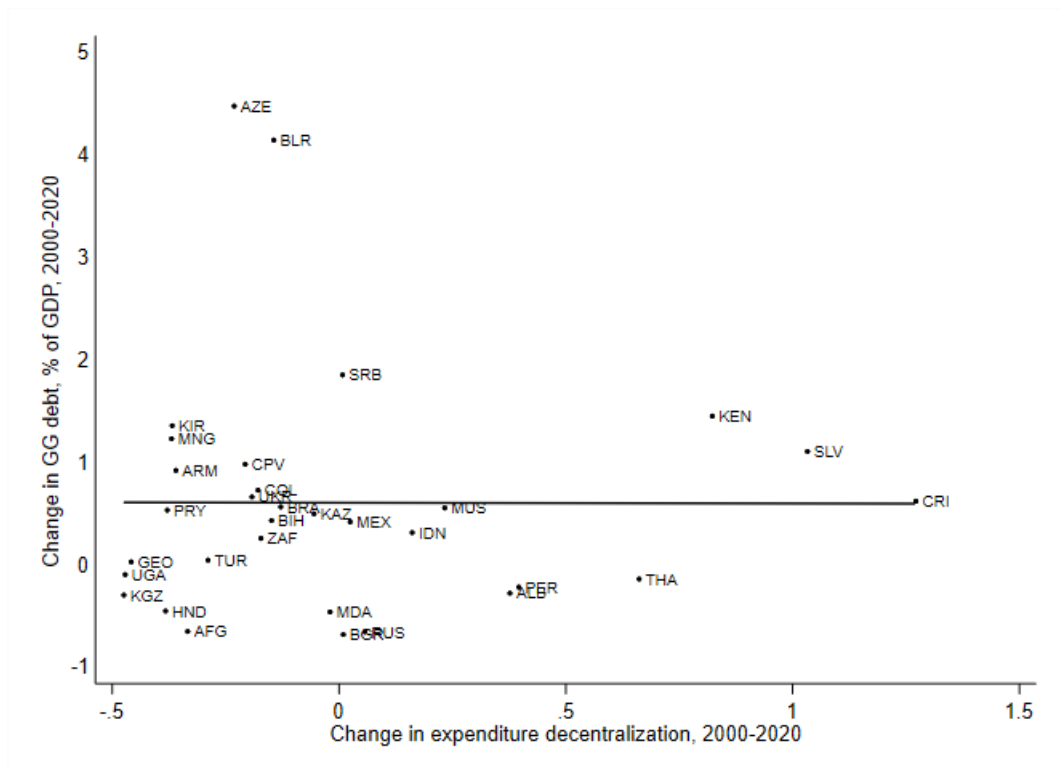


Figure 4.3 Spending decentralization and central government fiscal performance



(a)



(b)

Table 4.3 Sensitivity Analysis: Fiscal decentralization and Central government fiscal performance

Variable	LSDVC				FE Estimations			
	Dep. Var: Change in GG debt-to-GDP ratio				Using Tax decentralization		Driscoll-Kraay standard errors	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Exp. decent.	-1.003*** (0.361)	-1.070*** (0.292)	-2.552*** (0.588)	-2.494*** (0.549)	1.285*** (0.218)	1.410*** (0.255)	1.755*** (0.228)	2.661*** (0.565)
Rev. decent.	0.900** (0.427)	1.206** (0.478)	1.889*** (0.510)	1.846*** (0.550)	-0.974*** (0.257)	-1.074*** (0.291)	-2.435*** (0.441)	-2.895*** (0.526)
VFI	0.190** (0.076)	0.226** (0.091)			-0.227*** (0.048)	-0.238*** (0.060)	-0.465*** (0.078)	-0.384*** (0.064)
Exp. decent.*VFI			2.254*** (0.547)	2.188*** (0.538)				-1.221*** (0.520)
Ln. CG bal (t-1)	0.367*** (0.043)	0.354*** (0.047)	0.319*** (0.046)	0.335*** (0.044)	0.144*** (0.010)	0.416*** (0.057)		
Ln. GG debt (t-1)	-0.128*** (0.025)	-0.109*** (0.029)	-0.117*** (0.031)	-0.109*** (0.029)	0.048** (0.023)	0.049* (0.025)	0.050** (0.024)	0.054** (0.024)
Output gap (t-1)	0.887*** (0.243)	0.870*** (0.174)	0.838*** (0.233)	0.880*** (0.172)	-0.493*** (0.168)	-0.356* (0.191)	-0.366*** (0.130)	-0.360*** (0.122)
Ln. CA bal.		-0.018 (0.014)	-0.012 (0.018)	-0.013 (0.014)		0.027*** (0.010)	0.023*** (0.007)	0.021*** (0.006)
Ln. dependency		0.041 (0.170)	-0.001 (0.148)	0.000 (0.170)		-0.028 (0.112)	0.068 (0.101)	0.113 (0.093)
Ln. trade		-0.244*** (0.066)	-0.189** (0.073)	-0.195*** (0.068)		0.072 (0.067)	0.123* (0.061)	0.092 (0.059)
Election		-0.001 (0.019)		0.001 (0.019)		-0.023* (0.013)	-0.025*** (0.007)	-0.026*** (0.007)
Herf. index		0.051 (0.057)		0.033 (0.057)		0.003 (0.043)	0.014 (0.016)	0.023 (0.019)
Corruption		-0.08 (0.250)		0.012 (0.250)		0.378** (0.157)	0.341** (0.153)	0.268** (0.134)
Observations	453	412	440	412	448	398	430	430
R Squared							0.567	0.579
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	No	No	No	No	Yes	Yes	Yes	Yes

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 4.4 Sensitivity Analysis: Fiscal decentralization and Central government fiscal performance -Sub-samples

Variable	Europe and Asia		Latin America & Caribbean		Exp. decent. >15 %		Exp. decent. <15 %
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Exp. decent.	1.889*** (0.391)	3.271*** (0.542)	2.183*** (0.555)	1.980** (0.807)	1.806*** (0.288)	2.607*** (0.504)	1.524 (1.222)
Rev. decent.	-2.229*** (0.502)	-3.318*** (0.563)	-0.554 (1.025)	-0.479 (1.000)	-2.405*** (0.364)	-2.749*** (0.489)	-5.644** (2.420)
VFI	-0.425*** (0.084)	-0.325*** (0.084)	-0.169 (0.201)	-0.197 (0.251)	-0.479*** (0.089)	-0.402*** (0.094)	-0.342*** (0.129)
Exp. decent.*VFI		-1.950*** (0.570)		0.289 (1.189)		-1.082** (0.521)	
Ln. CG bal (t-1)	0.361*** (0.082)	0.276*** (0.073)	0.508*** (0.141)	0.514*** (0.136)	0.348*** (0.057)	0.340*** (0.055)	0.664*** (0.127)
Ln. GG debt (t-1)	0.038 (0.031)	0.047* (0.028)	0.060 (0.093)	0.059 (0.095)	0.050* (0.027)	0.052* (0.027)	0.037 (0.048)
Output gap (t-1)	-0.391** (0.199)	-0.415** (0.183)	-0.157 (0.575)	-0.159 (0.593)	-0.151 (0.210)	-0.162 (0.209)	-0.595 (0.369)
Ln. CA bal.	0.025** (0.010)	0.021** (0.009)	-0.249 (0.348)	-0.249 (0.346)	0.023* (0.012)	0.020* (0.012)	0.057 (0.100)
Ln. dependency	0.031 (0.213)	0.138 (0.203)	-1.850** (0.826)	-1.849** (0.862)	0.0505 (0.165)	0.072 (0.164)	-0.291 (0.443)
Ln. trade	0.007 (0.085)	-0.078 (0.080)	0.277 (0.211)	0.276 (0.219)	0.053 (0.067)	0.015 (0.068)	0.228** (0.110)
Election	-0.022 (0.018)	-0.024 (0.016)	-0.042 (0.031)	-0.042 (0.031)	-0.039*** (0.014)	-0.039*** (0.014)	0.012 (0.022)
Herf. index	-0.016 (0.049)	0.022 (0.047)	-0.038 (0.094)	-0.041 (0.096)	0.008 (0.049)	0.014 (0.049)	0.025 (0.080)
Corruption	0.369 (0.225)	0.171 (0.221)	0.163 (0.541)	0.180 (0.552)	0.447** (0.211)	0.354* (0.209)	0.005 (0.408)
observations	235	235	116	116	279	279	148
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 4.5 Sensitivity Analysis: Fiscal decentralization, Central and Subnational government fiscal performance using system GMM

Variable	Dep. Var: Ln. CG balance		Dep. Var: SNG balance		
	(1)	(2)	(3)	(4)	(5)
Exp. decent.	2.467*** (0.661)	4.416** (1.613)			
Rev. decent.	-2.933** (1.396)	-3.869** (1.423)			
VFI	-0.373** (0.191)				
Exp. decent.*VFI		-3.525* (1.773)			
Tax autonomy			-1.159* (0.665)	-1.956** (0.842)	-1.164* (0.651)
Tax autonomy sq.				1.851** (0.805)	
Autonomy*State_elect					0.839* (0.474)
Ln. dependent variable(t-1)	0.373*** (0.125)	0.321** (0.147)	0.238*** (0.086)	0.275*** (0.090)	0.246*** (0.079)
Ln. CG bal (t-1)			-0.228 (0.289)	0.186 (0.229)	-0.041 (0.348)
Ln. GG debt (t-1)	-0.033 (0.054)	-0.007 (0.041)	-0.090 (0.147)	0.111* (0.062)	-0.026 (0.108)
Output gap (t-1)	-0.677* (0.338)	-0.639* (0.375)	-1.819** (0.879)	-0.528 (0.637)	-1.235* (0.605)
Ln. CA bal.	0.037 (0.036)	0.015 (0.031)			
Ln. dependency	0.398* (0.167)	0.539** (0.230)	-0.421* (0.243)	0.017 (0.154)	-0.218 (0.152)
Ln. trade	0.060 (0.122)	-0.063 (0.118)	0.714** (0.314)	-0.251* (0.142)	0.325 (0.311)
Election	-0.012 (0.019)	-0.019 (0.017)	-0.041 (0.057)	-0.000 (0.037)	-0.006 (0.043)
Herf. index	-0.192 (0.065)	-0.183 (0.135)			
Corruption	0.260 (0.354)	0.317 (0.323)			
Observations	427	427	423	419	418
Instruments	28	32	27	21	29
Hansen statistic	20.06	20.24	20.89	13.04	20.56
Hansen p-value	0.217	0.443	0.343	0.366	0.424
AR1 p-value	0.014	0.023	0.032	0.031	0.035
AR2 p-value	0.469	0.454	0.158	0.164	0.162

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 4.6 Data Coverage

Country	Period	Region	Exp. Decent.	Rev. descent.	Tax descent.	VFI	Tax autonomy
Afghanistan	2006-2017	South Asia	0.007	0.006	0.008	0.073	0.124
Albania	2011-2020	Europe & Central Asia	0.157	0.044	0.044	0.751	0.18
Armenia	2003-2020	Europe & Central Asia	0.067	0.040	0.025	0.421	0.248
Azerbaijan	2008-2019	Europe & Central Asia	0.023	0.005	0.010	0.718	0.189
Belarus	2001-2020	Europe & Central Asia	0.385	0.297	0.414	0.224	0.682
Bosnia and Herzegovina	2005-2020	Europe & Central Asia	0.109	0.100	0.117	0.085	0.558
Brazil	2010-2020	LAC	0.420	0.31	0.406	0.353	0.453
Bulgaria	2000-2020	Europe & Central Asia	0.193	0.194	0.051	-0.007	0.155
Cabo Verde	2008-2019	SSA	0.112	0.044	0.037	0.567	0.187
Colombia	2000-2020	LAC	0.329	0.399	0.185	0.427	0.272
Costa Rica	2002-2020	LAC	0.049	0.041	0.043	0.099	0.480
El Salvador	2002-2020	LAC	0.089	0.049	0.028	0.491	0.196
Georgia	2003-2019	Europe & Central Asia	0.228	0.054	0.041	0.754	0.135
Honduras	2003-2015	LAC	0.111	0.044	0.043	0.635	0.255
Indonesia	2008-2020	East Asia & Pacific	0.362	0.111	0.099	0.732	0.155
Kazakhstan	2000-2020	Europe & Central Asia	0.427	0.234	0.277	0.404	0.499
Kenya	2005-2020	SSA	0.100	0.334	0.005	0.656	0.179
Kiribati	2011-2020	East Asia & Pacific	0.028	0.015	0.026	0.345	0.237
Kyrgyzstan	2006-2019	Europe & Central Asia	0.157	0.087	0.129	0.342	0.514
Mauritius	2002-2020	SSA	0.060	0.013	0.010	0.791	0.117
Mexico	2008-2020	LAC	0.408	0.090	0.066	0.805	0.071
Moldova	2000-2020	Europe & Central Asia	0.260	0.144	0.179	0.564	0.399
Mongolia	2000-2020	East Asia & Pacific	0.193	0.129	0.162	0.157	0.477
Palau	2008-2019	East Asia & Pacific	0.095	0.059	0.004	0.369	0.011
Paraguay	2005-2020	LAC	0.090	0.043	0.049	0.517	0.308
Peru	2000-2020	LAC	0.334	0.050	0.023	0.825	0.048
Russia	2000-2020	Europe & Central Asia	0.405	0.326	0.415	0.141	0.470
Serbia	2007-2020	Europe & Central Asia	0.199	0.134	0.092	0.364	0.270
South Africa	2000-2020	SSA	0.495	0.162	0.057	0.704	0.079
Thailand	2000-2020	East Asia & Pacific	0.161	0.074	0.080	0.532	0.176
Turkey	2008-2020	Europe & Central Asia	0.108	0.042	0.025	0.631	0.113
Uganda	2001-2020	SSA	0.206	0.244	0.004	0.934	0.029
Ukraine	2001-2020	Europe & Central Asia	0.308	0.178	0.260	0.447	0.439

Source: IMF's GFS data

Table 4.7 Variable description, Data sources and Summary Statistics

Variable	Description	Obs	Mean	SD	Min	Max	Source
CG primary bal.	Primary balance as a share of GDP	543	0.274	4.668	-17.993	53.269	IMF GFS
SNG primary bal.	Primary balance as a share of SNG total revenue	541	0.013	0.121	-0.907	0.489	IMF GFS
SNG deficit	Deficit as a share of SNG own spending	543	0.023	0.128	-0.477	0.968	IMF GFS
Tax decent.	Ratio of SNG tax revenue to GG tax revenue	507	0.114	0.128	0	0.507	IMF GFS
Expenditure decent.	Ratio of SNG own spending to GG spending	547	0.215	0.142	0.002	0.565	IMF GFS
Revenue decent.	Ratio of SNG own revenues to GG revenues	546	0.126	0.111	0	0.480	IMF GFS
VFI	Measured as 1 less the ratio of SNG own revenue to SNG own spending	535	0.482	0.293	-0.759	1	IMF GFS
GG debt-to-GDP ratio	Gross GG Debt to GDP ratio	529	39.286	21.491	3.221	128.365	IMF WEO
Current account bal.	Current account balance in percent of GDP	551	-2.978	9.419	-43.825	63.39	IMF WEO
GDP	GDP, at 2015 constant US\$ prices	532	2.07e+11	3.95e+11	1.40e+08	1.90e+12	WDI
Age dependency	Ratio of population aged below 15 and above 65 years in total work ing-age population	540	53.677	14.951	34.763	108.223	WDI
Trade	Sum of exports and imports to GDP (percent)	526	80.551	31.235	22.772	157.974	WDI
Corruption index	Index of corruption perception	539	-0.443	0.524	-1.638	0.951	WGI
Herfindahl Index	The sum of the squared seat shares of all parties in the government.	490	0.763	0.286	0.090	1	DPI 2020
Election	Binary variable (taking the value of one in an election year -either legislative and executive election)	542	0.318	0.466	0	1	DPI 2020
State election	Dummy=1 if both regional governments' executive and legislative officials are locally elected	542	0.435	0.496	0	1	DPI 2020
Output gap	GDP minus potential GDP over potential GDP	552	-0.001	0.042	-0.162	0.173	Author's computation
SNG revenue autonomy	Ratio of tax revenue to total revenue of SNGs	548	0.272	0.197	0	0.860	Author's computation

Table 4.8 Diagnostic Tests

Specification Tests	Test statistic	
	Central government	Local government
Autocorrelation		
Wooldridge test for autocorrelation (H0: No first order autocorrelation)	F(1,31)=24.267***	F(1,27)= 1.536
Heteroscedasticity		
Modified Wald test for group wise heteroscedasticity (H0: Homoscedasticity)	X2(32)=316.75***	X2(28)=4032.91***
Cross-sectional Dependence		
Pesaran's test for cross-sectional dependence (H0: Cross-sectional independence)	20.925***	4.74
Breusch-Pagan LM test		
(H0: POLS model is preferred to RE model)	Chibar2(01)=125.34***	Chibar2(01)=51.55***
Hausman Test		
Hausman specification test (H0: POLS model is preferred to FE model)	X2(5)=67.97***	X2(7)=42.28**
Hausman Test		
Hausman specification test (H0: RE model is preferred to FE model)	X2(5)=37.44***	X2(7)=35.28***
Muticollinearity - Variance Inflation Factors (VIF)		
Rule of thumb: >5 indicative of possible multicollinearity)		
Logged central primary balance		1.13
Lag of logged central primary balance	1.02	
Lag of logged government debt	1.12	1.13
Lag of output gap	1.09	1.16
Expenditure Decentralization	2.21	
Revenue Decentralization (Revenue Autonomy)	2.32	1.24
VFI	1.41	
Election dummy		1.02
Logged Age dependency		1.32
Logged trade		1.21
Mean VIF	1.53	1.17

Note: Results based on benchmark models (see models 2 and 1 in Tables 4.1 and 4.2 respectively).

*** = H0 is rejected at the 1 percent significance level

5

Fiscal Imbalances and Local Government's Fiscal Effort: Evidence from Kenyan County Governments

Abstract

Based on the Kenyan county-level panel dataset for 2013/14 to 2020/21 and the System Generalized Method of Moments estimation, this paper examines the effects of Vertical Fiscal Imbalances (VFIs) and Horizontal Fiscal Imbalances (HFIs) on county fiscal indiscipline in a partial fiscal decentralization setting. The findings show that large VFIs encourage a reduction in tax mobilization efforts by local governments, and this relationship is nonlinear. That is, both small and large VFIs are harmful to the local government's fiscal discipline. On the other hand, HFIs positively affect tax collected, i.e., disadvantaged counties (regarding fiscal capacity) apply a greater fiscal effort. In addition, higher HFIs magnify the negative effect of VFIs on the fiscal effort of subnational governments. These findings shed light on the working mechanism of VFIs and provide key insights that would be important for improving the design of fiscal decentralization policy in Kenya and elsewhere.

Keywords: Vertical Fiscal Imbalance, Horizontal Fiscal Imbalance, Local government Revenue, Kenya

JEL Codes: H71, H73, H77

5.1 Introduction

In recent decades, an accelerated decentralization process has dominated many African countries, experimenting with the devolution of fiscal, political, and administrative duties to SNGs (Dafflon and Madiès, 2012). Subsequently, this has seen many SNGs take up the role of raising revenues to finance their budgets as well as provide public goods and services to their citizens. However, most SNGs in Africa lack the administrative and institutional capacity to collect local taxes and, as an alternative, rely on transfers from the central government to stay afloat (Bahl and Bird, 2018; Bird and Smart, 2002; Freille and Capello, 2014). Although these transfers support the delivery of public services, critics claim that they can also undermine local tax collection (Bird and Smart, 2002). There is substantial literature arguing that intergovernmental transfers crowd out SNGs revenues.¹ Furthermore, most of these developing countries implement the decentralization reforms in a heterogeneous manner resulting in a mismatch between the revenue powers vis-à-vis expenditure responsibilities of local governments. This process, being referred to as "partial fiscal decentralization" by some scholars, gives rise to VFIs (Asatryan et al., 2015). VFIs measure the extent to which SNGs' expenditure is financed by transfers from the central government.

In addition, significant inequalities exist in the revenue-raising abilities of SNGs in different regions of a country (Rutto et al., 2022). For example, the amount of local revenue raised differs across Kenyan county governments, ultimately defining the quality of public services provided by individual counties to their respective people. This inequality in the subnational governments' capacity to raise revenues from their tax bases is known as Horizontal Fiscal Imbalance. HFIs exist because some jurisdictions have larger tax bases (i.e., richer) than others and can spend more with the same fiscal effort. Such an imbalance generates the need for equalization transfers. In fact, prominent among the

¹Lago et al. (2022) provides a literature survey.

justifications attributed to intergovernmental fiscal transfers is the "equalization" of regional fiscal disparities (Bird and Smart, 2002; Boadway et al., 2003). This implies that, in general, VFIs may also capture the presence of large HFIs (Sharma, 2012).

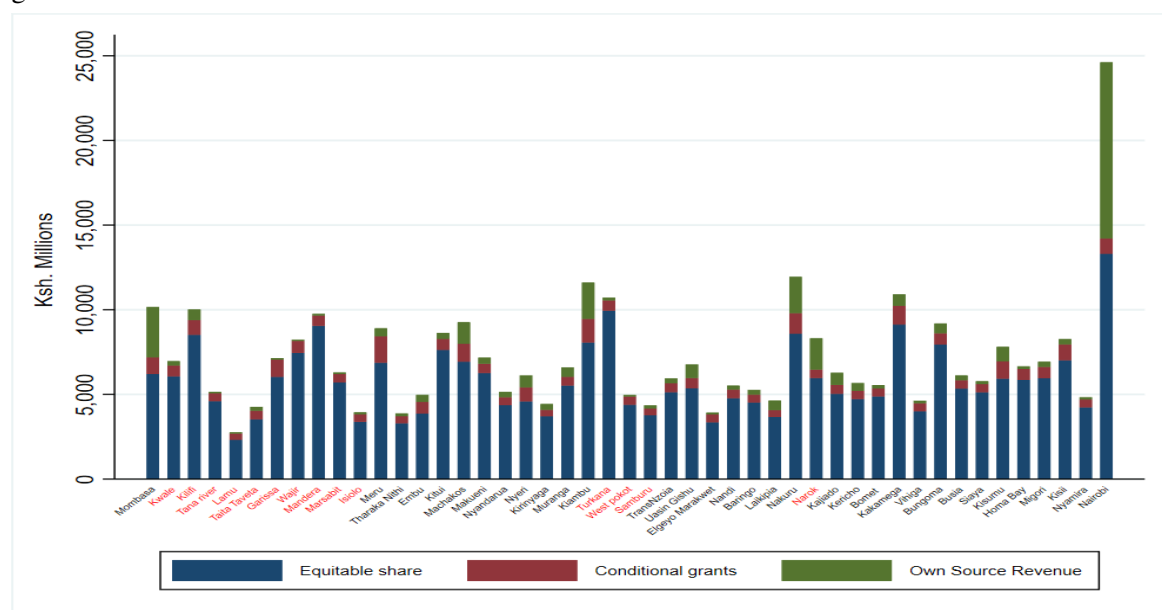
A large body of existing theoretical and empirical literature focuses largely on VFIs and their impact on national and sub-national fiscal performance. Although moderate levels of VFIs are inevitable and may even be desirable (Sharma, 2012), large VFIs may lead to subnational fiscal indiscipline akin to overspending or lower SNG's tax effort (Di Liddo et al., 2019; Jia et al., 2021). On the other hand, HFIs have received very little attention, possibly due to the discord about their meaning and how to measure them (Di Liddo et al., 2016). Additionally, empirical research on the combined impact of VFIs and HFIs is scarce.

This paper's core argument is that when the reliance on transfers by SNGs is significant - a perennial feature of SNGs in Africa (Bahl and Bird, 2018) - strategic behaviors for overspending and lowering tax efforts by SNGs are induced. Furthermore, in the case of inadequate subnational fiscal capacity (HFIs), fiscal transfers can expand SNGs' tax base by boosting economic activities and mitigating the projected negative impacts of vertical imbalances.

For various reasons, Kenya is appropriate for exploring the relationship between fiscal imbalances and SNGs' revenues in an African setting. First, fiscal transfers account for a sizable component of county governments' budgets in Kenya, as in many other countries (Figure 5.1). For instance, except for Nairobi and Mombasa counties, over 80 percent of the counties' budgets are financed through transfers from the central government throughout the sample period. This rate is comparable to those from other African nations, e.g., Lesotho (90%), Tanzania (90%), and Uganda (88%) (Masaki, 2018). Second, fiscal policy is extremely centralized in Kenya, resulting in political meddling with subnational tax collection (Bahl and Bird, 2018). Moreover, Kenyan county governments have also not been able to attain the desired level of Own Source Revenue (OSR) over the years (KIPPRA, 2019; Rutto

et al., 2022), despite different legislatures having been passed to provide them with more taxation powers, e.g., property tax regulation, and several efforts to build Public Financial Management (PFM) capacity at the county level.² In addition, there exist significant regional disparities among the county governments, with at least 14 counties categorized as "marginalized" and therefore eligible to equalization transfers.³

Figure 5.1 Average Values of Equitable share, Conditional grants and Own Revenues of county governments.



Counties in red represent the counties identified as "marginalized" by the CRA.
 Source: Author's computation using data from KNBS economic surveys.

Within this framework, this paper fills a literature gap by assessing the combined effect of VFIs and HFIs on county governments' tax efforts in the Kenyan context. I estimate a dynamic model with the System GMM for a panel of 47 county governments from FY2013/14 to FY2020/21. The findings are as follows: (i) Larger VFIs significantly reduce the ratio of own revenues as a percentage of total receipts, lending credence to the idea that higher VFIs foster fiscal indiscipline in SNGs. (ii) An inverse relationship exists between VFIs and

²The Office of the Controller of Budget and Kenya National Bureau of Statistics (KNBS) publishes fiscal and Gross County Product (GCP) data on county governments which allows researchers to carry out empirical studies.

³The Constitution establishes an Equalization Fund that receives 0.5% of the national government revenue to "provide basic services to marginalized counties to the extent necessary to bring the quality of their services to the level generally enjoyed by the rest of the nation, as far as possible" (of Kenya, 2015).

fiscal effort, as shown by a negative and statistically significant coefficient of VFI squared. (iii) Higher HFIs incentivize "poorer" county governments to collect more revenues. (iv) The detrimental effect of VFIs is pronounced in counties with high HFIs. The results are robust to a battery of specifications, including alternative measures of fiscal imbalances and estimation methods.

The rest of the paper is as follows. Section 5.2 analyzes some stylized facts and the literature reviewed in Section 5.3. Section 5.4 presents the data and methodology and introduces the measurement of fiscal imbalances adopted in the paper. Section 5.5 discusses the estimation results and sensitivity checks. Finally, Section 5.6 concludes and confers some policy implications.

5.2 Stylized Facts on Fiscal Imbalances in Kenya

This section covers some stylized facts on both vertical and horizontal fiscal imbalances in Kenya, their evolution over time, and their relation to fiscal performance. The analysis uses data from the Kenya National Bureau of Statistics (KNBS) survey reports for the period 2014 to 2021 as well as the County Governments Budget Implementation Review Reports (CGBIRR) published by the Office of the Controller of Budget (OCOB).

Stylized Fact 1: The financing of county spending largely depends on transfers from the national government, i.e., equitable share and conditional grants (Figure 5.2). The average VFI was 92% from FY2013/14 to FY2020/21. VFIs, on the other hand, exhibit a considerable dispersion ranging from 57% in Nairobi county to 99% in Tana River county. Charbit and Michalun (2009) show that differences in the structure of SNG financing reflect structural errors such as the roles of SNGs as suppliers of public goods and services, regional imbalances, and institutional features.

Stylized Fact 2: The fiscal capacities of Kenyan county governments (i.e., HFIs) vary significantly. This implies that some counties are richer than others in terms of resources. Therefore, without equalization, these counties must exert fiscal effort to reach a level of expenditures matching the richest counties (Figure 5.3). In the years under review, the top three counties in terms of Gross County Product (GCP) per capita were Nairobi, Mombasa, and Nyeri, except for FY 2013/14, when Embu came in third position. The average HFI was 38% over the period. Figure 5.3 further shows that only nineteen out of forty-seven counties are above the average GCP per capita. HFI dispersion varies from 141% in Nairobi county to 13% in Mandera county.

Stylized Fact 3: Large VFIs are associated with poorer fiscal performance. The larger the VFIs, the lower the county's performance in terms of own-revenue collection (Figure 5.4 Panel A). On the other hand, large HFIs improve the performance of county revenue collection (Figure 5.4 Panel B). This could reflect a higher effort being exerted by poorer counties to reach a level of spending equivalent to the wealthier counties. Figure 5.4 Panel C shows a negative correlation between county total spending and VFIs. This correlation is not easy to reconcile as it is an unexpected result inconsistent with the flypaper effect literature. Last, Figure 5.4 in Panel D shows a slightly negative correlation between county overall balance and VFIs. While a balanced budget rule applies in preparing county budgets whether they rely on transfers or own revenues, most counties do not meet this requirement in some fiscal years. The desired own revenue level is used to balance the budgets. The county stands to run an overall balance deficit when the realized local revenue falls short of the target.

5.3 Literature Review

5.3.1 Fiscal Decentralization in Kenya

When the Kenyan Constitution of 2010 was enacted, it altered the Kenyan government system from a centralized entity to devolved entities referred to as County Governments (CGs). The decentralization process provided CGs with completely elected governors and assemblies. Each county directly elects a Governor, who can appoint the County Executive Council and is mandated to take the lead regarding budget and development planning. However, the Governor's legislative agenda must be approved by the County Assembly, which comprises Members of the County Assembly (MCAs) directly elected at the ward level. In addition, counties are also given a voice at the national level through the election of a women representative and a senator to represent each county in a second legislative chamber. This chamber of parliament is designed to defend county interests and help craft bills affecting the counties but also enjoys wider power, such as the ability to impeach the President, Deputy President, Governor, and Deputy Governors. Besides bringing the government closer to the people by giving previously marginalized communities an increased stake in the political system and enabling local solutions to be found for local problems, devolution is seen as a means to address Kenya's chronic ethnic conflicts fueled by sentiments of exclusion and marginalization (Akech, 2010).

According to the Constitution, the National Government must transfer at least 15% of government revenue to all the counties (based on the last audited accounts approved by the National Assembly) in addition to funding county-level services that have remained in its jurisdiction, such as national security and the police force. The Constitution also mandates the National Government to establish and manage an Equalization Fund that receives 0.5% of national revenue to strengthen the provision of essential services in historically marginalized

communities. Another avenue of fiscal transfer is the ability of the National Government to allocate conditional grants to counties.

Despite establishing a minimum requirement of resources to be shared with the counties, there has been a continuous debate concerning the basis on which this proportion should be calculated and how much CGs require to be self-sufficient given their heavy responsibilities, such as public healthcare. This has seen the share of revenue shared with counties progressively increase each financial year. Transferred revenues are shared between the 47 counties based on a formula designed by the Commission on Revenue Allocation (CRA), a body set up by the Constitution for this purpose. CRA has thus far designed three revenue-sharing formulas since the onset of devolution.⁴ The formulas seek to equalize allocations based on a proximate measure of deprivation (poverty rates) and costs of delivering services (land area, population size), and more recently (3rd formula) has shifted towards a service-oriented approach of revenue sharing where new parameters such as health, agriculture, and urban service indices, among others, are incorporated. Counties can also raise their own revenue in certain areas prescribed by the Constitution. These include taxes on property, entertainment, and any other taxes and fees authorized by an Act of Parliament (for example, parking fees, administrative charges, business permits, natural resources exploitation and conservancy, public health services, cess, market, trade services, slaughterhouses, etc.). Additionally, Governors may levy charges in return for directly provided services such as waste management.

Concerning expenditure decentralization, the Constitution has tasked CGs with service delivery in agriculture, county public works, health, and water. The CGs are fully in charge of these functions, while the National Government's role in these sectors is that of policy

⁴First formula (FY 2013/14 – FY2016/17): Minimum share (25%), Fiscal effort (2%), Population (45%), Poverty index (20%), and Land area (8%). Second formula (FY 2017/18 – FY2020/21): Minimum share (26%), Fiscal effort (2%), Population (45%), Poverty index (18%), Land area (8%), and Development index (1%). Third formula (FY 2021/22 – FY2024/25): Minimum share (20%), Population (18%), Poverty index (14%), Land area (8%), Health services index (17%), Agriculture services index (10%), Urban index (5%) and Roads index (8%).

formulation. Other operations decentralized to CGs include; trade development, regulation and licensing, animal control, and welfare, and county planning and development. It is also worth noting that the Constitution and the PFM Act (2012) outline fiscal responsibility principles that CGs must observe. For example, the recurrent expenditure shall not exceed the county's total revenue, at least 30% of the county's budget shall be devoted to development spending, and spending on wages and benefits shall not exceed 35% county's total revenue.

It has been a decade since the onset of devolution, and Kenya's intergovernmental fiscal relations are still experiencing several transitions. While most of these changes have focused on the income side, they have typically yet to be coordinated with reforming expenditure allocations (Ngigi and Busolo, 2019). Consequently, most taxing power is centralized, with CGs' revenues comprising OSR and transfers (equitable share and conditional grants - national governments and donor-funded) from the central government. The share of total equitable share assigned to the CGs has remained averagely constant at about 16% from FY2013/14 to FY2018/19, after which it reduced to about 13% due to the underperformance of national revenues resulting from the Covid-19 pandemic. Nevertheless, this represents a progressive increment from Ksh. 193.4 million in FY2013/14 to Ksh. 316.5 million in FY2020/21. It has yet to be determined whether the expenditure responsibilities presently at the CGs are excessive because they are unchanged from a decade ago.⁵ Nonetheless, the counties have experienced several problems. An early point of criticism is the central government's apparent need for more political will to devolve key duties, such as infrastructure development, completely. County governments have also struggled to absorb some delegated tasks. A function such as health has been beset with difficulties, as medical workers have resisted having their duty put under CG's public service, resulting in delayed wages (Khaunya and Wawire, 2015). This has resulted in several instances of strike action.

⁵The share of CGs' expenditures in general government expenditure averaged about 18% over FY 2013/14 to 2020/21.

5.3.2 Fiscal transfers and SNGs revenue generation

The notion that SNGs are better positioned to supply public goods and services that meet local needs than the central government because they maintain close contact with their constituencies has been a driving force behind decentralization efforts in Africa over the past two decades (Oates, 1972). However, recent literature challenges these predictions, highlighting the potentially detrimental effects of partial fiscal decentralization. Partial fiscal decentralization arises when expenditure assignments do not correlate with revenue assignments, resulting in VFIs often funded by intergovernmental transfers. Intergovernmental transfers may undermine SNGs fiscal autonomy and possibly crowd out efforts to raise local revenues as they replace local tax revenues (Jia et al., 2021; Mogues and Benin, 2012).

To this end, two theoretical concepts, the common pool problem, and soft budget constraint, have been put forward. First, intergovernmental transfers are often considered a common pool resource in a partially decentralized fiscal system (Asatryan et al., 2015). As such, SNGs may fail to internalize the entire cost of local spending, resulting in SNGs overspending or relaxing their tax collection efforts and moving some of their expenditures burden to the central government's fiscal balance (Di Liddo et al., 2019; Hallerberg et al., 2009; Krogstrup and Wyplosz, 2010; Oates, 2006). Second, the literature on soft budget constraint argues that large VFIs may make it difficult for the central government to enforce hard budget constraints on SNGs, particularly in the event of adverse shocks where they are more likely to expect their financing gaps to be bailed out by central governments (Bordignon, 2006; Crivelli and Staal, 2013; Goodspeed et al., 2017; Ter-Minassian, 2015).

The crowding-out consequences of central government transfers have yet to be substantiated empirically. Most empirical research for developing countries indicates a detrimental effect of central government transfers on the collection of SNG revenues (Canavire-Bacarreza et al. (2012) for Peru; Mogues and Benin (2012) for Ghana; Lewis and

Smoke (2017) for Indonesia; Koley and Mandal (2019) for India; MIRI (2019) for Morocco; Mwangi et al. (2020) for Uganda; Jia et al. (2021) for China; and Taiwo et al. (2022) for Nigeria). Di Liddo et al. (2019) demonstrate that VFIs negatively affect Italian municipalities' fiscal efforts and that this effect is exacerbated in municipalities with the largest horizontal fiscal imbalances. Some studies, however, show that fiscal transfers are often directed toward public spending rather than substituting tax effort, a concept referred to as the "flypaper effect" (Dahlberg et al. (2008) for Sweden and Liu and Ma (2016) for China). Additionally, recent research (e.g., Zhang (2013) for China; Caldeira and Rota-Graziosi (2014) for Benin; Brun and El Khadari (2016) for Morocco; Masaki (2018) for Tanzania; Ortega et al. (2022) for Colombia; and Porto and Puig (2023) for Argentina) support the "crowding-in" benefits of intergovernmental transfers, i.e., transfers increase local tax collections. Given the above, there is no agreement in the literature about the relationship between transfers and local revenues.

Considering that my key emphasis pertains to the revenue disciplining impact of VFIs, I hypothesize that (H1): large VFIs damage local fiscal discipline by encouraging relaxation of tax mobilization efforts by SNGs, but small VFI as well, i.e., a non-linear relationship in the effect of VFIs.

5.3.3 Horizontal Fiscal Imbalances in Kenya

The fiscal capability of SNGs is often seen as given (or exogenously determined), which is one of the major complications with applying fiscal federalism theories to Africa. The ability of a government to collect tax, given its economic and structural capabilities and available enforcement mechanisms, is known as fiscal capacity (Besley and Persson, 2014). Local governments in developing countries need more fiscal capacity, as Bahl and Bird (2018) emphasize. As a result, they are far more dependent on transfers than SNGs in advanced

countries (Bahl and Bird, 2018). HFIs arise from the fiscal capacity differences between SNGs – some SNGs are richer than others.

Di Liddo et al. (2019) propose a theoretical framework that suggests a direct positive effect of HFI in the absence of equalization transfers. This is because disadvantaged administrators must expend a greater tax effort to optimize taxpayers' utility. However, they also propose the possibility that, in the presence of fiscal transfers, the effect of regional disparities is ambiguous as the effect depends on the degree of equalization (Borge et al., 2014; Di Liddo et al., 2019). This study contends that the degree of SNG fiscal capacity influences how fiscal transfers from the central government affect local revenues. The literature discusses three mechanisms by which intergovernmental transfers can provide a conducive environment to facilitate SNG revenue collection efforts. First, when transfers are spent locally, they broaden the tax base, boosting local economic activities (Caldeira and Rota-Graziosi, 2014). Second, citizens are more inclined to pay taxes in exchange for improved public services, mostly funded through transfer, especially in low-income countries (Bodea and LeBas, 2016; Caldeira and Rota-Graziosi, 2014). Third, fiscal transfers cover the upfront costs of tax collection. Intergovernmental transfers are essential for funding the administrative and operational expenses of SNGs (Troland, 2016). In fact, a sizable portion of intergovernmental payments is spent on personal emoluments and recurring expenses, including the price of employing trained personnel and specialists to manage tax collection (Nyange et al., 2014).

On the empirical front, HFI has received minimal attention, possibly owing to the difficulties of its measurement. Nonetheless, empirical support for the theoretical logic is mixed at best. In their analysis of Spanish municipalities, Castells et al. (2004) find that a positive shock in tax capacity is "returned" to the citizens through a reduction in tax effort. Di Liddo et al. (2019) find that HFIs positively affect local tax and fees, i.e., poor jurisdictions exert a greater fiscal effort and that HFIs magnify the negative effect of the VFIs on the fiscal effort of SNGs.

To this end, I posit that (H2): HFIs encourage greater fiscal effort and that they minimize the harmful effect of VFIs on the fiscal effort of local governments.

5.4 Data and Methodology

5.4.1 Data

The data set covers the 47 county governments from FY2013/14 to FY2020/21. The share of CGs' OSR in total receipts of the counties is used to capture the fiscal discipline of the CGs. Holding other factors constant, counties with higher shares of OSR in total county receipts stand for higher revenue/tax collection effort levels, hence stronger fiscal discipline. In fact, in the Kenyan context, this measure is relevant and better indicates the fiscal behavior of local administrators as county budgets are constrained by the PFM Act of 2012. Thus, CGs must achieve a balanced budget. The data sources are KNBS survey reports and the CGBIRR published by the OCOB.

Measurement of Fiscal Imbalances

As Sharma (2012) outlines, several VFI indicators have been employed in empirical research. The metric often used is transfer dependency, where intergovernmental transfers (grants and shared income) are calculated as a proportion of either total subnational expenditure, total subnational revenue, or a share of subnational spending not covered by SNG's OSR. Eyraud and Lusinyan (2013) recently went beyond the above-defined measures by incorporating SNG borrowing. Since there has been no county borrowing in Kenya in the period under review, this paper defines VFI as the share of county expenditure not funded by OSR as in Eyraud and Lusinyan (2013).

HFI, on the other hand, is determined by the dissimilarities in resources at the disposal of jurisdictions, i.e., some jurisdictions are richer than others. Measuring HFI is challenging

since it revolves around the notion of fiscal capacity. This paper adopts the macroeconomic indicators methodology that proposes some measure of local wealth, such as subnational per capita Gross Domestic Product (GDP), to approximate fiscal capacity (Allers and Ishemoui, 2010; Di Liddo et al., 2019; Eyraud and Lusinyan, 2013; Koley and Mandal, 2019). Although this type of measurement presents a theoretical limit (e.g., if a region is a tourist attraction place, the region will collect higher revenues not captured by indicators such as average income), macro measures are simpler and more transparent to apply in econometric estimations. Table 5.1 presents the various measures of HFI and VFI adopted in this paper for both the baseline regression and robustness checks.

Table 5.1 VFI and HFI Measures

VFI measures	HFI Measures
$VFI_1 = 1 - \frac{OSR}{total_spending}$	$HFI_1 = Percapita_GCP - Average_Percapita_GCP$
$VFI_2 = \frac{transfers}{total_spending}$	$HFI_2 = Percapita_GCP - Max_Percapita_GCP$
	$HFI_3 = Percapita_GCP - Median_Percapita_GCP$

Other control variables

As suggested in the existing literature, the analysis includes control variables as follows:

- Per capita GCP as a proxy for the level of economic development.
- County population size.⁶
- The share of development and recurrent expenditures in total expenditure.⁷

⁶Using the county population data for 2009 provided in the Kenya County Fact Sheets by the CRA, 2011, and the 2019 Kenya Population and Housing Census data by KNBS, I computed the annual average growth in population size for 2009 and 2019 and after that grew the respective population shares by this rate. The growth in national population observed between 2019 and 2020 was attributed to the counties that recorded more than 40% growth rate 2009-2019 (Busia, Kiambu, Nairobi, Migori, Kajiado, Isiolo, and Marsabit), while I assumed the 2019 ratios for the rest of the counties.

⁷The breakdown of county spending is provided in the yearly reports published by the OCOB.

- An election dummy to capture the impact of electoral cycles and subsequent opportunistic behavior on discretionary fiscal policy decisions. This is measured by a binary variable set to 1 in the year before elections.
- Control of corruption estimate from the World Bank’s Worldwide Governance Indicators (WGI) database by Kaufmann et al. (2011). It ranges between -2.5 and 2.5, with high values indicating less corruption. We rescale it to range between 0 and 1. As it is presented at the national level, we assume the control of corruption to be the same each year for all the counties.

Table 5.3 in the Appendix lists the variable descriptions, summary statistics, and data sources.

5.4.2 Empirical Strategy

As mentioned, my research question assesses the impact of fiscal imbalances (VFIs and HFIs) on local revenue indiscipline. I, therefore, estimate the following dynamic specification:

$$OSR_{it} = \beta_0 + \beta_1 OSR_{it-1} + \beta_2 VFI_{it} + \beta_3 HFI_{it} + \beta_4 VFI^* HFI_{it} + \beta_k X_{kit} + \eta_t + \varepsilon_{it} \quad (5.1)$$

Where OSR is the share of OSR in total receipts/revenue of county i at time t .⁸ The lagged dependent variable is included to capture the inertia of tax revenue in developing countries. VFI is vertical fiscal imbalance, and HFI is a dummy variable that takes the value of 1 if the deviation of a county’s GCP per capita from the mean per capita GCP is negative, i.e., mean per capita GCP is greater than per capita GCP (“poorer” counties). The interactive term allows us to determine whether HFIs enforce the effect of VFIs on local fiscal indiscipline. $X_{j,i,t}$ includes various macroeconomic, institutional, and political determinants of tax revenues,

⁸County governments’ total receipts consist of equitable transfers, conditional grants, and own source revenue collected from tax bases prescribed by the Constitution.

including GCP per capita, the share of development expenditure in total county expenditure, the share of the county population in national population size, control of corruption index, and election dummy. η_t measures the time fixed effects and ϵ_{it} is the idiosyncratic error.

I perform my estimation considering potential endogeneity due to the dynamic panel bias with the lagged dependent variable, reverse causality, omitted variable bias, and measurement errors, which may bias the estimates in our regressions. In this context, reverse causality will likely emerge for two primary reasons. First, since VFI is measured by the ratio of county total expenditures financed by county revenues, any change in county revenue collection will affect VFI through the accounting relationship. Second, equitable transfers from the central government are usually responsive to the county government's fiscal performance. Hence, county expenditures financed by these transfers are intrinsically connected to county revenue collection. Besides reverse causality, the endogeneity may also arise from any measurement errors in the regressors.

I adopt the SGMM estimation developed by Arellano and Bover (1995) and Blundell and Bond (1998), which simultaneously corrects the biases associated with endogenous regressors and the persistence of the dependent variable. Although the two-step SGMM estimator is superior in estimating regression models with instrumental variables, I estimate the regressions using the one-step SGMM estimator as it is more reliable in small samples than the two-step SGMM estimator (Blundell et al., 2001). The instruments employed comprise the second and third lag of the dependent variable and the first and second lags of the endogenous covariates (VFI and the interaction term). To tackle the possible proliferation of instruments that may weaken the Sargan-Hansen test of joint validity of the instruments, I apply the Roodman (2009) criterion by collapsing the instruments and limiting the number of lags. In addition, I include time dummies in all the specifications and apply forward orthogonal deviations, which maximizes the sample size.

5.5 Results and Discussions

5.5.1 Baseline Results

The SGMM results are presented in Table 5.2. Column 1 can be considered the baseline specification, which only includes the variables of interest, i.e., VFI, HFI, and the interaction term between VFI and HFI. Column 2 includes VFI squared to test the nature of the relationship between VFI and CGs' tax efforts. If there is an optimal positive level of VFI maximizing the CGs' fiscal responsibility, the VFI coefficient would be positive and the squared VFI coefficient negative (inverted U curve). Columns 3 to 6 present the first set of robustness checks of the baseline specification by adding a battery of covariates (political institution variables - election dummy and corruption index; demographic and economic variables - GCP per capita, development share of spending, and population share). The necessary specification tests (second-order auto-correlation and Hansen tests) are satisfied by all the regressions. We also include, in all the specifications, time-fixed effects to account for time-specific heterogeneity.⁹

First, there is evidence of inertia in own source revenue since the coefficient for the lagged value of OSR is statistically significant in all the specifications. Second, the coefficient of VFI is negative and statistically significant at the 1 percent level across the models, supporting hypothesis 1 that VFIs reduce local revenue collection efforts. These findings align with the "crowding out" theory and the conclusions arrived in the existing empirical literature (Canavire-Bacarreza et al., 2012; Di Liddo et al., 2019; Jia et al., 2021; Koley and Mandal, 2019; Lewis and Smoke, 2017; MIRI, 2019; Mogues and Benin, 2012; Mwanga et al., 2020; Taiwo et al., 2022). In addition, I find evidence of a non-linear relation between VFI and county revenue collection efforts, supporting the hypothesis that there exists an

⁹The null for the F test that all years' coefficients are jointly equal to zero is rejected, thus validating the inclusion of time Fixed Effects in the estimation.

Table 5.2 Fiscal Indiscipline Effect of VFI and HFI: System GMM Baseline Estimations

Variable	Dependent Variable: OSR to total county revenue ratio					
	(1)	(2)	(3)	(4)	(5)	(6)
OSR share(t-1)	0.299*** (0.103)	0.276** (0.109)	0.299*** (0.103)	0.282*** (0.083)	0.287*** (0.084)	0.281*** (0.081)
VFI 1/	-0.639*** (0.109)	1.293*** (0.444)	-0.639*** (0.109)	-0.538*** (0.142)	-0.607*** (0.0774)	-0.572*** (0.115)
VFI squared		-1.105*** (0.259)				
HFI dummy variable 2/	0.306** (0.117)	0.354*** (0.084)	0.306** (0.117)	0.238** (0.105)	0.313** (0.125)	0.194*** (0.066)
VFI*HFI	-0.324** (0.122)	-0.386*** (0.109)	-0.324** (0.122)	-0.231** (0.113)	-0.336** (0.133)	-0.187*** (0.069)
Corruption			2.069*** (0.342)		1.939*** (0.235)	0.382 (0.669)
Election dummy			-0.036*** (0.004)		-0.023*** (0.002)	-0.014 (0.010)
Ln. GDP per capita				0.045** (0.017)		0.038** (0.017)
Population share				0.039 (0.395)	0.161 (0.462)	0.006 (0.313)
Development expenditure share				0.050* (0.025)	0.032* (0.019)	0.046* (0.025)
Observations	329	329	329	329	329	329
No. of Counties	47	47	47	47	47	47
No. of Instruments	20	25	20	26	22	30
Hansen statistic	9.872	14.73	9.872	14	11.69	15
Hansen p-value	0.274	0.256	0.196	0.233	0.111	0.378
AR1 p-value	0.003	0.002	0.003	0.006	0.006	0.007
AR2 p-value	0.721	0.783	0.721	0.962	0.840	0.932

Notes: Time dummies are included in all specifications. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

1/ VFI = share of county spending not financed through own revenue

2/ HFI dummy = 1 when the Mean Per capita GCP is greater than the county's per capita GCP, otherwise 0.

"optimal" positive VFI maximizing the local revenue collection efforts. The inverted U-shape relationship between VFI and OSR could be related to the dynamics of resource mobilization in the decentralization process explained in Bird and Smart (2002). The first resource transfers often serve to strengthen the capacities of local tax authorities, which can initially increase the efficiency of local administration, and therefore its ability to collect local taxes efficiently. Once a certain transfer of resources from the central tax administration is reached, when these resources are no longer capacity-building, free-rider behavior emerges, with the aim of reducing local resource mobilization efforts in order to continue to benefit from central administration.

Similarly, in line with earlier predictions discussed in Section 5.3.3, the estimated coefficient of the HFI variable is positive and statistically significant across all the specification models. This implies that disadvantaged counties increase their tax effort to offer local services quality comparable to the advantaged ones in the absence of transfers. This outcome is consistent with both the theoretical and empirical findings of Di Liddo et al. (2019). In contrast to the prior hypothesis, the interaction term shows negative and significant estimated coefficients supporting the hypothesis that in the presence of equalizing transfers and grants from the central government, "poorer" counties relax their tax effort. This finding is in line with the soft budget constraint, the theoretical predictions of Borge et al. (2014), and the empirical conclusions reached by Eyraud and Lusinyan (2013) and Di Liddo et al. (2019).

Adding control variables do not change the results. We find that improvement in control of corruption is associated with more own source revenue since we get a positive and statistically significant coefficient for the control of corruption variable. The election dummy shows a statistically significant negative coefficient confirming that governments tend to implement expansionary policies – either an increase in the level of public expenditure, a decrease in the level of tax effort, or a combination of both to increase their odds of re-election. The coefficients of the log of per capita GCP and development share of county spending are positive and statistically significant, confirming the contribution of economic growth and development spending in expanding the fiscal base.

5.5.2 Robustness Checks

The validity of the baseline results is checked on four fronts. First and foremost, I check against sensitivity to outliers by dropping Nairobi and Mombasa counties from the regressions, and the results remain the same. Second, I check whether the measurements of HFI might drive the findings. I, therefore, re-estimate the baseline specifications in Table 5.2 using an

alternative indicator of HFI. Here HFI is measured as the ratio of the maximum value of per capita GCP to average per capita GCP, such that higher values of this variable denote disadvantaged/ "poorer" counties. The results in Table 5.4 demonstrate the consistency of the baseline findings. The main variables are still significant, with the expected signs, and the coefficients are of the same order of magnitude.

Third, the empirical tests are repeated using transfer dependency as an alternative measure of VFI, and the results are reported in Table 5.5. Broadly consistent with the baseline results, transfer dependency has a negative and statistically significant effect on local tax efforts. I also find evidence of the u-shaped non-linear relationship between VFI and own-source revenue. However, the HFI variable and the interaction term are insignificant. The remaining explanatory variables retain their degrees of significance and signs for the most part.

Finally, even though the panel is dynamic, I also test the consistency of the results by employing static estimators (see Table 5.6). I re-estimate equation 1 using the Fixed Effects estimator with robust standard errors clustered at the county level to deal with heteroscedasticity, serial correlation, and cross-sectional dependence and the Driscoll-Kraay estimator, which is also robust to heteroscedasticity, cross-sectional and temporal dependence with country Fixed Effects. In these specifications, I use the lag value of the VFI variable in an attempt to control for its potential endogeneity. Although the sizes of the coefficients of the primary variables vary, the signs and statistical significance of the variables do not change.

5.6 Conclusions and Policy Discussions

Since the beginning of devolution in 2010, the Kenyan fiscal system has been characterized by the presence of significant vertical imbalances, resulting in the common pool problem, which has the potential to skew local budgetary discipline. Using county-level panel dataset for the period FY2013/14 to FY2020/21, this paper is the first to examine the presence of

VFIs and HFIs and their effects on local fiscal discipline in the context of own source revenue collection efforts in Kenya.

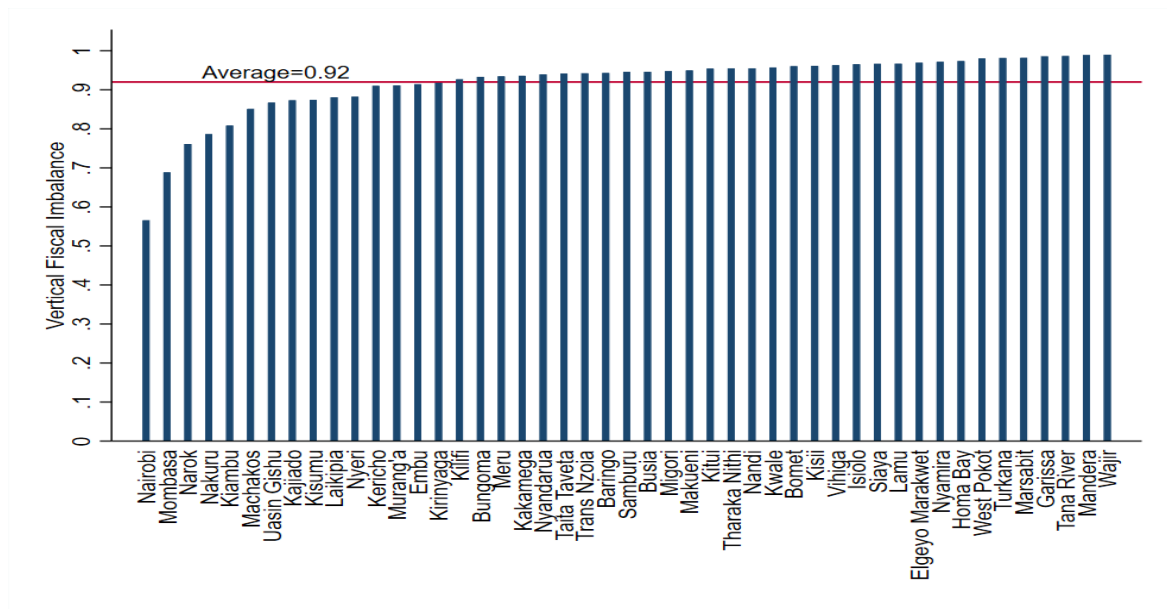
The study finds that vertical imbalances diminish the share of county OSR, confirming the concept that large VFIs may foster subnational fiscal indiscipline through a lower tax effort. Furthermore, I find evidence of a nonlinear relation between VFIs and OSR, presenting an inverted U shape. This infers that as VFIs grow, OSR efficiency improves until further increases in VFIs result in a decline in tax effort. As a result, while the degree of VFIs is considered necessary for optimal performance, too high a VFI leads to the dual common pool and soft budget constraint concerns, which degrades performance. The results also reveal that "poorer" county governments exert more tax effort. Additionally, the harmful effect of VFIs is more pronounced in counties with high HFIs, whether the HFI is measured as the per capita income deviation from the mean or the maximum value. The findings remain consistent across specifications, adjusting for endogeneity and employing different measurements of both VFIs and HFIs.

In terms of policy suggestions, the findings of this chapter are essential for subsequent intergovernmental reforms in Kenya and other developing countries with devolution plans underway. This is because the context of the analysis is that of a local government with limited revenue autonomy, as in many developing countries. While the discussed findings reflect the concepts of soft budget constraints and common pool theories, the study notes the need to match county governments' OSR and spending responsibilities, as Karpowicz (2012) suggested. While the literature is typically cautious about assigning essential revenue bases to SNGs, allowing them to generate adequate OSR is crucial because it encourages them to absorb the cost of their expenditure better. But is there scope to increase revenue assignment to county governments? Practically, revenue devolution involves various challenges, including the HFIs discussed above.

Furthermore, Kenyan counties are yet to reach their potential as far as OSR generation is concerned. KIPPRA (2019) argues that for counties to meet their budgeted OSR targets, it is imperative to reinforce revenue collection systems, explore promising revenue sources discussed in the OSR policy, and enhance governance, accountability, and oversight in revenue management. In fact, based on the analysis, improving governance, particularly by reducing the degree of corruption, would improve the performance of OSR collection. It is also essential to improve the revenue sharing formula's design, e.g., by returning the fiscal effort index.

Appendix

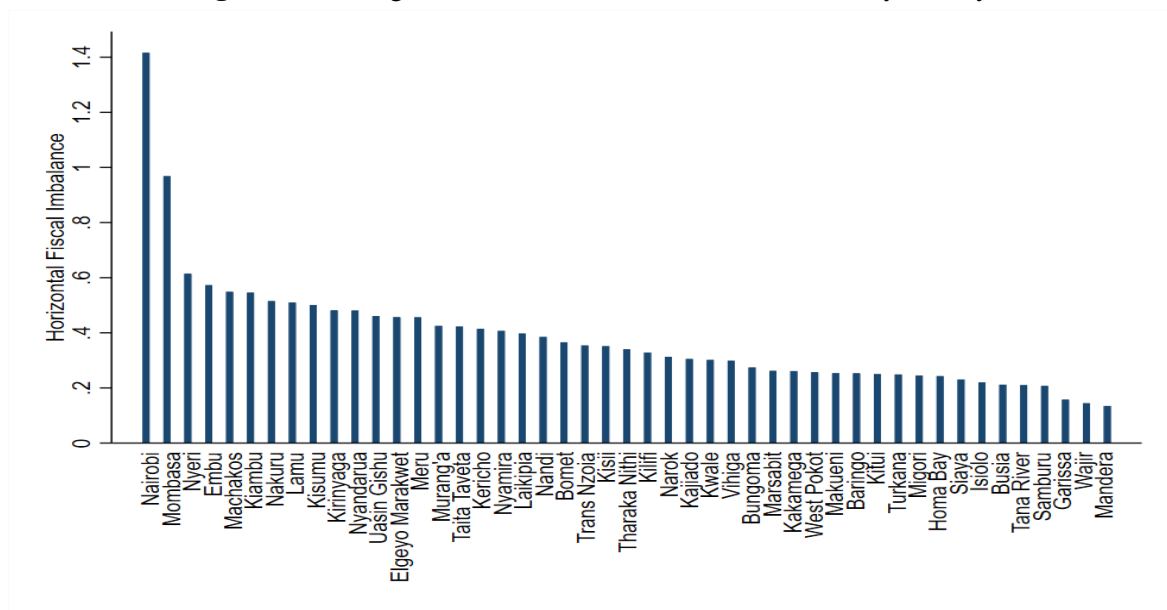
Figure 5.2 Average VFI over FY 2013/14 to FY 2020/21, by County



Source: Author's estimates using data from KNBS and CGBIRR.

Note: VFI = share of county spending not financed through own source revenues

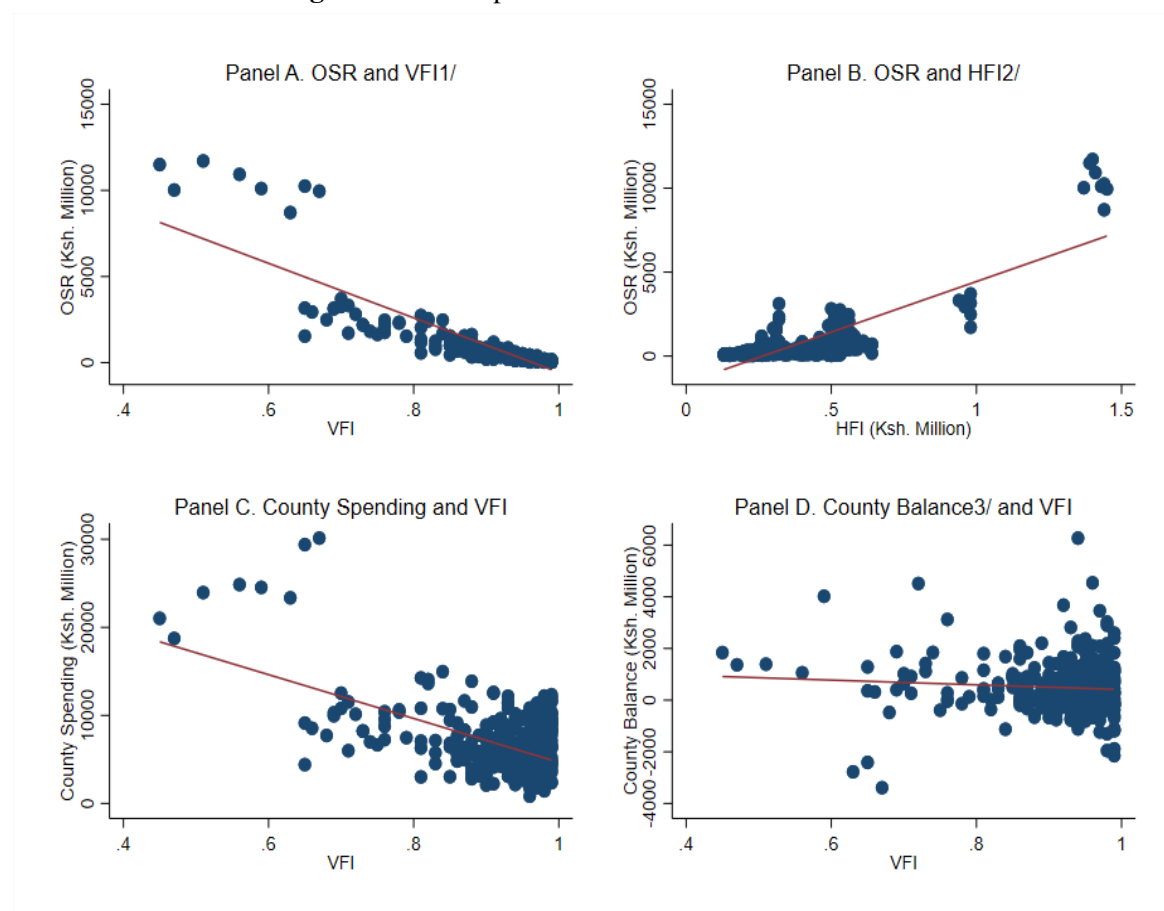
Figure 5.3 Average HFI over FY 2013/14 to FY 2020/21, by County



Source: Author's estimates using data from KNBS Gross County Product 2021.

Note: HFI = share of county per capita Gross County Product (GCP) to average of top three counties per capita GCP.

Figure 5.4 Fiscal performance and Fiscal Imbalances



Source: Author's estimates using data from KNBS economic surveys.

Note: VFI1/ = share of county spending not financed through own source revenues.

HFI2/ = ratio of county per capita GCP to the average per capita GCP of top 3 counties.

County balance3/ = county total revenue minus total expenditure.

Table 5.3 List of Variables, Summary Statistics and Data Sources

Variable	Obs	Mean	SD	Min	Max	Source
OSR/Total county receipts	376	0.075	0.081	0.006	0.503	KNBS
VFI	376	0.919	0.085	0.453	0.995	KNBS
Transfer dependency	376	1.032	0.232	0.508	2.254	KNBS
Population share	376	0.24	0.016	0.003	0.116	KNBS/CRA
Development spending/Total spending	376	0.288	0.106	0.018	0.641	CGBIRR
Corruption index	376	0.317	0.016	0.294	0.343	WGI
GCP per capita	376	127328	71742	39371	515824	KNBS
HFI (Max GCPPC/GCPPC)	376	5	2.218	1	13.102	Author's construction

Table 5.4 Robustness Checks: Ratio of Maximum per capita GCP to average per capita GCP as an alternative measure of HFI

Dependent Variable: OSR to total county revenue ratio					
Variable	(1)	(2)	(3)	(4)	(5)
OSR share(t-1)	0.239** (0.118)	0.228** (0.113)	0.226** (0.107)	0.363*** (0.117)	0.237** (0.111)
VFI 1/	-0.668*** (0.133)	-0.708*** (0.126)	-0.639*** (0.125)	-0.088*** (0.033)	-0.642*** (0.145)
HFI 2/	0.026** (0.013)	0.025** (0.010)	0.038*** (0.011)	0.123*** (0.018)	0.041*** (0.013)
VFI*HFI	-0.027* (0.014)	-0.024** (0.011)	-0.031** (0.012)	-0.127*** (0.020)	-0.034** (0.015)
Corruption		2.337*** (0.430)	0.203*** (0.041)	0.291*** (0.056)	
Election dummy		-0.068*** (0.014)	-0.002* (0.001)	-0.004** (0.002)	-0.005** (0.002)
Ln. GDP per capita			0.046*** (0.010)		0.052*** (0.012)
Population share			-0.042 (0.417)	1.011** (0.483)	-0.178 (0.396)
Development expenditure share			0.019 (0.037)	-0.005 (0.031)	
Observations	329	329	329	329	329
No. of Counties	47	47	47	47	47
No. of Instruments	29	23	27	34	26
Hansen statistic	25.47	16.78	14.60	29.37	16.18
Hansen p-value	0.085	0.158	0.480	0.168	0.370
AR1 p-value	0.005	0.003	0.006	0.062	0.004
AR2 p-value	0.923	0.920	0.893	0.836	0.833

Notes: Time dummies are included in all specifications. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

1/ VFI = share of county spending not financed through own revenue

2/ HFI = ratio of the maximum value of per capita GCP to average per capita GCP, such that higher values of this variable denote disadvantaged/"poorer" counties.

Table 5.5 Robustness Checks: Transfer Dependency as an alternative measure of VFI

Variable	Dependent Variable: OSR to total county revenue ratio						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
OSR share(t-1)	0.778*** (0.161)	0.904*** (0.075)	0.689*** (0.218)	1.002*** (0.129)	0.402*** (0.142)	0.394** (0.167)	0.327* (0.191)
VFI	-0.315** (0.132)	0.153*** (0.053)	-0.341** (0.152)	0.287** (0.140)	-0.117*** (0.040)	-0.115*** (0.039)	-0.173*** (0.060)
VFI 1/ squared		-0.153** (0.059)		-0.193** (0.090)			
HFI dummy 2/	-0.049 (0.084)	-0.097 (0.060)	-0.133 (0.113)	-0.116 (0.075)	-0.066 (0.042)	-0.075 (0.045)	-0.084 (0.053)
VFI*HFI	0.060 (0.084)	0.098 (0.064)	0.114 (0.082)	0.129 (0.086)	0.026 (0.043)	0.057 (0.037)	0.073 (0.053)
Corruption			1.186** (0.510)	-0.288 (0.214)	0.573*** (0.157)		0.168 (0.448)
Election dummy			-0.019** (0.008)	-0.018*** (0.004)	-0.032*** (0.010)	-0.012*** (0.003)	-0.025*** (0.007)
Ln. GDP per capita						0.012** (0.005)	0.015 (0.017)
Population share					1.226*** (0.426)	1.350*** (0.344)	1.223*** (0.452)
Development expenditure share					-0.048 (0.049)		-0.080 (0.063)
Observations	329	329	329	329	329	329	329
No. of Counties	47	47	47	47	47	47	47
No. of Instruments	17	18	19	25	23	29	28
Hansen statistic	5.734	10.80	6.697	19.17	13.99	22.34	16.04
Hansen p-value	0.333	0.213	0.350	0.206	0.173	0.172	0.311
AR1 p-value	0.033	0.010	0.038	0.007	0.010	0.028	0.005
AR2 p-value	0.555	0.256	0.662	0.125	0.292	0.120	0.179

Notes: Time dummies are included in all specifications. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

1/ VFI = ratio of total transfers received by county governments from the central government.

2/ HFI dummy = 1 when the Mean Per capita GCP is greater than the county's per capita GCP, otherwise 0.

Table 5.6 Robustness Checks: Fixed Effects and Driscoll-Kraay estimators as alternative estimation methods

Variable	Dependent Variable: OSR to total county revenue ratio					
	(1)	(2)	(3)	(4)	(5)	(6)
OSR share(t-1)	0.187* (0.105)	0.0753 (0.129)	0.0242 (0.111)	0.176** (0.080)	0.177*** (0.063)	0.155*** (0.051)
VFI(t-1)1/	-0.143 (0.096)	-0.262*** (0.081)	-0.274** (0.113)	-0.123* (0.067)	-0.112** (0.052)	-0.160*** (0.045)
HFI dummy 2/	0.699*** (0.121)	0.724*** (0.098)	0.695*** (0.118)	0.700*** (0.114)	0.696*** (0.112)	0.679*** (0.121)
VFI*HFI	-0.742*** (0.124)	-0.764*** (0.100)	-0.736*** (0.121)	-0.743*** (0.117)	-0.740*** (0.115)	-0.718*** (0.125)
Corruption		0.045 (0.086)	0.127 (0.077)		0.331*** (0.033)	-0.133 (0.145)
Election dummy		-0.00311 (0.00321)	-0.00675*** (0.00222)		-0.00166 (0.00135)	-0.00539** (0.00252)
Ln. GDP per capita			-0.024 (0.019)			0.026 (0.019)
Population share			-1.560** (0.625)			-1.865 (1.125)
Development expenditure share			0.017 (0.014)			
Constant	0.194** (0.096)	0.298*** (0.094)	0.600** (0.241)	0.178** (0.066)	0.058 (0.058)	-0.003 (0.207)
Observations	329	329	329	329	329	329
No. of Counties	47	47	47	47	47	47
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Overall R-squared	0.734	0.493	0.531	0.568	0.571	0.573

Notes: Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

1/ VFI = share of county spending not financed through own revenue.

2/ HFI dummy = 1 when the Mean Per capita GCP is greater than the county's per capita GCP, otherwise 0.

6

General Conclusion

6.1 Contributions and Implications

Fiscal policy is critical in the funding of development projects, especially in the context of limited budgetary space, as is the situation in many developing countries. Certainly, there is a significant financial gap that impedes the economic growth of emerging countries, particularly the low and lower middle-income countries. Copious efforts have been made, both domestically and internationally, to create a sustainable fiscal space to address the ramifications of this funding deficit. In order to ensure long-term economic development, it is imperative that fiscal policy is very efficient and effective.

This thesis discusses the potential of fiscal policy as an asset for development financing through three issues that could be used to improve the effectiveness of this political economic tool in terms of mobilizing resources. The thesis empirically addresses four main questions: Can governments of remittance-receiving developing countries harness these personal transfers? Does the adoption of macroeconomic convergence programs foster fiscal convergence and fiscal discipline in regional economic unions? Does fiscal decentralization enhance the fiscal performance of developing countries? How does revenue mobilization at subnational government level respond to the presence of fiscal imbalances?

Chapter 2 has investigated, using a nonlinear approach, how remittances impact the non-resource tax receipts of remittance-recipient countries between 1995 and 2020, and how this relationship is modified by the stability of institutions. The results show a definite positive association between remittances and non-resource taxes that mainly occurs through its effect on indirect taxes. Furthermore, this positive effect diminishes as countries stabilize their institutional environments. Based on the analysis of the 108 developing countries, improving the efficiency of indirect tax mobilization, particularly by reducing the shadow economy, tax evasion etc. allows governments to benefit from remittance inflows.

The investigation on the effects of fiscal convergence programs in Chapter 3 shows that despite the lack of absolute fiscal convergence, the adoption of the macroeconomic convergence programs promotes conditional convergence. The analysis, covering several RECs in Africa from 1995 to 2021, also reveals homogeneity in the convergence clubs in all the fiscal variables, albeit with a few divergent countries in ECOWAS and SADC. Furthermore, it fails to validate the hypothesis that belonging to a monetary zone augments the response of fiscal policy to increasing public debt. Nonetheless, fiscal policy stance is sustainable both in Africa and in the combined monetary zone (WAEMU, CEMAC and the Rand zone). This suggests that the perceived deeper integration in monetary zones contributes to some form of fiscal discipline. The policy messages are these countries could have a better chance at achieving fiscal convergence, which is a prerequisite for forming monetary unions by supporting fiscal consolidation and improving surveillance on the convergence criteria.

The examination of the effects of expenditure decentralization and revenue autonomy on the fiscal performance of both central and subnational in Chapter 4 highlights that expenditure decentralization could enhance central fiscal performance but only at low levels of transfer dependency by SNGs. Additionally, enhancing SNG accountability is needed to reduce the deficit bias at the SNG level. Subsequently, in the context of the finding that increased revenue autonomy is detrimental to both central and subnational performance,

it becomes imperative that future fiscal decentralization reforms consider the implications of intergovernmental fiscal relations between levels of governments and enhance local accountability when designing these reforms.

Finally, chapter 5 studies how fiscal imbalances (vertical and horizontal imbalances) affect tax revenue collection efforts at the subnational level in Kenya. This is intuitive so as to establish the channels through which transfer dependency impacts the fiscal performance of the general government. The results show that vertical imbalances diminish the share of county own source revenues, confirming the concept that large VFIs may foster subnational fiscal indiscipline through a lower tax effort. However, “poorer” county governments exert more tax effort. The policy implication is that SNGs’ own source revenues and could be matched with their spending responsibilities, and subnational governance enhanced, particularly by curbing corruption.

6.2 Limitations and Avenues for future research

The analysis in this thesis has certain limitations. Precisely, it did not analyze the impacts of structural fiscal changes such as PFM reforms which can affect fiscal policy effectiveness, particularly in developing country contexts.

Fiscal policy is unquestionably an important policy instrument in the light of the oncoming global economic catastrophe (IMF, 2022). In an endeavor to build considerable fiscal space to be prepared for future crises, there are a few areas of the research on fiscal space that could be explored. For example, the issues of tax reforms, the equity and efficacy of tax policies such as property tax, VAT, and other local taxes, as well as their connections with increasing globalization and fiscal sustainability, are all relevant study topics. They will allow the employment of different empirical strategies such as experimental tools, spatial analysis, impact evaluation methods, efficiency analysis tools etc.

Additionally, while assessing developing countries' fiscal space, the spending side should be considered since it defines the amount of domestic resources needed. This is especially important in devolved countries where the public sector is larger. The availability of disaggregated data, on the other hand, would be a problematic. While recent attempts by the ICTD to offer disaggregated tax data have permitted and even encouraged study on tax issues in developing countries, the same cannot be said for spending data. The data given by the IMF's GFS database only includes a few developing countries, thus limiting the fiscal sustainability analyses.

Finally, there is a large increase in public debt across developing countries, including both the domestic and foreign private sectors, in tandem with different debt relief measures. Unfortunately, little empirical data has been produced on this interconnection and its consequences for fiscal sustainability. Further budget data disaggregation will aid in assessing and identifying inefficient sectors and improving policy-making.

References

- Abdih, Y., Chami, R., Dagher, J., and Montiel, P. (2012). Remittances and institutions: Are remittances a curse? *World Development*, 40(4):657–666.
- Acemoglu, D., Johnson, S., and Robinson, J. A. (2012). The colonial origins of comparative development: An empirical investigation: Reply. *American Economic Review*, 102(6):3077–3110.
- Acosta, P. A., Lartey, E. K., and Mandelman, F. S. (2009). Remittances and the dutch disease. *Journal of international economics*, 79(1):102–116.
- Adedeji, M. O. S., Ahokposi, M. C., Battiati, C., and Farid, M. M. (2016). *A probabilistic approach to fiscal space and prudent debt level: Application to low-income developing countries*. International Monetary Fund.
- Adedeji, O. and Williams, O. (2007). Fiscal reaction functions in the cfa zone: An analytical perspective. *IMF Working Papers*, 2007(232).
- Afonso, A. and Hauptmeier, S. (2009). Fiscal behaviour in the european union: rules, fiscal decentralization and government indebtedness. Technical report, ECB Working Paper.
- Aggarwal, R., Demirgüç-Kunt, A., and Pería, M. S. M. (2011). Do remittances promote financial development? *Journal of development economics*, 96(2):255–264.
- Ahamada, I. and Coulibaly, D. (2013). Remittances and growth in sub-saharan african countries: Evidence from a panel causality test. *Journal of International Development*, 25(3):310–324.
- Ahmed, F. Z. (2013). Remittances deteriorate governance. *Review of Economics and Statistics*, 95(4):1166–1182.
- Aigner, D., Lovell, C. K., and Schmidt, P. (1977). Formulation and estimation of stochastic frontier production function models. *Journal of econometrics*, 6(1):21–37.
- Ajide, K. B. and Raheem, I. D. (2016). The institutional quality impact on remittances in the ecowas sub-region. *African Development Review*, 28(4):462–481.
- Akech, M. (2010). *Institutional reform in the new constitution of Kenya*.
- Akosah, N. K. (2015). Empirical appraisal of fiscal stability: the case of ghana. *Journal of Economic Studies*, 42(5):753–779.

- Akram, V. and Ali, J. (2021). Output convergence at sector level across indian states: Evidence from weak sigma and club convergence analysis. *Journal of International Development*, 33(7):1166–1188.
- Aldama, P. and Creel, J. (2022). Real-time fiscal policy responses in the oecd from 1997 to 2018: Procyclical but sustainable? *European Journal of Political Economy*, 73:102135.
- Alexeev, M., Avxentyev, N., Mamedov, A., and Sinelnikov-Murylev, S. G. (2019). Fiscal decentralization, budget discipline, and local finance reform in russia's regions. *Public finance review*, 47(4):679–717.
- Alfirman, L. (2003). *Estimating stochastic frontier tax potential: Can Indonesian local governments increase tax revenues under decentralization?* Center for Economic Analysis, Department of Economics, University of
- Allers, M. A. and Ishemol, L. J. (2010). Fiscal capacity equalisation in tanzania. *Local Government Studies*, 36(5):697–713.
- Ambler, K., Aycinena, D., and Yang, D. (2015). Channeling remittances to education: A field experiment among migrants from el salvador. *American Economic Journal: Applied Economics*, 7(2):207–232.
- Anwar, A. I. and Mang, C. F. (2022). Do remittances cause dutch disease? a meta-analytic review. *Applied Economics*, 54(36):4131–4153.
- Arčabić, V. (2018). Fiscal convergence and sustainability in the european union. *Public Sector Economics*, 42(4):353–380.
- Arellano, M. and Bover, O. (1995). Another look at the instrumental variable estimation of error-components models. *Journal of econometrics*, 68(1):29–51.
- Argimón, I. and Cos, P. H. d. (2012). Fiscal rules and federalism as determinants of budget performance: An empirical investigation for the spanish case. *Public Finance Review*, 40(1):30–65.
- Asatryan, Z., Bittschi, B., and Doerrenberg, P. (2017). Remittances and public finances: Evidence from oil-price shocks. *Journal of Public Economics*, 155:122–137.
- Asatryan, Z., Feld, L. P., and Geys, B. (2015). Partial fiscal decentralization and sub-national government fiscal discipline: empirical evidence from oecd countries. *Public Choice*, 163(3):307–320.
- Asongu, S. (2014). Are proposed african monetary unions optimal currency areas? real, monetary and fiscal policy convergence analysis. *African Journal of Economic and Management Studies*.
- Asongu, S., Nwachukwu, J., and Tchamyu, V. (2017). A literature survey on proposed african monetary unions. *Journal of Economic Surveys*, 31(3):878–902.
- Azizi, S. (2017). Altruism: primary motivation of remittances. *Applied Economics Letters*, 24(17):1218–1221.

- Azizi, S. (2019). Why do migrants remit? *The World Economy*, 42(2):429–452.
- Bahl, R. and Bird, R. M. (2018). *Fiscal decentralization and local finance in developing countries*. Edward Elgar Publishing.
- Baldi, G. and Staehr, K. (2016). The european debt crisis and fiscal reactions in europe 2000–2014. *International Economics and Economic Policy*, 13:297–317.
- Bamba, L. (2004). Analyse du processus de convergence dans la zone uemoa. Technical report, WIDER Research Paper.
- Bangake, C., Désiré, A., NDOYA, H., and ADOUMA, P. (2022). Do remittances increase tax revenues in developing countries? evidence from the threshold regression models.
- Barajas, A., Chami, R., Fullenkamp, C., Gapen, M., and Montiel, P. J. (2009). Do workers' remittances promote economic growth? *International Monetary Fund*.
- Barro, R. J. (1990). Government spending in a simple model of endogenous growth. *Journal of political economy*, 98(5, Part 2):S103–S125.
- Barro, R. J. (1991). Economic growth in a cross section of countries. *The quarterly journal of economics*, 106(2):407–443.
- Barro, R. J. and Sala-i Martin, X. (1992a). Convergence. *Journal of political Economy*, 100(2):223–251.
- Barro, R. J. and Sala-i Martin, X. (1992b). Public finance in models of economic growth. *The Review of Economic Studies*, 59(4):645–661.
- Barro, R. J., Sala-i Martin, X., Blanchard, O. J., and Hall, R. E. (1991). Convergence across states and regions. *Brookings papers on economic activity*, pages 107–182.
- Bartolini, D., Sacchi, A., Salotti, S., and Santolini, R. (2018). Fiscal decentralization in times of financial crises. *CESifo Economic Studies*, 64(3):456–488.
- Baskaran, T. (2010). On the link between fiscal decentralization and public debt in oecd countries. *Public Choice*, 145(3):351–378.
- Baskaran, T. (2012). Tax decentralization and public deficits in oecd countries. *Publius: The Journal of Federalism*, 42(4):688–707.
- Battese, G. E. and Coelli, T. J. (1988). Prediction of firm-level technical efficiencies with a generalized frontier production function and panel data. *Journal of econometrics*, 38(3):387–399.
- Baum, M. A., Hodge, A., Mineshima, M. A., Badia, M. M. M., and Tapsoba, R. (2017). *Can they do it all? Fiscal space in low-income countries*. International Monetary Fund.
- Beaton, K., Cevik, S., and Yousefi, S. R. (2018). Smooth operator: remittances and household consumption during fiscal shocks. *The BE Journal of Macroeconomics*, 18(2).
- Beck, K. et al. (2019). What drives business cycle synchronization? bma results from the european union. *Baltic journal of Economics*, 19(2):248–275.

- Bellemare, M. F., Masaki, T., and Pepinsky, T. B. (2017). Lagged explanatory variables and the estimation of causal effect. *The Journal of Politics*, 79(3):949–963.
- Beqiraj, E., Fedeli, S., and Forte, F. (2018). Public debt sustainability: An empirical study on oecd countries. *Journal of Macroeconomics*, 58:238–248.
- Berdiev, A. N., Kim, Y., and Chang, C.-P. (2013). Remittances and corruption. *Economics Letters*, 118(1):182–185.
- Bergman, U. M. and Hutchison, M. (2015). Economic stabilization in the post-crisis world: Are fiscal rules the answer? *Journal of International Money and Finance*, 52:82–101.
- Bergman, U. M., Hutchison, M. M., and Jensen, S. E. H. (2016). Promoting sustainable public finances in the european union: The role of fiscal rules and government efficiency. *European Journal of Political Economy*, 44:1–19.
- Bertarelli, S., Censolo, R., and Colombo, C. (2014). Fiscal convergence in the european union before the crisis. *Contemporary Economic Policy*, 32(4):784–801.
- Besley, T. and Persson, T. (2014). Why do developing countries tax so little? *Journal of economic perspectives*, 28(4):99–120.
- Bibow, J. (2022). The euro experience: lessons for africa. In *South—South Regional Financial Arrangements: Collaboration Towards Resilience*, pages 99–135. Springer.
- Bird, R. M. and Smart, M. (2002). Intergovernmental fiscal transfers: International lessons for developing countries. *World Development*, 30(6):899–912.
- Blanco, F., Delgado, F. J., and Presno, M. J. (2020). Fiscal decentralization policies in the eu: a comparative analysis through a club convergence analysis. *Journal of Comparative Policy Analysis: Research and Practice*, 22(3):226–249.
- Blundell, R. and Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, 87:115–143.
- Blundell, R., Bond, S., and Windmeijer, F. (2001). *Estimation in dynamic panel data models: improving on the performance of the standard GMM estimator*. Emerald Group Publishing Limited.
- Boadway, R. (2008). Fiscal equalization: the canadian experience. *Fiscal Federalism and Political Decentralization*, page 109.
- Boadway, R., Cuff, K., and Marchand, M. (2003). Equalization and the decentralization of revenue-raising in a federation. *Journal of Public Economic Theory*, 5(2):201–228.
- Bodea, C. and LeBas, A. (2016). The origins of voluntary compliance: attitudes toward taxation in urban nigeria. *British Journal of Political Science*, 46(1):215–238.
- Bodman, P. and Hodge, A. (2010). What drives fiscal decentralisation? further assessing the role of income. *Fiscal studies*, 31(3):373–404.

- Bogetić, Ž., Naeher, D., and Narayanan, R. (2022). Measuring untapped revenue potential in developing countries: cross-country frontier and panel data analysis. *Journal of Public Finance and Public Choice*, pages 1–39.
- Bohn, H. (1998). The behavior of us public debt and deficits. *the Quarterly Journal of economics*, 113(3):949–963.
- Bohn, H. (2008). The sustainability of fiscal policy in the united states. *Sustainability of public debt*, pages 15–49.
- Bond, S. R., Hoeffler, A., and Temple, J. R. (2001). Gmm estimation of empirical growth models. *Available at SSRN 290522*.
- Bordignon, M. (2006). Fiscal decentralization: how to harden the budget constraint. *Fiscal Policy Surveillance in Europe*, pages 109–136.
- Borge, L.-E., Brueckner, J. K., and Rattsø, J. (2012). Partial fiscal decentralization and public-sector heterogeneity: theory and evidence from norway.
- Borge, L.-E., Brueckner, J. K., and Rattsø, J. (2014). Partial fiscal decentralization and demand responsiveness of the local public sector: Theory and evidence from norway. *Journal of Urban Economics*, 80:153–163.
- Borrett, C., Tugran, T., Gancheva, M., and Zamparutti, T. (2021). *Developing a decentralisation index for the Committee of the Regions Division of Powers Portal*. European Committee of the Regions.
- Brennan, G. and Buchanan, J. M. (1980). *The power to tax: Analytic foundations of a fiscal constitution*. Cambridge University Press.
- Brock, W. A. and Taylor, M. S. (2010). The green solow model. *Journal of Economic Growth*, 15:127–153.
- Brueckner, J. K. (2009). Partial fiscal decentralization. *Regional Science and Urban Economics*, 39(1):23–32.
- Brun, J.-F. and El Khdari, M. (2016). The incentive effects of conditional and unconditional transfers on local own revenue generation: Empirical evidence from moroccan municipalities.
- Bruno, G. S. (2005). Approximating the bias of the lsdv estimator for dynamic unbalanced panel data models. *Economics letters*, 87(3):361–366.
- Bruno, G. S., Choudhry Tanveer, M., Marelli, E., and Signorelli, M. (2017). The short-and long-run impacts of financial crises on youth unemployment in oecd countries. *Applied Economics*, 49(34):3372–3394.
- Bucci, V., Ferrara, G., and Resce, G. (2023). Local government spending efficiency and fiscal decentralization: evidence from italian municipalities. *Applied Economics*, pages 1–16.

- Bucur, I. A. and Dragomirescu, S. E. (2013). An analysis of the fiscal convergence criteria in the european union in terms of the sustainability. *Studies and Scientific Researches. Economics Edition*, (18).
- Buddelmeyer, H., Jensen, P. H., Oguzoglu, U., and Webster, E. (2008). Fixed effects bias in panel data estimators.
- Buigut, S. K. and Valev, N. T. (2006). Eastern and southern africa monetary integration: A structural vector autoregression analysis. *Review of Development Economics*, 10(4):586–603.
- Buiter, W. and Rahbari, E. (2010). Greece and the fiscal crisis in the eurozone [cepr policy insight no. 51]. *Centre for Economic Policy Research (CEPR)*.
- Bun, M. J. and Carree, M. A. (2005). Bias-corrected estimation in dynamic panel data models. *Journal of business & economic statistics*, 23(2):200–210.
- Bun, M. J. and Kiviet, J. F. (2003). On the diminishing returns of higher-order terms in asymptotic expansions of bias. *economics Letters*, 79(2):145–152.
- Burger, P., Stuart, I., Jooste, C., and Cuevas, A. (2012). Fiscal sustainability and the fiscal reaction function for south africa: Assessment of the past and future policy applications. *South African Journal of Economics*, 80(2):209–227.
- Burnside, C. (2005). *Fiscal sustainability in theory and practice: a handbook*, volume 396. World Bank Publications.
- Cabrillac, B. and Rocher, E. (2013). Les perspectives des unions monétaires africaines. *Revue d'économie financière*, (2):99–125.
- Caldeira, É., Compaore, A., Dama, A. A., Mansour, M., and Rota-Graziosi, G. (2019). Taxeffort in sub-saharan african countries: Evidence from a new dataset. *Revue deconomie du developpement*, 27(4):5–51.
- Caldeira, E. and Rota-Graziosi, G. (2014). The crowding-in effect of simple unconditional central grants on local own-source revenue: The case of benin. *Journal of African Economies*, 23(3):361–387.
- Canavire-Bacarreza, G., Martinez-Vazquez, J., and Yedgenov, B. (2017). Reexamining the determinants of fiscal decentralization: what is the role of geography? *Journal of Economic Geography*, 17(6):1209–1249.
- Canavire-Bacarreza, G. J., Martínez-Vázquez, J., and Sepulveda, C. F. (2012). Sub-national revenue mobilization in peru. *Andrew Young School of Policy Studies Research Paper Series*, (12-22):12–09.
- Carmignani, F. (2006). The road to regional integration in africa: Macroeconomic convergence and performance in comesa. *Journal of African economies*, 15(2):212–250.
- Castells, A. C. O., Esteller Moré, A., and Vilalta, M. (2004). Full characterisation of the political economy of fiscal adjustment: Evidence from spanish municipalities. *IEB Working Paper 2004/03*.

- Cham, T. (2009). Is wamz an optimum currency area (oca). *West African Journal of Monetary and Economic Integration*, 9(2):96–120.
- Chami, R., Abdih, Y., Mati, A., and Gapen, M. T. (2009). Fiscal sustainability in remittance-dependent economies. *IMF Working Papers*, 2009(190).
- Chami, R., Barajas, A., Cosimano, T., Fullenkamp, C., Gapen, M., and Montiel, P. (2008). *Macroeconomic consequences of remittances*. International Monetary Fund Washington, DC.
- Charbit, C. and Michalun, M. V. (2009). Mind the gaps: Managing mutual dependence in relations among levels of government.
- Charnes, A., Cooper, W. W., and Rhodes, E. (1978). Measuring the efficiency of decision making units. *European journal of operational research*, 2(6):429–444.
- Checherita-Westphal, C. and Žd'árek, V. (2017). Fiscal reaction function and fiscal fatigue: evidence for the euro area. Technical report, ECB Working Paper.
- Choudhury, A. and Sahu, S. (2022). Revisiting the nexus between fiscal decentralization and government size-the role of ethnic fragmentation. *European Journal of Political Economy*, 75:102193.
- Coelli, T. J., Rao, D. S. P., O'Donnell, C. J., and Battese, G. E. (2005). *An introduction to efficiency and productivity analysis*. Springer science & business media.
- Combes, J.-L. and Ebeke, C. (2011). Remittances and household consumption instability in developing countries. *World Development*, 39(7):1076–1089.
- Cooray, A., Dzhumashev, R., and Schneider, F. (2017). How does corruption affect public debt? an empirical analysis. *World development*, 90:115–127.
- Cordes, T., Kinda, M. T., Muthoora, M. P. S., and Weber, A. (2015). *Expenditure rules: effective tools for sound fiscal policy?* International Monetary Fund.
- Coulibaly, I. and Gnimassoun, B. (2013). Optimality of a monetary union: New evidence from exchange rate misalignments in west africa. *Economic Modelling*, 32:463–482.
- Crespo-Cuaresma, J., Pfaffermayr, M., Amador, O. F., and Keppel, C. (2011). Macroeconomic aspects of european integration: Fiscal policy, trade integration and the european business cycle. Technical report, FIW-Research Reports.
- Crivelli, E. and Staal, K. (2013). Size, spillovers and soft budget constraints. *International Tax and Public Finance*, 20:338–356.
- Dafflon, B. and Madiès, T. (2012). *The political economy of decentralization in Sub-Saharan Africa: a new implementation model in Burkina Faso, Ghana, Kenya, and Senegal*. World Bank Publications.
- Dahlberg, M., Mörk, E., Rattsø, J., and Ågren, H. (2008). Using a discontinuous grant rule to identify the effect of grants on local taxes and spending. *Journal of Public Economics*, 92(12):2320–2335.

- Darvas, Z., Rose, A. K., Szapáry, G., Rigobon, R., and Reichlin, L. (2005). Fiscal divergence and business cycle synchronization: Irresponsibility is idiosyncratic [with comments]. In *NBER international seminar on macroeconomics*, volume 2005, pages 261–313. The University of Chicago Press Chicago, IL.
- Daway-Ducanes, S. L. S. (2019). Remittances, dutch disease, and manufacturing growth in developing economies. *Scottish Journal of Political Economy*, 66(3):360–383.
- De, S., Islamaj, E., Kose, M. A., and Reza Yousefi, S. (2019). Remittances over the business cycle: Theory and evidence. *Economic Notes: Review of Banking, Finance and Monetary Economics*, 48(3):e12143.
- De Mello, L. R. (2000). Fiscal decentralization and intergovernmental fiscal relations: a cross-country analysis. *World development*, 28(2):365–380.
- De Melo, J. and Tsikata, Y. (2015). Regional integration in africa: Challenges and prospects. Available at SSRN 2608056.
- Debrun, X. and Kinda, T. (2017). Strengthening post-crisis fiscal credibility: fiscal councils on the rise—a new dataset. *Fiscal Studies*, 38(4):667–700.
- Debrun, X., Moulin, L., Turrini, A., Ayuso-i Casals, J., and Kumar, M. S. (2008). Tied to the mast? national fiscal rules in the european union. *Economic Policy*, 23(54):298–362.
- Debrun, X., Ostry, J. D., Willems, T., and Wyplosz, C. (2019). Debt sustainability. *Sovereign debt: A guide for economists and practitioners*, 151.
- Del Monte, A. and Pennacchio, L. (2020). Corruption, government expenditure and public debt in oecd countries. *Comparative economic studies*, 62:739–771.
- Dessus, S., Diaz-Sanchez, J. L., and Varoudakis, A. (2016). Fiscal rules and the pro-cyclicality of public investment in the west african economic and monetary union. *Journal of international development*, 28(6):887–901.
- Devarajan, S., Khemani, S., and Shah, S. (2009). The politics of partial decentralization. In *Does decentralization enhance service delivery and poverty reduction?* Edward Elgar Publishing.
- Di Liddo, G., Longobardi, E., and Porcelli, F. (2016). Measuring horizontal fiscal imbalance: the case of italian municipalities. *Local Government Studies*, 42(3):385–419.
- Di Liddo, G., Longobardi, E., and Porcelli, F. (2019). Fiscal imbalances and fiscal effort of local governments. *The BE Journal of Economic Analysis & Policy*, 19(3).
- Diallo, O. (2009). Tortuous road toward countercyclical fiscal policy: Lessons from democratized sub-saharan africa. *Journal of Policy Modeling*, 31(1):36–50.
- Dreher, A., Gehring, K., Kotsogiannis, C., and Marchesi, S. (2018). Information transmission within federal fiscal architectures: Theory and evidence. *Oxford Economic Papers*, 70(1):243–265.
- Du, K. (2017). Econometric convergence test and club clustering using stata. *The Stata Journal*, 17(4):882–900.

- Ebeke, C. and Combes, J.-L. (2013). Do remittances dampen the effect of natural disasters on output growth volatility in developing countries? *Applied Economics*, 45(16):2241–2254.
- Ebeke, C. H. (2014). Do international remittances affect the level and the volatility of government tax revenues? *Journal of International Development*, 26(7):1039–1053.
- Ebeke, H. C. (2012). Do remittances lead to a public moral hazard in developing countries? an empirical investigation. *Journal of Development Studies*, 48(8):1009–1025.
- Ebel, R. D. and Yilmaz, S. (2002). *On the measurement and impact of fiscal decentralization*, volume 2809. World Bank Publications.
- Effiong, E. L. and Asuquo, E. E. (2017). Migrants' remittances, governance and heterogeneity. *International Economic Journal*, 31(4):535–554.
- Egbuna, N. E., John-Sowe, M., Kargbo, S. M., Bawa, S., Diallo, I., Abubakari, H., Odeniran, O. S., Mendy, I., Sambola, E., and Adams, K. (2019). Public debt sustainability in the west african monetary zone. Technical report, WAMI Occasional Paper Series.
- Ekpo, A. H. and Udoh, E. (2014). Policy coordination framework for the proposed monetary union in ecowas. *Regional Economic Integration in West Africa*, pages 59–77.
- El Hamma, I. (2017). Do political institutions improve the effect of remittances on economic growth? evidence from south-mediterranean countries. *Economics Bulletin*, 37(3):2133–2148.
- Emran, M. S. and Stiglitz, J. E. (2005). On selective indirect tax reform in developing countries. *Journal of public Economics*, 89(4):599–623.
- Escolano, M. J., Eyraud, L., Badia, M. M., Sarnes, M. J., and Tuladhar, M. A. (2012). *Fiscal performance, institutional design and decentralization in European Union countries*. International Monetary Fund.
- Eyraud, L. and Badia, M. M. (2013). Too small to fail? subnational spending pressures in europe. *IMF Working Papers*, 2013(046).
- Eyraud, L. and Lusinyan, L. (2013). Vertical fiscal imbalances and fiscal performance in advanced economies. *Journal of Monetary Economics*, 60(5):571–587.
- Faguet, J.-P. (2014). Decentralization and governance. *World Development*, 53:2–13.
- Faguet, J.-P. (2015). Transformation from below in bolivia and bangladesh: decentralization, local governance, and systemic change. Technical report, Working Paper Series.
- Féler, A. and Simard, D. (2019). The waemu surveillance framework: Reforms to foster public debt sustainability. *Selected Issues Paper of IMF Country Report*, 19:91.
- Fenochietto, M. R. and Pessino, M. C. (2013). *Understanding countries' tax effort*. International Monetary Fund.

- Ferreiro, J., García-del Valle, M. T., and Gómez, C. (2013). An analysis of the convergence of the composition of public expenditures in European Union countries. *American Journal of Economics and Sociology*, 72(4):799–825.
- Flannery, M. J. and Hankins, K. W. (2013). Estimating dynamic panel models in corporate finance. *Journal of Corporate Finance*, 19:1–19.
- Foremny, D. (2014). Sub-national deficits in European countries: The impact of fiscal rules and tax autonomy. *European Journal of Political Economy*, 34:86–110.
- Fornasari, F., Webb, S. B., Zou, H.-F., et al. (2000). The macroeconomic impact of decentralized spending and deficits: International evidence. *Annals of Economics and Finance*, 1(2):403–433.
- Frankel, J. A. and Rose, A. K. (1998). The endogeneity of the optimum currency area criteria. *The Economic Journal*, 108(449):1009–1025.
- Frankel, J. A., Vegh, C. A., and Vuletin, G. (2013). On graduation from fiscal procyclicality. *Journal of Development Economics*, 100(1):32–47.
- Freille, S. and Capello, M. (2014). Electoral effects of intergovernmental fiscal transfers: An application to local elections in the province of Cordoba, 1995–2011. *Revista de economía y estadística*, 52(1):113–135.
- Freitag, M. and Vatter, A. (2008). Decentralization and fiscal discipline in sub-national governments: evidence from the Swiss federal system. *Publius: The Journal of Federalism*, 38(2):272–294.
- Friedman, M. (1992). Do old fallacies ever die?
- Gammadigbe, V., Issifou, I., Sembene, D., and Tapsoba, S. J. (2018). Fiscal convergence in Africa: What role for regional economic communities? *Development Economics Journal*, (3):5–31.
- Gemmell, N., Kneller, R., and Sanz, I. (2013). Fiscal decentralization and economic growth: spending versus revenue decentralization. *Economic Inquiry*, 51(4):1915–1931.
- Geys, B., Heinemann, F., and Kalb, A. (2010). Voter involvement, fiscal autonomy and public sector efficiency: Evidence from German municipalities. *European Journal of Political Economy*, 26(2):265–278.
- Ghosh, A. R., Kim, J. I., Mendoza, E. G., Ostry, J. D., and Qureshi, M. S. (2013). Fiscal fatigue, fiscal space and debt sustainability in advanced economies. *The Economic Journal*, 123(566):F4–F30.
- Giuliano, P. and Ruiz-Arranz, M. (2009). Remittances, financial development, and growth. *Journal of Development Economics*, 90(1):144–152.
- Goodspeed, T. J. et al. (2017). Bailouts and soft budget constraints in decentralized government: A synthesis and survey of an alternative view of intergovernmental grant policy. *Hacienda Pública Española/Review of Public Economics*, 220(2):113–134.

- Gordon, R. and Li, W. (2009). Tax structures in developing countries: Many puzzles and a possible explanation. *Journal of public Economics*, 93(7-8):855–866.
- Greene, W. H. (2008). The econometric approach to efficiency analysis. *The measurement of productive efficiency and productivity growth*, 1(1):92–250.
- Grochová, L. I., Rozmahel, P., and Litzman, M. (2022). The effect of fiscal policy asymmetries on business cycle correlation in the eu. *Scientific Annals of Economics and Business*, 69(3):361–376.
- Guo, S., Pei, Y., and Xie, Z. (2022). A dynamic model of fiscal decentralization and public debt accumulation. *Journal of Public Economics*, 212:104692.
- Hagen-Zanker, J. and Siegel, M. (2007). The determinants of remittances: A review of the literature. *Maastricht Graduate School of Governance Working Paper*.
- Hallerberg, M., Strauch, R. R., and Von Hagen, J. (2009). *Fiscal governance in Europe*. Cambridge University Press.
- Hamilton, J. D. (2018). Why you should never use the hodrick-prescott filter. *Review of Economics and Statistics*, 100(5):831–843.
- Hassan, G. M. and Holmes, M. J. (2013). Remittances and the real effective exchange rate. *Applied Economics*, 45(35):4959–4970.
- Heller, M. P. S. (2005). *Understanding fiscal space*. International Monetary Fund.
- Hjalmarsson, L., Kumbhakar, S. C., and Heshmati, A. (1996). Dea, dfa and sfa: a comparison. *Journal of Productivity Analysis*, 7:303–327.
- Hodrick, R. J. and Prescott, E. C. (1997). Postwar us business cycles: an empirical investigation. *Journal of Money, credit, and Banking*, pages 1–16.
- i Martin, X. S. (1995). *The classical approach to convergence analysis*. Centre for Economic Policy Research.
- IMF (2009). Macro policy lessons for a sound design of fiscal decentralization. *Washington, DC, United States: International Monetary Fund, Fiscal Affairs Department*. Available at: <http://www.imf.org/external/np/pp/eng/2009/072709.pdf>.
- IMF (2022). Fiscal monitor: Helping people bounce back. Technical report, International Monetary Fund. Washington, DC: IMF, October.
- Irungu, W. N., Chevallier, J., and Ndiritu, S. W. (2020). Regime changes and fiscal sustainability in kenya. *Economic Modelling*, 86:1–9.
- Ivanyna, M. and Shah, A. (2014). How close is your government to its people? worldwide indicators on localization and decentralization. *Economics*, 8(1).
- Jayaraman, T. K., Ward, B., and Xu, Z. (2007). Are the pacific islands ready for a currency union? an empirical study of degree of economic convergence. *Journal of the Asia Pacific Economy*, 12(4):504–521.

- Jefferis, K. R. (2007). The process of monetary integration in the sadc region. *Journal of Southern African Studies*, 33(1):83–106.
- Jia, J., Liu, Y., Martinez-Vazquez, J., and Zhang, K. (2021). Vertical fiscal imbalance and local fiscal indiscipline: Empirical evidence from china. *European Journal of Political Economy*, 68:101992.
- Jondrow, J., Lovell, C. K., Materov, I. S., and Schmidt, P. (1982). On the estimation of technical inefficiency in the stochastic frontier production function model. *Journal of econometrics*, 19(2-3):233–238.
- Judson, R. A. and Owen, A. L. (1999). Estimating dynamic panel data models: a guide for macroeconomists. *Economics letters*, 65(1):9–15.
- Junghun, K., Sean, D., et al. (2019). *OECD fiscal federalism studies fiscal decentralisation and inclusive growth in Asia*. OECD Publishing.
- Kappeler, A., Solé-Ollé, A., Stephan, A., and Vällilä, T. (2013). Does fiscal decentralization foster regional investment in productive infrastructure? *European Journal of Political Economy*, 31:15–25.
- Karpowicz, M. I. (2012). *Narrowing vertical fiscal imbalances in four European countries*. International Monetary Fund.
- Kaufmann, D., Kraay, A., and Mastruzzi, M. (2011). The worldwide governance indicators: Methodology and analytical issues1. *Hague journal on the rule of law*, 3(2):220–246.
- Keita, K. S. and Turcu, C. (2019). On promoting fiscal discipline: The role of exchange rate regimes, fiscal rules and institutions. *World Bank Policy Research Working Paper*, (8964).
- Khan, Z. S. and Islam, S. (2013). The effects of remittances on inflation: evidence from bangladesh. *Journal of Economics and Business Research*, 19(2):198–208.
- Khaunya, M. F. and Wawire, B. P. (2015). Devolved governance in kenya; is it a false start in democratic decentralization for development?
- KIPPRA (19 December, 2019). Revenue sharing stalemate between national government and county governments. <https://kippra.or.ke/revenue-sharing-stalemate-between-national-government-and-county-governments/>.
- Kiviet, J. F. (1995). On bias, inconsistency, and efficiency of various estimators in dynamic panel data models. *Journal of econometrics*, 68(1):53–78.
- Kočenda, E., Kutan, A. M., and Yigit, T. M. (2008). Fiscal convergence in the european union. *The North American journal of Economics and finance*, 19(3):319–330.
- Koley, M. and Mandal, K. (2019). Vertical fiscal imbalances and its impact on fiscal performance: A case for indian states. *Opportunities and Challenges in Development: Essays for Sarmila Banerjee*, pages 243–282.
- Kornai, J. (1986). The soft budget constraint. *Kyklos*, 39(1):3–30.

- Kouba, L., Mádr, M., Nerudová, D., and Rozmahel, P. (2016). Policy autonomy, coordination or harmonization in the persistently heterogeneous european union? *Danube*, 7(1):53–71.
- Krogstrup, S. and Wyplosz, C. (2010). A common pool theory of supranational deficit ceilings. *European Economic Review*, 54(2):269–278.
- Lago, M. E., Lago Peñas, S., and Martinez-Vazquez, J. (2022). On the effects of intergovernmental grants: A survey. Technical report, UCD Centre for Economic Research Working Paper Series.
- Langford, B. and Ohlenburg, T. (2015). Tax revenue potential and effort. Technical report, International Growth Centre Working Paper.
- Larch, M., Orseau, E., and Van Der Wielen, W. (2021). Do eu fiscal rules support or hinder counter-cyclical fiscal policy? *Journal of International Money and Finance*, 112:102328.
- Lartey, E. K. and Mengova, E. (2016). Does institutional quality in developing countries affect remittances? *The Journal of Developing Areas*, pages 59–76.
- Le, T. M., Moreno-Dodson, B., and Bayraktar, N. (2012). Tax capacity and tax effort: Extended cross-country analysis from 1994 to 2009. *World Bank Policy Research Working Paper*, (6252).
- Lepetit, L., Rugemintwari, C., and Strobel, F. (2015). Monetary, financial and fiscal stability in the east african community: ready for a monetary union? *The World Economy*, 38(8):1179–1204.
- Lewis, B. D. and Smoke, P. (2017). Intergovernmental fiscal transfers and local incentives and responses: the case of indonesia. *Fiscal Studies*, 38(1):111–139.
- Ligthart, J. E. and van Oudheusden, P. (2015). In government we trust: The role of fiscal decentralization. *European Journal of Political Economy*, 37:116–128.
- Liu, C. and Ma, G. (2016). Taxation without representation: local fiscal response to intergovernmental transfers in china. *International Tax and Public Finance*, 23:854–874.
- Liu, Y., Martinez-Vazquez, J., and Timofeev, A. (2013). Measuring the extent of fiscal decentralisation: An application to the united states. *Measuring Fiscal Decentralisation*, page 71.
- López, R. E. and Figueroa, E. (2016). On the nexus between fiscal policies and sustainable development. *Sustainable Development*, 24(4):201–219.
- Mafusire, A. and Brixiova, Z. (2013). Macroeconomic shock synchronization in the east african community. *Global Economy Journal*, 13(2):261–280.
- Makreshanska-Mladenovska, S. and Petrevski, G. (2019). Fiscal decentralisation and government size: Evidence from a panel of european countries. *Hacienda Publica Espanola*, (229):33–58.

- Mallick, H. (2017). Determinants of workers' remittances: An empirical investigation for a panel of eleven developing asian economies. *The World Economy*, 40(12):2875–2900.
- Mankiw, N. G., Romer, D., and Weil, D. N. (1992). A contribution to the empirics of economic growth. *The quarterly journal of economics*, 107(2):407–437.
- Martínez-Vázquez, J., Lago-Peñas, S., and Sacchi, A. (2017). The impact of fiscal decentralization: A survey. *Journal of Economic Surveys*, 31(4):1095–1129.
- Masaki, T. (2018). The impact of intergovernmental transfers on local revenue generation in sub-saharan africa: Evidence from tanzania. *World Development*, 106:173–186.
- Masson, P. (2016). Are oca and convergence criteria enough. In *Prerequisites for Successful African Monetary Unions in the 21st Century. Paper Prepared for a Conference “The Future of Monetary Integration” held in Mauritius*.
- Masson, P. R. and Pattillo, C. (2004). *The monetary geography of Africa*. Brookings Institution Press.
- Mayer, T. and Zignago, S. (2011). Notes on cepii's distances measures: The geodist database.
- Mhambi, B. and Mishi, S. (2019). Possibility of sadc monetary union: Testing for coordination of fiscal and monetary policies. *Journal of Reviews on Global Economics*, 8:1280–1288.
- Mikesell, J. L. (2012). Administration of local taxes: An international review of practices and issues for enhancing fiscal autonomy¹. *A Primer on Property Tax: Administration and Policy*, pages 89–124.
- MIRI, M. (2019). The effects of central transfers on local own-revenue: The case of morocco. *Journal of Economics and Business*, 2(4).
- Mogues, T. and Benin, S. (2012). Do external grants to district governments discourage own revenue generation? a look at local public finance dynamics in ghana. *World Development*, 40(5):1054–1067.
- Morris, R., Ongena, H., and Schuknecht, L. (2006). The reform and implementation of the stability and growth pact. *ECB Occasional Paper*, (47).
- Morrissey, O., Von Haldenwang, C., Von Schiller, A., Ivanyna, M., and Bordon, I. (2016). Tax revenue performance and vulnerability in developing countries. *The Journal of Development Studies*, 52(12):1689–1703.
- Mpatswe, M. G. K., Tapsoba, M. S. J.-A., and York, M. R. C. (2011). *The cyclicity of fiscal policies in the CEMAC region*. International Monetary Fund.
- Musgrave, R. A. (1959). *The theory of public finance; a study in public economy*. Kogakusha Co.
- Mwanga, Y., Maniragaba, F., and Ariho, P. (2020). The effects of central government transfers on local revenue collection by urban local governments in uganda: A case of selected municipal councils. *International Journal of Business and Economics Research*, 9(5):335.

- Neyapti, B. (2010). Fiscal decentralization and deficits: International evidence. *European journal of political economy*, 26(2):155–166.
- Ngepah, N. and Udeagha, M. C. (2018). African regional trade agreements and intra-african trade. *Journal of Economic Integration*, 33(1):1176–1199.
- Ngigi, S. and Busolo, D. N. (2019). Devolution in kenya: the good, the bad and the ugly. *Public Policy and Administration Research*, 9(6):9–21.
- N’Kodia, C. (2011). Convergence pacts in the franc zone: what criteria and objectives in the cemar zone? *Revue françaiseçaise d’économie*, (2):115–148.
- Nyange, D., Tschirley, D., Nassoro, H., and Gaspar, A. (2014). Agricultural produce cess in tanzania: Policy options for fiscal reforms. Technical report.
- Oates, W. E. (1972). Fiscal federalism. new york: Harcourt brace jovanovich.
- Oates, W. E. (2006). Fiscal decentralization and the challenge of hard budget constraints. *National Tax Journal*, 59(2):389–397.
- OECD (1999). *Taxing powers of state and local government*. OECD.
- OECD (2019). *Making Decentralisation Work: A Handbook for Policy-Makers*. OECD Publishing.
- of Kenya, G. (2015). National policy for the sustainable development of northern kenya and other arid lands (draft).
- Olaoye, O. O. and Olomola, P. A. (2022). Sub-saharan africa’s rising public debt stock: Is there a cause for concern? *South African Journal of Economics*.
- Olowofeso, O. E., John-Sowe, M., Kargbo, S. M., Bawa, S., Mendy, I., Adams, K., Adeleke, A. I., and Cham, Y. (2021). Fiscal convergence in the west african monetary zone. Technical report, WAMI Occasional Paper Series.
- Onorante, L. (2006). Fiscal convergence before entering the emu, european central bank. Technical report, Working Paper Series.
- Ortega, J. T., De La Rosa, J. O., and Isaza, Y. I. (2022). Data science: Panel data analysis to determine the effect of intergovernmental transfers on colombian territorial tax collection. *Procedia Computer Science*, 203:639–643.
- Ostry, J., Ghosh, A., Kim, J., and Qureshi, M. (2010). Fiscal space. imf staff position note. 2010. Technical report, SPN/10/11. Disponible en <https://www.imf.org/external/pubs/cat/longres.aspx>.
- Özbilgin, H. M. (2010). Financial market participation and the developing country business cycle. *Journal of Development Economics*, 92(2):125–137.
- Panizza, U. (1999). On the determinants of fiscal centralization: Theory and evidence. *Journal of public economics*, 74(1):97–139.

- Pesaran, M. H. (2015). Testing weak cross-sectional dependence in large panels. *Econometric reviews*, 34(6-10):1089–1117.
- Phillips, P. C. and Shi, Z. (2021). Boosting: Why you can use the hp filter. *International Economic Review*, 62(2):521–570.
- Phillips, P. C. and Sul, D. (2007). Transition modeling and econometric convergence tests. *Econometrica*, 75(6):1771–1855.
- Phillips, P. C. and Sul, D. (2009). Economic transition and growth. *Journal of applied econometrics*, 24(7):1153–1185.
- Pindiriri, C. and Zhou, H. (2021). Towards the creation of regional monetary unions: An assessment of the macroeconomic convergence criteria in the southern african development community (sadc) region. *SADC Monetary Union: A Bridge too Far?*, page 1.
- Pisani-Ferry, J. (2012). The euro crisis and the new impossible trinity. Technical report, Bruegel Policy Contribution.
- Porto, A. and Puig, J. (2023). Fiscal federalism: The interaction between own revenues and intergovernmental transfers in local governments—the case of municipalities in buenos aires. *Publius: The Journal of Federalism*, page pjad005.
- Presbitero, A. F., Sacchi, A., and Zazzaro, A. (2014). Property tax and fiscal discipline in oecd countries. *Economics Letters*, 124(3):428–433.
- Qiao, M., Ding, S., and Liu, Y. (2019). Fiscal decentralization and government size: The role of democracy. *European Journal of Political Economy*, 59:316–330.
- Ratha, D., Kim, E. J., Plaza, S., Riordan, E., and Chandra, V. (2022). *Migration and Development Brief 36: A War in a Pandemic: Implications of the Russian invasion of Ukraine and the COVID-19 crisis on Global Governance of Migration and Remittance Flows*. KNOMAD-World Bank, Washington, DC.
- Ratha, D., Kim, E. J., Plaza, S., and Seshan, G. (2021). Migration and development brief 34: Resilience: Covid-19 crisis through a migration lens. *KNOMAD-World Bank, Washington, DC. License: Creative Commons Attribution CC BY*, 3.
- Ravn, M. O. and Uhlig, H. (2002). On adjusting the hodrick-prescott filter for the frequency of observations. *Review of economics and statistics*, 84(2):371–376.
- Ricciuti, R., Savoia, A., and Sen, K. (2019). How do political institutions affect fiscal capacity? explaining taxation in developing economies. *Journal of Institutional Economics*, 15(2):351–380.
- Rodden, J. (2002). The dilemma of fiscal federalism: Grants and fiscal performance around the world. *American Journal of Political Science*, pages 670–687.
- Rodden, J. (2006). *Hamilton’s paradox: the promise and peril of fiscal federalism*, volume 2. Cambridge University Press Cambridge.

- Roodman, D. (2009). How to do xtabond2: An introduction to difference and system gmm in stata. *The stata journal*, 9(1):86–136.
- Rutto, A., Minja, D., and Kosimbei, G. (2022). The nature of local revenue decisions within the decentralized structures in kenya. *The International Journal of Humanities & Social Studies*, 10(2).
- Sarr, F. and Ndiaye, C. (2011). Asymétry and convergence of fiscal policies and shocks in the waemu zone. *Revue Économique et Monétaire N*, 8.
- Schalck, C. (2012). Investigating heterogeneity in european fiscal behaviours. *Research in Economics*, 66(4):383–390.
- Schaltegger, C. A. and Feld, L. P. (2009). Are fiscal adjustments less successful in decentralized governments? *European Journal of Political Economy*, 25(1):115–123.
- Schneider, F., Khan, S., Hamid, B. A., and Khan, A. (2019). Does the tax undermine the effect of remittances on shadow economy? economics discussion papers, no 2019-67. *Kiel Institute for the World Economy*. <http://www.economics-ejournal.org/economics/discussionpapers/2019-67> Received October, 20.
- Semedo, G., Gautier, L., and Bensafra, K. M. (2012). Pôisles of convergence, dynamic gains from economic and monetary integration in west africa: an approach in terms of clusters. 88(1):37–85.
- Seo, M. H. and Shin, Y. (2016). Dynamic panels with threshold effect and endogeneity. *Journal of econometrics*, 195(2):169–186.
- Sharma, C. K. (2012). Beyond gaps and imbalances: Re-structuring the debate on intergovernmental fiscal relations. *Public Administration*, 90(1):99–128.
- Singer, D. A. (2012). The family channel: migrant remittances and government finance.
- Small, O., Brown, L., and Canavire-Bacarrea, G. (2020). The fiscal policy response to public debt in developing countries. *Contemporary Economic Policy*, 38(1):155–165.
- Smoke, P. (1993). Local government fiscal reform in developing countries: Lessons from kenya. *World Development*, 21(6):901–923.
- Smoke, P. (2015). Rethinking decentralization: Assessing challenges to a popular public sector reform. *Public Administration and Development*, 35(2):97–112.
- Smoke, P. (2019). Improving subnational government development finance in emerging and developing economies: Toward a strategic approach.
- Sodokin, K. and Gammadigbe, V. (2021). Shock dynamics, cyclical convergence and progressive optimality in ecowas: A comparative perspective. *Journal of Economics, Management, Environment and Law*, 4(1):1–26.
- Sow, M. and Razafimahefa, M. I. F. (2017). *Fiscal decentralization and fiscal policy performance*. International Monetary Fund.

- Stegarescu, D. (2005). Public sector decentralisation: Measurement concepts and recent international trends. *Fiscal studies*, 26(3):301–333.
- Stiglitz, J., Ocampo, J. A., Spiegel, S., Ffrench-Davis, R., and Nayyar, D. (2006). *Stability with growth: macroeconomics, liberalization and development*. OUP Oxford.
- Stiglitz, J. E. (2012). *The price of inequality: How today's divided society endangers our future*. WW Norton & Company.
- Taiwo, K. et al. (2022). Intergovernmental transfers and own revenues of subnational governments in nigeria. *Hacienda Pública Española/Review of Public Economics*, 240(1):31–59.
- Tanimoune, N. and Plane, P. (2005). Performance et convergence des politiques économiques en zone franc. *Revue française d'économie*, 20(1):235–268.
- Tanzi, V. (1976). Fiscal policy, keynesian economics and the mobilization of savings in developing countries. *World Development*, 4(10-11):907–917.
- Tapsoba, S. J.-A., Sembene, D., Gammadigbe, V., and Issifou, I. (2019). Fiscal convergence in africa. *Journal of Economic Integration*, 34(2):214–235.
- Ter-Minassian, T. (2015). Promoting responsible and sustainable fiscal decentralization. In *Handbook of multilevel finance*, pages 437–458. Edward Elgar Publishing.
- Thornton, J. (2007). Fiscal decentralization and economic growth reconsidered. *Journal of urban economics*, 61(1):64–70.
- Thornton, J. (2009). The (non) impact of revenue decentralization on fiscal deficits: some evidence from oecd countries. *Applied Economics Letters*, 16(14):1461–1466.
- Treisman, D. (2006). Explaining fiscal decentralisation: geography, colonial history, economic development and political institutions. *Commonwealth & Comparative Politics*, 44(3):289–325.
- Troland, E. (2016). Can fiscal transfers increase local revenue collection? evidence from the philippines. *Evidence from the Philippines (Jan 15, 2016)*.
- Tsangarides, C. G. and Qureshi, M. S. (2008). Monetary union membership in west africa: A cluster analysis. *World Development*, 36(7):1261–1279.
- Van Rompuy, P. (2016). Sub-national tax autonomy and deficits: Empirical results for 27 oecd countries. *Regional studies*, 50(7):1248–1259.
- Voigt, S. and Blume, L. (2012). The economic effects of federalism and decentralization—a cross-country assessment. *Public Choice*, 151:229–254.
- Volkerink, B. and De Haan, J. (2001). Fragmented government effects on fiscal policy: New evidence. *Public choice*, 109(3):221–242.
- Wassie, M. A., Kornher, L., and von Braun, J. (2022). *African Continental Free Trade Agreement: A Review of Analyses of Likely Impacts and Challenges of Implementation*. Zentrum für Entwicklungsforschung (ZEF), Center for Development Research.

- Wong, C.-H., Khan, M. S., and Nsouli, S. M. (2002). Macroeconomic management: programs and policies. In *Macroeconomic Management*. International Monetary Fund.
- Woodruff, C. and Zenteno, R. (2007). Migration networks and microenterprises in Mexico. *Journal of development economics*, 82(2):509–528.
- WorldBank (2021). Approach paper: World bank group's support for domestic revenue mobilization.
- Yang, Y. and Gupta, S. (2005). Regional trade arrangements in Africa: Past performance and the way forward.
- Yesmine, T., Hossain, M. E., Khan, M. A., Mitra, S., Saha, S. M., and Amin, M. R. (2023). Benchmarking the banking sector of Bangladesh: a comprehensive analysis of performance and efficiency. *Asian Journal of Economics and Banking*, 7(1):121–145.
- Yohou, H. D. (2020). Corruption, tax reform and fiscal space in emerging and developing economies. *The World Economy*.
- Zhang, G. (2013). The impacts of intergovernmental transfers on local governments' fiscal behavior in China: A cross-county analysis. *Australian Journal of Public Administration*, 72(3):264–277.

