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Governance, Peace and Security in Sub-Saharan Africa : Microeconomic interaction and impacts

Thomas Calvo

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THÈSE DE DOCTORAT
DE L'UNIVERSITÉ PSL
Préparée à l'Université Paris-Dauphine

**Governance, Peace and Security in Sub-Saharan Africa:
Microeconomic interactions and impacts**

Soutenue par

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**Governance, Peace and Security
in Sub-Saharan Africa:
Microeconomic interactions and impacts**

Thomas Calvo

Under the supervision of E. Lavallée, M. Razafindrakoto and F. Roubaud

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J-56.

Résumé

Cette thèse de doctorat contribue à la littérature en économie sur la violence. Elle fournit des éléments de réflexion sur les impacts de trois types de violence: la violence symbolique (Chapitre 1), la violence politique (Chapitre 2) et la violence criminelle (Chapitre 3). Ces violences ont toutes des conséquences sur le développement à différents niveaux. La recherche sur ces questions reste relativement éparse et limitée à des études de cas circonscrites à quelques régions du monde. Ce travail vise à réduire ce déficit de connaissances en examinant des problématiques peu couvertes dans des régions rarement étudiées. Ces travaux s'inscrivent dans le programme international de développement visant à promouvoir des sociétés inclusives et pacifiques. Les objectifs de développement durable (ODD) des Nations unies et l'Agenda 2063 de l'Union africaine rendent les autorités publiques redevables de la « paix, [de la] justice et [des] institutions efficaces » (ODD16), de la « bonne gouvernance, de [la] démocratie, [du] respect des droits de l'homme, de [la] justice et [de l']Etat de droit » et de la paix et de la sécurité (Aspirations 3 et 4 de l'Agenda 2063). Le thème annuel de 2020 de l'Union africaine vise à « faire taire les armes ». Ce travail s'inscrit également dans un contexte mondial de montées de mouvements citoyens, caractérisés par un ressentiment prononcé et des expressions violentes, y compris dans les pays développés comme en France (avec le mouvement des Gilets jaunes) et aux États-Unis (avec le mouvement *Black Lives Matter*). L'objectif de ce travail est de fournir des clés de compréhension de la relation entre la violence, la gouvernance et le développement économique.

Cette thèse s'articule autour de l'étude des pays d'Afrique subsaharienne où la violence atteint des niveaux inégalés depuis les années 1990. Elle porte une attention particulière à des pays qui sont rarement au premier plan de la recherche en économie : le Mali (Chapitre 2) et Madagascar (Chapitre 3). Un travail récent de [Porteous \(2020\)](#) montre que 5 pays (Afrique du Sud, Ghana, Kenya, Ouganda, et Malawi) correspondant à 16% de la population africaine totale représentent près de la moitié de la littérature existante sur les pays africains de 2000 à 2019. Dans les 5

premières revues en économie, leur part atteint 65%. L’auteur montre en outre que les contextes violents sont très négativement corrélés avec la recherche. La plupart des recherches sur la violence se concentrent sur des études de cas emblématiques. Nous contribuons à réduire ce déficit de connaissances par deux études de cas sur les impacts de la violence au Mali et à Madagascar.

Très ancré dans les réalités locales, ce travail est également le résultat d’interactions approfondies avec des chercheurs maliens et malgaches et des représentants de la société civile rendues possibles grâce à de multiples séjours dans ces pays. Entre 2018 et 2019, j’ai eu l’occasion de me rendre cinq fois à Bamako (et pour des raisons de sécurité nulle part ailleurs au Mali) dans le cadre d’un projet de formation et de la coproduction d’un rapport sur la dynamique de la violence et de la paix et de la sécurité au Mali de 2014 à 2018 (Cissé et al., 2019). En novembre 2019, j’ai bénéficié d’une bourse de recherche à l’Institut national de statistiques de Madagascar (INSTAT) financée par le programme gradué en économie de l’Université Paris-Dauphine.

L’originalité de cette thèse réside dans la place centrale donnée dans les analyses au sentiment de peur des individus, à la fois comme cause et comme conséquence des trajectoires de développement économique individuel et local. La peur reste mal comprise et rarement étudiée en économie du développement malgré son rôle indéniable sur les comportements individuels et plus largement sur les facteurs locaux de développement économique. Il est essentiel de prendre davantage en compte la peur et, plus largement, les perceptions dans la recherche en économie. De plus, ces notions présentent un intérêt particulier dans les contextes instables.

Cette recherche s’appuie sur la combinaison de bases de données usuelles (des enquêtes sur les attitudes des citoyens, des enquêtes emploi et des données d’événements) avec un module d’enquête original et de première main sur la gouvernance, la paix et la sécurité (GPS) collecté par les Instituts nationaux de la statistique. L’utilisation de sources de données différentes pose la question de l’observation et de la mesure de la gouvernance, la paix et la sécurité.

Le chapitre 1 est un travail méthodologique. Nous y questionnons si les individus révèlent leurs opinions et préférences lorsqu’ils sont enquêtés par des représentants du secteur public. Ce faisant, nous analysons le biais relatif à la peur de l’État dans les enquêtes auprès des ménages. Le chapitre 2 étudie l’impact du conflit malien sur le capital social à travers la participation dans les associations. Les données disponibles nous permettent d’interpréter les résultats à la lumière de la peur de

l'autre. Le chapitre 3 analyse la relation entre la criminalité perçue et vécue et les comportements des travailleurs du secteur informel malgache. Ce dernier chapitre met en avant l'insécurité liée à la criminalité ainsi que l'insécurité économique pour expliquer les stratégies d'adaptation potentiellement improductives sur le marché du travail.

Répondre rigoureusement aux questions de recherche posées dans ce travail nécessite de résoudre les problèmes d'identification. Ce problème est traité de manière minutieuse dans chacun des trois chapitres. Tout d'abord, pour limiter les biais des variables omises j'inclus un large éventail de variables afin de contrôler pour les caractéristiques individuelles, pour celles des ménages ou encore pour les caractéristiques géo-climatiques (dans les chapitres 2 et 3). Dans chaque chapitre, je mets aussi en oeuvre de très nombreux tests de robustesse. Une attention particulière est accordée à la prise en compte du biais de causalité inverse ou de simultanéité. Dans le chapitre 1, nous appliquons un modèle quasi expérimental avec des données représentatives nationalement, à un niveau bien plus vaste donc que les essais randomisés habituels. Cela permet de conférer une validité externe à nos résultats (Deaton, 2010). Nous examinons également la question de la sélection du fait de l'identité perçue du commanditaire de l'enquête par une méthode d'appariement par scores de propension. Dans le chapitre 2, nous appréhendons la causalité inverse (et le biais des variables omises) en estimant des modèles particulièrement exigeants par variables instrumentales et par double différence. Dans le chapitre 3, je profite de la dimension longitudinale des données disponibles pour atténuer les biais d'endogénéité.

Chapitre 1 : « *Fear of the State' in governance surveys? Empirical evidence from African countries* » co-écrit avec Mireille Razafindrakoto (IRD, Université Paris-Dauphine) et François Roubaud (IRD, Université Paris-Dauphine). Accepté pour publication en 2019 dans *World Development*, 123, 104609.

Le premier chapitre trouve son origine dans le simple constat que le nombre d'initiatives locales, nationale ou internationales pour mesurer la gouvernance ne cesse d'augmenter. Le nouveau programme de développement international a placé au premier plan les questions de bonne gouvernance et de violence. Le besoin d'indicateurs fiables pour pouvoir atteindre l'ODD 16 et proposer des réponses politiques adaptées aux contextes nationaux est ainsi essentiel. C'est notamment le cas pour les pays d'Afrique, particulièrement affectés par les conflits depuis la fin de la Guerre froide et dont les indicateurs de gouvernance les classent parmi les plus mauvais élèves. D'un autre côté, ces pays s'avèrent largement en avance pour mesurer les questions de gouvernance. Il existe plusieurs initiatives continentales pour ce faire.

Le nombre d'enquêtes dépasse largement le nombre d'études sur leur fiabilité et leurs potentiels biais sous-jacent. Le nombre d'études disponibles est d'autant plus négligeable quand il s'agit d'étudier les biais potentiels dus à l'identité du commanditaire de l'enquête. Cependant, des spécialistes ont par le passé exprimé leur réticence à l'idée de laisser les instituts publics collecter des informations aussi sensibles que des données sur la gouvernance, particulièrement dans les pays non-démocratiques où « *les instituts nationaux de statistiques pourraient être perçues comme des agents de l'État* » (UNDP, 2009). Cette méfiance des bailleurs de fonds explique l'émergence des acteurs non-gouvernementaux particulièrement sur les problématiques de gouvernance (Brass et al., 2018). L'hypothèse implicite que les acteurs privés sont davantage efficaces pour promouvoir et suivre le respect des droits de l'Homme, de la démocratie et de la redevabilité prévaut. Ainsi, les préjugés quant à la légitimité des instituts nationaux de statistiques (INS) à collecter de telles données sont répandus malgré un changement progressif des opinions du fait des expériences positives récentes.

Ce chapitre a pour objectif réduire le déficit de connaissances sur l'effet de l'identité du mandataire d'une enquête sur les réponses à des questions en apparence sensibles autour de la gouvernance. Nous testons une hypothèse simple mais dont les implications politiques sont énormes que nous qualifions de biais d'atténuation. Elle pourrait être formulée comme suit : les enquêtes conduites par les INS présentent-

elles un biais systématique vers une représentation favorable, non critique de la gouvernance par rapport aux enquêtes menées par des organisations indépendantes ?

Si la violence politique et criminelle implique une violence physique, il n'en est pas nécessairement de même pour la violence symbolique. Cette dernière s'exprime au travers de la domination d'un groupe sur les autres. La violence symbolique est en général acceptée par les groupes dominés. De La Boétie dès 1576 le *Discours sur la servitude volontaire* (de La Boétie, 1997) expliquait cette soumission par la force de l'habitude, théorisée par la suite par Bourdieu (1989). En outre, lorsque la violence symbolique est institutionnalisée, les groupes dominés manquent de moyens pour renverser les équilibres en place, le groupe dominant bénéficiant du monopole de la violence légitime. Dans ce chapitre, nous nous interrogeons sur le rôle de la violence symbolique sur la capacité des individus à révéler leurs préférences et leurs opinions concernant le fonctionnement des institutions lorsqu'ils sont interrogés par des agents liés à des instituts publics. Même si la violence symbolique n'est pas centrale dans ce chapitre, elle est abordée au travers de son effet potentiel sur les perceptions révélées des adultes.

La littérature à ce sujet reste très limitée malgré son dynamisme récent. Les travaux existants vont tous dans le sens de l'existence d'un biais d'atténuation, aussi qualifiée de biais de la peur de l'État (Tannenbergh, 2017; Zimbalist, 2018). Les enquêtés cacheraient leur réelle préférence quand ils pensent être interrogés dans le cadre d'une enquête menée par une organisation publique dans le but d'éviter toute représaille. Cependant, ces travaux souffrent de nombreuses lacunes au niveau méthodologique. Tannenbergh (2017) et Zimbalist (2018) utilisent tous deux les données issus d'Afrobaromètre pour tester l'hypothèse du biais d'atténuation. Ils identifient un effet du commanditaire perçu de l'enquête sur les réponses des adultes. Ces derniers ont tendance à évaluer plus positivement la qualité de la gouvernance et à avoir davantage confiance dans les institutions publiques. Zimbalist estime que ce biais s'explique par la peur de l'État, particulièrement dans les pays où les libertés sont moins respectées. Il met en évidence ce dernier point au travers d'une analyse de trois pays. Sur la base de ces résultats, Zimbalist recommande de souligner le caractère indépendant d'Afrobaromètre et de compter davantage sur des organisations connues pour leur indépendance et leur séparation avec l'État. Similairement, Tannenbergh (2017) observe un biais uniquement dans les pays autocratiques. Ces travaux simplifient souvent leurs analyses se concentrant sur un nombre limité de questions (Tannenbergh, 2017) et différenciant les commanditaires perçus de l'enquête

entre acteurs étatiques ou non étatiques (Zimbalist, 2018). Cette dernière catégorie comprend un large éventail d'acteurs très différents dont les INS (Zimbalist, 2018 ; Panel, 2019). Un biais de sélection selon l'identité perçue des commanditaires pourrait aussi fausser les résultats.

Ce travail entend dépasser les limites des travaux existants sur le biais d'atténuation. Pour ce faire, nous utilisons deux sources de données pour examiner le potentiel biais de peur de l'État. D'une part, nous utilisons les données recueillies par le réseau Afrobaromètre (AB). AB est spécialisé dans la collecte de données de gouvernance. AB se présente comme un organisme indépendant politiquement et une entité non-gouvernementale (Bratton et al., 2004). Ils conduisent des enquêtes dans plus de trente pays en Afrique grâce à un réseau de partenaires locaux aussi déclarés indépendants. D'autre part, nous faisons appel aux données issues de l'initiative Gouvernance, Paix et Sécurité (GPS) recueillies par les INS. Cette initiative fait partie de la Stratégie d'harmonisation des statistiques en Afrique (SHaSA) sous l'égide de la commission de l'Union Africaine. Les modules d'enquête GPS-SHaSA sont intégrés à des enquêtes sociodémographiques ou sur l'emploi traditionnelles dans plus de quinze pays d'Afrique. Elle s'appuie aussi sur une expérience vieille de vingt-cinq ans.

Les deux sources fournissent des données représentatives de la population majeure au niveau national dont l'échantillonnage est basé sur une stratification aléatoire à deux degrés selon la région et le milieu de résidence. La méthode de sélection des individus interrogés varie d'une enquête à l'autre et d'un pays à l'autre. Ce travail s'appuie sur des données collectées entre 2013 et 2015 dans huit pays : le Bénin, le Burundi, le Cameroun, la Côte d'Ivoire, Madagascar, le Malawi, le Mali et l'Ouganda. Nous y comparons les réponses à vingt-et-une questions. Ces questions ont été incluses sur la base de deux critères de sélection. Elles sont formulées de manière similaire afin que les enquêtés comprennent les questions de la même façon d'une enquête à l'autre. Les modalités de réponse sont aussi les mêmes entre les deux initiatives. Ces questions peuvent toutes être considérées comme sensibles et séparées en trois catégories : les questions relatives à la satisfaction du fonctionnement de la démocratie, les questions de confiance dans les institutions publiques, les questions sur le niveau perçu de corruption des agents de l'État. Les modalités de réponses vont de 1 à 4, 1 étant le niveau le plus négatif et 4 le niveau le plus positif.

Dans le questionnaire d'AB, une question sur le commanditaire perçu de l'enquête

est aussi disponible. Elle permet d'identifier à qui les enquêtés pensent révéler leur opinion. Nous les divisons en trois catégories, les instituts dépendants de l'Etat, les partenaires d'Afrobaromètre et les autres organisations.

Nous répondons à la question de recherche en trois étapes. Pour chacune d'entre elles, nous comparons les réponses des individus à chaque question pour tous les pays empilés, puis par pays. Premièrement, nous limitons notre analyse à l'échantillon d'AB uniquement en tirant profit de la question sur le commanditaire perçu de l'enquête. Nous estimons des logit ordonnés qui peuvent être modélisés de la façon suivante :

$$Y_{i,c,k}^* = \alpha + \gamma SurveySponsor_{i,c} + \beta X_{i,c} + \epsilon_{i,c,k}$$

$$\begin{aligned} Y_{i,c,k} = 1 &\iff C_{1,c,k} \leq Y_{i,c,k}^* < C_{2,c,k} \\ Y_{i,c,k} = 2 &\iff C_{2,c,k} \leq Y_{i,c,k}^* < C_{3,c,k} \\ Y_{i,c,k} = 3 &\iff C_{3,c,k} \leq Y_{i,c,k}^* < C_{4,c,k} \\ Y_{i,c,k} = 4 &\iff C_{4,c,k} \leq Y_{i,c,k}^* < C_{5,c,k} \end{aligned} \tag{1}$$

$Y_{i,c,k}$ est la réponse de l'individu i du pays c à la question k . $Y_{i,c,k}^*$ est la variable latente correspondante. La variable d'intérêt est $SurveySponsor_{i,c}$. Elle vaut 1 si l'adulte interrogé identifie à juste titre AB ou l'un de ses partenaires comme le commanditaire de l'enquête, 2 si l'adulte interrogé pense que le gouvernement est derrière l'enquête et 3 autrement. Nous contrôlons pour un certain nombre de caractéristiques individuelles (dont la proximité à un partie politique) et du ménage. Les estimations pour tous les pays empilés incluent des effets-fixes pays.

Dans un second temps, nous estimons au sein de l'échantillon de pays d'AB des modèles similaires en tenant compte du potentiel biais de sélection. Effectivement, les individus qui considèrent être interrogés dans le cadre d'une enquête menée par le gouvernement ont des caractéristiques particulières par rapport au reste de l'échantillon. Il s'agit principalement d'individus caractérisés comme vulnérables dans les pays en développement, des femmes, des individus peu éduqués, vivant en milieu rural et avec un accès à l'information limité. Nous les apparions par scores de propension afin de limiter les différences avec le reste de l'échantillon. Une fois les individus appariés, nous estimons l'effet moyen du traitement (penser que le gouvernement est derrière l'enquête) sur les traités.

Dans un troisième temps, nous traitons les biais potentiels d'endogénéité no-

tamment les biais de variables omises en comparant les réponses entre les enquêtes AB et GPS-SHASA. L'empilement des deux bases de données recueillies par une entité indépendante et une organisation publique et la définition de l'échantillon GPS-SHaSA comme le groupe de traitement s'apparente à un essai randomisé. Tout d'abord, l'échantillon empilé (des huit pays ou pour chaque pays) correspond à un échantillon aléatoire de la population totale. Les individus sont répartis aléatoirement au groupe de contrôle, interrogé par des agents d'une organisation présentée comme indépendante, et au groupe de traitement, interrogé par une organisation liée au gouvernement. De plus, étant donné que chaque échantillon est représentatif au niveau national, il en va de même pour les échantillons empilés, et notre design s'étend bien au-delà du protocole habituel des essais randomisés, conférant une validité externe à nos estimations (Deaton, 2010). Bien que le moment de la collecte des données diffère entre les deux groupes dans certains pays, il reste généralement très proche. Nous estimons des logit ordonnés où la variable d'intérêt est maintenant le traitement.

Les résultats de la première étape, limités à l'échantillon d'AB, semblent confirmer l'existence d'un biais d'atténuation pour l'échantillon empilé. Les individus qui pensent être interrogés par des agents liés au gouvernement ont effectivement tendance à donner des réponses plus favorables aux dirigeants nationaux et locaux en place. Cependant, les résultats sont davantage hétérogènes par pays et par types de questions. S'il n'en ressort aucun biais systématique évident, les résultats sont probablement biaisés du fait de la sélection des individus selon qu'ils perçoivent que le gouvernement ou AB est derrière l'enquête. Cela est confirmé au travers de la comparaison des réponses à des questions considérées comme non sensibles entre ces mêmes individus. Il existe toujours des différences du fait de l'identité perçue du commanditaire de l'enquête pour des questions sur la confiance envers les membres de sa propre famille ou envers les voisins.

Les résultats de la méthode par appariement par scores de propension entre les individus qui pensent que le gouvernement est derrière l'enquête et ceux qui pensent à juste titre qu'AB en est le commanditaire confirment l'absence de biais de réponse. Les résultats ne sont plus significatifs pour l'essentiel des questions que ce soit pour l'échantillon complet ou les échantillons par pays. Le biais systématique présenté dans les études précédentes comme le résultat de l'autocensure des individus due à l'identité du commanditaire de l'enquête trouve plutôt ses racines dans une sur-représentation des adultes vulnérables parmi ceux qui perçoivent le gouvernement

comme commanditaire de l'enquête. Ils ont moins accès à des informations contradictoires et sont plus exposés à la ligne officielle à laquelle ils pourraient être sensibles. Dans certains pays, ceux qui pensent à tort que l'enquête AB est diligentée par le gouvernement sont également plus susceptibles d'être partisans du parti au pouvoir et ainsi d'exprimer un avis positif de la gouvernance du pays.

Nous corrigeons pour les biais d'endogénéité dans la troisième partie des estimations. Les effets du traitement ne suivent aucun schéma clair selon les questions et les pays. Le tableau est très contrasté ; aucune autocensure ni aucun biais d'atténuation systématique n'est observé dans le groupe de traitement.

Nous testons la robustesse de ces résultats pour un large éventail de spécifications et de méthodes d'estimations pour chaque étape de notre stratégie empirique. Les résultats restent très cohérents.

Rien n'indique donc que l'hypothèse selon laquelle la collecte de données sensibles par des agents liés au gouvernement implique une autocensure de la part des individus enquêtés. Ces derniers interrogés par des agents des INS n'évaluent pas la gouvernance du pays avec un regard plus clément que s'ils ne l'avaient été par des agents qui se déclarent indépendants. Les différences de perception qui subsistent doivent s'expliquer par d'autres facteurs comme les erreurs d'échantillonnage, le moment de la collecte des données et la conception du questionnaire.

Ce travail apporte des preuves de la légitimité et la capacité des INS à collecter des données sur les questions de gouvernance en général. Ils sont pleinement qualifiés pour suivre les indicateurs de l'ODD 16 et de l'Agenda 2063. Contrairement à la croyance populaire, les données de gouvernance ne semblent pas plus sensibles que d'autres types de données. Bien que relativement nouvelles dans le domaine des statistiques, elles ne sont pas particulièrement délicates à recueillir. Le soutien aux INS pour la collecte de données sur la gouvernance apparaît donc primordial. Les INS sont les organisations qui respectent les meilleures pratiques en matière d'enquêtes statistiques. Dans les pays d'Afrique, ils concentrent la majorité des compétences en statistiques. De plus, dans le cas de la gouvernance, les données ne sont pas biaisées et correspondent aux données les plus précises disponibles : la taille des échantillons et les possibilités de croisement avec d'autres caractéristiques individuelles sont sans pareilles. Permettre aux INS de conduire de telles enquêtes favoriseraient l'appropriation nationale.

Chapitre 2 : « *Fear Not For Man? Armed conflict and social capital in Mali* » co-écrit avec Emmanuelle Lavallée (Université Paris-Dauphine), Mireille Razafindrakoto (IRD, Université Paris-Dauphine) et François Roubaud (IRD, Université Paris-Dauphine). Accepté pour publication en 2020 dans *Journal of Comparative Economics*, 48(2), 251-276.

La violence politique correspond à la violence physique incitée par les revendications de groupes opposés. Elle peut être réduite ici aux conflits armés. Son étude en Afrique est essentielle. En effet, la relative stabilité dans l'évolution de l'occurrence de la violence enregistrée depuis le milieu des années 1990 s'est brisée dans les années 2010 en Afrique. Les niveaux de violence ont atteint des niveaux comparables à ceux de 1994. Ces niveaux de violence actuels sont d'autant plus exceptionnels qu'ils se produisent sur l'ensemble du continent, alors que les événements de 1994 ont été pour la plupart enregistrés dans le cadre du génocide rwandais et de la guerre civile angolaise. La zone des trois frontières entre le Niger, le Burkina Faso et le Mali figure parmi les zones les plus exposées à la violence sur le continent.

L'étude des impacts des conflits est relativement récente. En plus des pertes humaines et de la destruction du capital physique qu'ils engendrent, ils ont des répercussions de court et long terme sur l'économie (Abadie & Gardeazabal, 2003; Collier et al., 2003; Gaibulloev & Sandler, 2009). Cependant, la question des canaux de transmission des effets des conflits sur le développement économique reste ouverte. Le rôle du capital social mérite une attention particulière à cet égard. Défini par Bourdieu (1980) comme « l'ensemble des ressources actuelles ou potentielles qui sont liées à la possession d'un réseau durable de relations plus ou moins institutionnalisées de connaissances », il peut avoir effectivement un effet positif sur le développement, surtout dans les régions où les marchés sont défaillants, où les institutions formelles faibles et les biens publics rares (Woolcock & Narayan, 2000). Le capital social connecte les individus entre eux, facilite l'action collective et joue un rôle important dans la fourniture de biens publics dans ces régions (Putnam et al., 1993 ; Durlauf & Fafchamps, 2005).

Au Mali, l'engagement civique joue un rôle clef. Il est reconnu comme un élément central de la gouvernance locale, agissant comme un intermédiaire local et une contrepartie indispensable aux institutions publiques faibles. L'engagement civique prend principalement la forme d'une participation substantielle à la vie communautaire, notamment dans les associations de développement local (Kuepie & Sougane,

2014 ; Chauvet et al., 2015). Selon leur type, les associations jouent un rôle essentiel pour que leurs membres puissent faire face à des événements importants tels que les naissances et les mariages par un soutien financier comme pour la communauté, en fournissant des biens publics, y compris de petites infrastructures comme des centres de santé. De plus, l'histoire récente du Mali a montré que la société civile, et les associations en particulier, est au cœur de la transition politique vers un système démocratique (Roy, 2005). Le Mali a même été présenté comme un modèle régional de ce fait (Chauzal, 2007). L'explosion de violence en janvier 2012 a pris toute la communauté internationale de court. Ce travail vise à analyser comment le conflit, toujours en cours, aurait perturbé cette cohésion sociale au Mali au travers de la participation associative.

Les causes de cette violence sont multiples. Elles trouvent initialement leur origine dans le ressentiment de la population du nord du pays (des régions de Gao, Kidal et Tombouctou) où vivent principalement les populations touaregs et arabes. Le désintérêt progressif des élites pour le nord et l'accroissement des inégalités avec le sud du pays n'ont fait qu'accentuer ce sentiment (Galy, 2013 ; Chauzal & van Damme, 2015). Des soulèvements cycliques menés par des groupes touaregs ont eu lieu en 1963, 1991, 2007 et 2012. Le dernier en date rassemble des groupes rebelles touaregs autour de la volonté d'autonomie ou d'indépendance du Nord Mali et des groupes djihadistes désireux d'imposer la Charia dans le pays. Si les premiers n'en sont pas à leur première tentative de modifier l'équilibre des pouvoirs dans le nord, les groupes djihadistes ne commencent à prospérer que depuis la fin des années 2000. Cela a été facilité par l'insécurité croissante (à mesure que le trafic de marchandises et d'êtres humains s'étend) et le retrait progressif de l'État central des régions sahéennes (Julien, 2011). Au lendemain de l'effondrement du régime de Kadhafi en 2011, la circulation des armes a augmenté avec le retour des milices touaregs au Mali (UNODC, 2013). Cela a conduit au renforcement des groupes djihadistes tels qu'Al-Qaida au Maghreb islamique (AQMI) et Ansar Dine dans la région de Kidal. Après trois premiers mois de violences qui ont conduit le nord du pays à être sous le joug des insurgés, un coup d'État militaire a destitué le président Amadou Toumani Touré (ATT). L'opération militaire française *Serval* en 2013 (sous le drapeau des Nations unies) a aidé l'autorité centrale malienne à reprendre rapidement le contrôle du nord (du moins en apparence) mais n'a pas mis fin aux affrontements. Au contraire, malgré l'intervention militaire régionale (G5 Sahel) et internationale (MINUSMA) et la signature des accords de paix à

Ouagadougou en 2014 et Alger en 2015, s'instaure un cycle de violences qui n'a cessé de s'intensifier et s'est progressivement étendu aux pays voisins que sont le Burkina Faso et le Niger. Les causes de cette flambée de violence sont multiples et imbriquées, ce qui les rend difficiles à résoudre. Néanmoins, depuis 2016-2017, la montée progressive des tensions ethniques et des confrontations armées, jusqu'à être décrite comme un nettoyage ethnique, a fait évoluer la nature du conflit et enraciner les confrontations. La très récente destitution du président Ibrahim Boubacar Keïta par un coup d'État militaire est une conséquence supplémentaire du conflit dans lequel le pays semble enlisé.

À notre connaissance, nous sommes les premiers dans la littérature économique à étudier les effets du conflit malien au niveau national. Ce travail fait partie des premiers à s'intéresser au conflit dans une ancienne colonie française élargissant ainsi l'analyse à un contexte différent où les caractéristiques institutionnelles diffèrent sensiblement des autres pays étudiés précédemment (La Porta et al., 1999 ; Djankov et al., 2003). L'originalité de ce travail provient aussi de l'analyse des effets de la violence sur la participation associative selon le type d'associations. Les associations ont des objectifs très hétérogènes, elles n'impliquent pas toutes les mêmes choses en termes d'interactions sociales. Certaines peuvent pénaliser les non-membres (Acemoglu & Robinson, 2008) et « renforcer la polarisation entre le groupe inclus et le groupe exclus » (Durlauf & Fafchamps, 2005). « Le capital social peut être utilisé par certains groupes pour en dominer d'autres, ce qui génère des inégalités entre groupes et des tensions politiques » (ibid.).

La littérature existante a plutôt considéré le capital social comme uniforme. L'augmentation de la participation associative ou de l'engagement civique observé dans les régions affectées par un conflit a souvent été interprété comme un mouvement pro-social (Bellows & Miguel, 2006, 2009 ; Voors et al., 2012 ; Gilligan et al., 2014) jusqu'à suggérer que cet impact des conflits était à l'origine de la convergence économique des localités les plus touchées par la violence pendant l'après-guerre (notamment documenté par Davis & Weinstein, 2002 ; Brakman et al., 2004 et Miguel & Roland, 2011). Des études prenant en compte les différentes facettes du capital social ont remis en question cet optimisme (Cassar et al., 2013 ; Rohner et al., 2013 ; Grosjean, 2014).

Pour prendre en compte l'aspect multidimensionnel du capital social, nous différencions les associations selon qu'elles sont 'olsoniennes' ou 'putnamesques' comme cela a déjà été fait par Knack & Keefer (1997) et Fidrmuc & Gërkhani (2008)

par exemple. Cette distinction est basée sur la divergence des hypothèses entre Olson (1982) et Putnam et al. (1993) concernant la relation entre participation associative et croissance. Les associations olsoniennes agissent comme des groupes d'intérêt au détriment du reste de la société alors que les associations putnamesques agissent pour la communauté au sens large sans externalité négative. Cette distinction fait écho à la différenciation usuelle entre liens forts et liens faibles (Granovetter, 1973). Les premiers se caractérisent par des relations basées sur la parenté ou le partage d'affinités comme c'est le cas entre parents ou amis proches tandis que les seconds correspondent à des relations au sein d'un réseau plus large. Ce réseau plus large est nécessaire pour éviter toute exclusion sociale (Jackson et al., 2012) et représente la véritable source de la valeur ajoutée du réseau (Burt, 2001).

Pour répondre à la question de recherche et pouvoir analyser finement les effets de la violence sur les types d'association, nous tirons profit d'une base de données unique au niveau africain issue de l'enquête modulaire et permanente auprès des ménages (EMOP) collectée annuellement entre 2014 et 2016 par l'INSTAT-Mali. L'EMOP comprend le module d'enquête GPS-SHaSA complété tous les ans entre les mois de janvier et mars. Cette base est représentative des adultes au niveau national et régional avec une possible inférence au niveau des cercles. Le module permet de différencier la participation dans les associations de famille, les associations politiques, les associations professionnelles, les associations de développement local et les associations religieuses. Les trois premières sont classées parmi les associations olsoniennes – tournées vers leur propre communauté – et les deux dernières parmi les associations putnamesques, inclusives. Cette distinction est ancrée dans la réalité malienne des associations. Les associations familiales regroupent des personnes déjà étroitement liées. Elles jouent un rôle important pour aider les ménages lors d'événements particuliers comme un mariage, une naissance ou un enterrement. Les associations politiques rassemblent généralement des individus d'une même communauté, elles travaillent comme des groupes d'intérêt. Elles représentent un tremplin essentiel pour accéder à la sphère politique malienne. Elles sont donc essentielles pour que chaque communauté puisse être entendue. Au contraire, les associations locales se sont révélées inclusives pour les différents groupes. Elles facilitent l'action collective et la fourniture de biens publics. De même, les associations religieuses ne sont pas exclusives dans la mesure où plus de 95% de la population malienne est musulmane et où les courants religieux n'étaient pas des marqueurs de différenciation saillants à l'époque. Une enquête conduite en 2006, à l'échantillonnage comparable,

nous sert de référence en période de paix.

Nous utilisons des données de recensement d'évènements violents localisant tous les évènements liés à des conflits répertoriés dans les media : des articles de journaux, des dépêches des agences de presse ou les rapports des organisations gouvernementales ou non. Faisant partie du projet ACLED de [Raleigh et al. \(2010\)](#), cette base enregistre tous les évènements rapportés depuis 1997. Les données sont combinées par année et par arrondissement aux données d'enquête disponibles.

Nous estimons tout d'abord un modèle de probabilité linéaire de l'effet de l'exposition à des évènements violents sur la participation associative des individus i dans l'arrondissement sd durant l'année précédant l'enquête entre 2014 et 2016. L'estimation peut être modélisée comme suit :

$$Y_{i,sd,t} = \alpha + \beta EvOcc_{sd,(t-1)} + \gamma X_{i,sd,t} + \delta EthnFr_{sd,2009} + \eta D_d + \theta T_t + \epsilon_{i,sd,t} \quad (2)$$

$Y_{i,sd,t}$ la variable dépendante prend la valeur 1 si l'individu est membre d'une association et 0 autrement. $EvOcc_{sd,(t-1)}$, la variable d'intérêt, prend la valeur 1 si l'arrondissement a été exposé à des évènements violents l'année précédant le conflit et 0 autrement. Nous incluons des variables de contrôle ($X_{i,sd,t}$) au niveau individuel ainsi qu'une variable dénotant de la fragmentation ethnolinguistique ($EthnFr_{sd,2009}$) calculée à partir du dernier recensement de 2009. Cette estimation contrôle pour les caractéristiques invariantes dans le temps des cercles (D_d) et les effets année (T_t). Toutes les estimations sont ajustées pour la corrélation intra-arrondissement-année.

Bien que nous doutions de l'existence d'un potentiel biais d'endogénéité du fait de la causalité inverse ou de variables omises, nous estimons l'effet de la violence de façon complémentaire par variables instrumentales et par double différence. Nous instrumentons la variable de violence par la déviation standardisée de la pluviométrie l'année précédente par rapport à la moyenne annuelle de la période 2005-2015 dans les zones en tension ou non pendant la période 1997-2005. Le choix de cet instrument repose sur le rôle connu des variations climatiques sur la violence (voir, par exemple, [Couttenier & Soubeyran, 2015](#), pour un aperçu ; voir également [Miguel et al., 2004](#) ; [Koubi et al., 2012](#) ; [Harari & La Ferrara, 2018](#)), en particulier dans les zones de tension structurelle, révélées ici par les violences entre 1997 et 2005.

On pourrait craindre la violation de la condition d'exclusion si les chocs climatiques et les tensions historiques déterminent la participation associative contemporaine. Nous argumentons que ce n'est pas le cas ici. D'une part, entre 2012 et 2015 aucun choc météorologique n'est observé au niveau des arrondissements : les

variations de pluviométrie sont toujours incluses entre -2 et $+2$ écarts-types. Il est peu probable que les variations climatiques aient engendré davantage de participation dans les associations. D'autre part, la période 1997-2005 n'est caractérisée par aucun conflit au Mali, les événements enregistrés durant ces huit années sont rares et s'étendent très peu. Ils ne sont ni associés à un soulèvement touareg, ni à de la violence idéologique. Ce sont plutôt des disputes locales et très rarement récurrentes. Il est donc peu probable que les violences passées aient entraîné la création de groupes ou la participation croissante à des groupes, y compris des groupes d'autodéfense. Cela est confirmé par des tests de falsification en utilisant la participation mesurée lors de l'enquête 2006.

La méthode par double différence utilise les données de 2006 pour estimer l'effet des violences au niveau des arrondissements entre 2006 et l'année précédant l'enquête. La période de pré-traitement correspond à l'échantillon de 2006. Les individus enquêtés entre 2014 et 2016 dans les arrondissements affectés par des événements violents entre 2006 et 2015 font partie du groupe de traitement. La validité de la méthode repose sur l'hypothèse de tendance commune. Si elle ne peut pas être testée directement, la tendance parallèle est suggérée au travers de l'analyse de la participation en 2006 et en 2014 entre les arrondissements jamais exposés à de la violence et ceux qui seront exposés uniquement après 2014.

Les résultats montrent que la violence augmente la participation associative de façon générale. Les individus vivant dans des zones touchées par des événements violents l'année précédente ont une probabilité de 7 à 14 points de pourcentage de plus d'être engagé dans au moins une association. Ces résultats sont très cohérents avec les estimations par variables instrumentales et par double différence et par une série de tests de robustesse. Nous contrôlons notamment pour la sélection par la migration.

L'augmentation de la participation est tirée uniquement par la participation dans les associations familiales et les associations politiques. Ces associations sont des associations olsoniennes, elles fonctionnent comme des groupes d'intérêt au détriment des non-membres. Ces résultats infirment l'effet pro-social des conflits. Cette interprétation est confirmée par des tests de sensibilité selon le niveau de diversité ethnolinguistique des localités en divisant l'échantillon selon le niveau de fragmentation ethnolinguistique. Au Mali, les associations de développement local doivent prendre en compte les préoccupations de tous les groupes vivant dans la même zone pour servir l'intérêt général. Comme elles doivent atteindre une certaine représentativité,

les associations locales sont composées de manière hétérogène dans des zones fragmentées. Ainsi dans les localités homogènes (pour lesquelles la fragmentation est inférieure à la médiane), où les décisions de participation sont peu influencées par les interactions qu'elle implique, la probabilité d'être membre augmente aussi bien dans les associations politiques que locales. Dans les localités hétérogènes, les résultats confirment le renforcement des liens forts au détriment des liens faibles. La participation augmente dans les associations de famille et politiques mais semble diminuer dans les associations locales.

Le renforcement des liens forts est confirmé par la mise en oeuvre des mêmes estimations mais pour la confiance interpersonnelle. Les individus affectés par la violence ont tendance à avoir moins confiance dans la plupart des individus. Cette méfiance augmente particulièrement pour les individus ayant une opinion politique différente, ou d'une autre nationalité. Au contraire, la confiance dans les individus proches semble quant à elle demeurer stable si ce n'est augmenter. Encore une fois, ces résultats sont robustes pour une série de tests de robustesse. Il est notamment important de noter que dans les localités homogènes, la violence ne semble pas impacter dans un sens ou l'autre le niveau de confiance interpersonnelle.

Ce travail fournit les preuves d'un repli sur soi du fait de l'exposition au conflit au Mali. Ce repli sur soi se fait au détriment des individus en dehors de son réseau de liens forts. Il doute de l'effet pro-social des conflits documenté dans la littérature et donc de son rôle dans la reprise économique d'après-guerre. Il permet aussi de mieux comprendre le conflit en cours dans un pays déstabilisé par les violences djihadistes et présentant un risque substantiel pour la région sahélienne entière. Les résultats mettent en lumière un impact assez préoccupant du conflit sur le capital social au Mali. L'affaiblissement des liens faibles impliquant leur corrosion pourrait être préjudiciable pour l'économie. Simultanément, le développement des liens forts est d'autant plus inquiétant qu'il suggère un enracinement d'une confrontation entre les groupes au Mali façonnée par une opposition politique. Ces résultats confirment le déplacement du conflit vers une confrontation ethnique depuis les années 2016-2017. Ce document met en avant l'importance de promouvoir les associations putnamesques et la diversité au niveau local afin de limiter l'enracinement d'une confrontation violente au Mali.

Chapitre 3 : « *Crime in Madagascar: Coping with victimization and fear on the labour market* ».

La violence criminelle est le résultat d'une activité illégale d'un individu (ou d'un groupe d'individus) qui porte préjudice à d'autres individus. Les causes de la violence criminelle ont été théorisées relativement tôt dans la littérature en économie. A partir d'un modèle d'agent rationnel, Gary S. Becker présente la criminalité comme le résultat d'une simple analyse coûts-bénéfices (Becker, 1968). Conformément aux résultats de la littérature, la criminalité devrait particulièrement prospérer dans les zones où les inégalités économiques sont importantes, les taux de pauvreté relative élevés (Bourguignon et al., 2003) et les dispositifs de sécurité publique faibles. Il faut s'attendre à des taux de criminalité plus élevés sur les marchés du travail où le travail est faiblement rémunéré et le chômage de longue durée (Gould et al., 2002). Les activités criminelles représentent un comportement coûteux pour les victimes. En général, les plus pauvres supportent un coût plus élevé de la victimisation (Barslund et al., 2007). Des travaux plus récents présentent la peur de la criminalité encore plus coûteuse dans la mesure où elle affecte une proportion bien supérieure de la population que la criminalité elle-même. Néanmoins, la façon dont la criminalité vécue et perçue affecte les habitudes des travailleurs reste peu claire.

Ce travail réduit le déficit de connaissances des effets de la violence criminelle vécue et perçue sur les comportements des travailleurs du secteur informel à Madagascar. Le secteur informel est le principal contributeur des moyens de subsistance des pauvres (De Vreyer & Roubaud, 2013 ; ILO, 2018) et ses travailleurs constituent la main-d'oeuvre la plus vulnérable. Ils sont particulièrement exposés aux chocs et à l'incertitude car ils souffrent de conditions de travail très difficiles et ne bénéficient de quasiment aucun filet de sécurité. Par ailleurs, l'étude de ces effets à Madagascar s'avère être primordiale. L'île rouge fait partie des pays les plus pauvres du monde. Son économie souffre d'une récession continue depuis son indépendance et se caractérise par un taux de pauvreté aux seuils internationaux supérieur à 90% (INSTAT, 2013a). 93% de la main-d'oeuvre totale se trouve dans le secteur informel (INSTAT, 2013b).

La nature de l'insécurité à Madagascar reste aussi déroutante que sa trajectoire économique (Razafindrakoto et al., 2020). D'une part, Madagascar présente des signes de violence bien établis (Dez, 1981 ; Beaujard, 1991). Les médias rendent souvent compte des actes criminels. Pourtant, selon les chiffres existants, Madagas-

car devrait plutôt être considéré comme un pays pacifique. Effectivement, le pays n'a jamais connu de confrontations violentes depuis son indépendance. Selon les estimations fragiles de l'OMS, le taux d'homicide à Madagascar est égal à la moyenne de l'Afrique subsaharienne (11 pour 100 000 en 2012) et reste largement inférieur au niveau de violence des pays voisins (Afrique du Sud : 32, Lesotho : 38, Mozambique et Tanzanie : 12,5). Ce paradigme est confirmé par les niveaux relativement faibles de violence hors homicides déclarés dans les modules GPS-SHaSA collectés en 2015 : 9% des adultes ont été victimes d'au moins un type de crime au cours des 12 derniers mois.

Ce niveau de violence relativement bien contrôlé doit être mis en perspective avec la peur de la criminalité largement répandue dans le pays. Un adulte sur deux s'inquiète de la violence criminelle dans sa vie quotidienne (Rakotomanana et al., 2016). Le ratio d'adultes craintifs par victime (de 5) est plus élevé que dans tout autre pays présentant des niveaux comparables de violence criminelle et où les mêmes données d'enquête ont été recueillies. Les origines de ce sentiment d'insécurité généralisé à Madagascar doivent être trouvées à la fois dans les déterminants habituels de la peur de la criminalité (perception du désordre, de l'isolement et de la communication) et dans le contexte particulier malgache. La hiérarchie sociale très rigide et étroitement liée à l'idéal d'harmonie sociale, représentée par la notion intraduisible de *fihavanana* (Ottino, 1998 ; Kneitz, 2014) semble avoir fait ressortir un tabou de la violence (Razafindrakoto et al., 2017). Ce tabou empêcherait la population de s'habituer aux manifestations de violence et maintiendrait la peur à des niveaux constamment élevés.

La littérature sur les impacts de la criminalité est très limitée et se concentre dans les pays à revenu intermédiaire où les niveaux de violence sont plus proches de ceux observés lors de conflits. Elle semble quelque peu contradictoire. Si la criminalité ne semble pas avoir d'effet sur la survie des entreprises informelles (Grabrucker & Grimm, 2018) ou non (Bates & Robb, 2008), elle impacte négativement leur productivité et les plans d'investissement (Benyishay & Pearlman, 2014; Cabral et al., 2016) ainsi que les revenus des travailleurs (Velásquez, 2019). Elle documente encore moins les effets de la peur de la criminalité. La peur de la criminalité induit des stratégies de protection et/ou d'évitement (Doran & Burgess, 2012). Elle est rarement étudiée comme un facteur direct des changements de comportement mais plutôt comme un canal de transmission des effets de la criminalité (Velásquez, 2019). Seuls Chakraborty et al. (2018) analysent directement la peur de la criminalité à

travers les effets des taux de crimes sexuels perçus localement sur les travailleuses du secteur non agricoles en Inde. Les femmes établissent des stratégies d'évitement. Leur participation au marché du travail diminue à mesure que les taux de crimes sexuels perçus augmentent.

J'utilise principalement une enquête nationale sur l'emploi conduite en 2015 par l'INSTAT-Madagascar. Cette enquête représentative nationalement permet d'identifier les travailleurs du secteur informel de cinq ans et plus. Le module emploi correspond à une phase 1 d'une enquête 1-2-3 (Razafindrakoto et al., 2009). Elle intègre le module d'enquête GPS-SHaSA dans lequel il est possible d'identifier les victimes d'agression physique, de vol à l'intérieur ou en dehors du domicile, et de vandalisme ainsi que les individus inquiets de la violence criminelle dans leur vie de tous les jours. La localisation exacte des ménages offre l'opportunité d'inclure un large éventail de variables géocodées dans un rayon de trente kilomètres autour du ménage dont l'isolement des individus, les précipitations durant la dernière saison de croissance du riz, le nombre de mines de pierres précieuses et la moyenne de la radiance de l'éclairage nocturne.

J'estime les effets de la criminalité perçue et vécue sur différentes variables de résultat caractérisant les conditions et les habitudes des travailleurs adultes du secteur informel. Le modèle pourrait être modélisé comme suit :

$$LM_{i,hh,r} = \alpha_1 + \beta_1 Fear_{i,hh,r} + \delta_1 Victim_{i,hh,r} + \gamma_1 Ind_{i,hh,r} + \eta_1 HH_{hh,r} + \rho_1 R_r + v_{i,hh,r} \quad (3)$$

$LM_{i,hh,r}$ correspond à la variable de résultat de l'individu i du ménage hh de la région r . J'estime ce modèle sur les variables suivantes : avoir travaillé au moins une heure dans les sept derniers jours pour son activité principale, le nombre d'heures travaillées les sept derniers jours pour son activité principale, être rémunéré dans son activité principale, la rémunération de son activité principale, avoir une activité secondaire. $Fear_{i,hh,r}$ et $Victim_{i,hh,r}$ sont les variables d'intérêt : elles sont égales à 1 quand l'individu s'inquiète de la violence criminelle ou a été victime d'au moins une forme de criminalité dans les douze derniers mois et 0 autrement. Je contrôle pour un nombre de caractéristiques individuelles ($Indiv_{i,hh,r}$) et du ménage ($HH_{hh,r}$) ainsi que pour les caractéristiques régionales structurelles (R_r). Les erreurs types sont ajustées pour la corrélation intra-zone de dénombrement.

Au regard des différences substantielles entre les caractéristiques du marché du travail entre les secteurs agricole et non agricole, les effets de l'insécurité sur ces vari-

ables de résultats sont analysés par secteur d'activité. Effectivement, les activités des secteurs agricole et non agricole se déroulent dans des zones différentes du territoire, où le marché est façonné différemment. Une partie de la production agricole est destinée à l'autoconsommation contrairement aux activités non agricoles. Les habitudes de travail sont aussi très différentes entre le secteur agricole et le secteur non agricole.

Du fait de ces différences, je fais l'hypothèse que les stratégies d'adaptation entre travailleurs du secteur agricole et travailleurs du secteur non agricole devraient différer. Les stratégies d'évitement sont peu probables dans le secteur agricole car la production agricole est principalement orientée vers l'autoconsommation des ménages. L'orientation vers le marché est secondaire et concerne plutôt les excédents. La diversification des sources de revenus n'est pas non plus une solution évidente, car les coûts d'entrée dans d'autres activités non agricoles sont élevés (voir par exemple [Dercon & Krishnan, 1996](#) ; [Reardon, 1997](#)). Pour les travailleurs agricoles, il faudrait s'attendre à la mise en place de stratégies de protection. On pourrait plutôt s'attendre à des stratégies d'évitement de la part des travailleurs non agricoles. Ces stratégies d'évitement pourraient également être corrélées à la volonté de protéger les biens que les individus ont chez eux.

Divers tests de robustesse sont mis en oeuvre pour limiter les biais d'endogénéité et de sélection. Ainsi, je contrôle pour le biais d'erreur de mesure, pour la sélection pour la participation dans le secteur informel et pour la migration et pour le biais de variables omises. Pour ce dernier type de biais, je tire profit de l'enquête nationale sur l'emploi et le secteur informel menée par l'INSTAT-Madagascar en 2012 dans les mêmes zones de dénombrement qu'en 2015. J'estime les effets de l'insécurité sur l'échantillon empilé pour lequel j'inclus des effets fixes zone de dénombrement et année.

Les résultats indiquent que les travailleurs inquiets de la menace criminelle ont tendance à travailler significativement davantage et à être mieux rémunérés. Ces résultats sont tirés par la main d'oeuvre du secteur agricole. Ces derniers travaillent deux heures supplémentaires par semaine dans leur activité principale et ont un revenu supérieur de 10% lorsqu'ils s'inquiètent de la violence criminelle dans leur vie de tous les jours. Cependant, il est significativement moins probable pour eux de cumuler cette activité avec une autre. Les travailleurs du secteur non agricole ne semblent pas significativement affectés par la peur de la violence criminelle. Les résultats montrent que la victimisation a un effet négatif mais non-significatif sur

les travailleurs et ce quel que soit leur secteur d'activité. Ces résultats sont robustes aux différents tests mis en oeuvre.

Ces résultats semblent confirmer l'intuition initiale : les agriculteurs et éleveurs adoptent des stratégies de protection de leur production quand ils ont peur de la criminalité. Ils restent plus longtemps sur leur lieu de travail dans l'espoir de dissuader toute tentative de destruction ou de vol de leur production. Si cela a un effet positif sur leur revenu, cette stratégie les rend plus vulnérables aux chocs comme ils ont moins de chance de diversifier leur revenu. Ainsi, si leur production est mauvaise leur ménage sera moins à même de lisser les pertes sans un revenu venant d'une autre activité.

L'effet sur la productivité des agriculteurs n'est pas clair. Une analyse sur le nombre d'heures travaillé toute activité confondue et le revenu total des agriculteurs indique une perte de productivité des individus inquiets : ils travaillent davantage sans avoir de compensation significative pour ce travail.

Dans le secteur non agricole, les effets non significatifs de la peur de la criminalité cachent en réalité une hétérogénéité des impacts de la peur selon le milieu de résidence. Si en milieu rural, la main d'oeuvre adopte des stratégies similaires aux agriculteurs, en milieu urbain, les travailleurs semblent adopter une stratégie d'évitement.

Cette augmentation du temps de travail dans le secteur agricole réduit aussi le temps alloué à d'autres activités au sein du ménage. On devrait donc observer des répercussions sur l'allocation du temps des autres membres du ménage et en particulier les membres de moins de quinze ans. Il s'avère qu'avoir au moins un membre adulte inquiet dans les ménages agricoles augmente la participation au marché du travail des enfants sans pour autant augmenter leur déscolarisation.

La peur de la criminalité affecte le travail des individus et des ménages dans une plus large mesure que la criminalité elle-même. Dans le secteur agricole, les ménages adoptent des stratégies de protection qui les exposent davantage aux chocs et diminuent leur productivité. Tous les membres du ménage augmentent leur présence dans les champs participant ainsi à la mauvaise allocation du travail dans le secteur agricole. Les conséquences économiques de cette répartition du travail pourraient être lourdes pour le développement. Dans le secteur non agricole, les travailleurs tendent à adopter des stratégies d'évitement sans effet significatif sur leur revenu, suggérant que la demande s'adapte au temps de présence des travailleurs sur leur lieu de travail. Bien sûr, il est important de s'attaquer à la

violence réelle, mais les décideurs politiques devraient également s'intéresser à la perception qu'ont les individus de la violence.

Pour conclure, cette thèse en microéconomie appliquée permet de mieux appréhender les impacts de la violence symbolique, politique et criminelle. Elle cherche à apporter des réponses aux chercheurs et aux décideurs politiques qui s'interrogent sur le lien entre ces facteurs et le développement économique. Le chapitre 1 se demande si la peur de l'État biaise les réponses aux enquêtes publiques. La conception quasi-expérimentale unique de ce travail permet de conclure à l'absence de biais d'atténuation ou d'autocensure de la part des personnes interrogées par des organisations publiques, par rapport aux organisations se déclarant indépendantes. Le chapitre 2 examine les impacts des conflits sur la participation associative et la confiance interpersonnelle entre 2012 et 2015 au Mali. Il rend compte de l'évolution des adhésions aux associations en se basant sur la distinction originale de la nature et des objectifs de ces associations. L'augmentation de la participation dans les zones exposées à des événements violents n'est observée que pour les associations familiales et politiques, qui agissent comme des groupes d'intérêt. Nous interprétons ce résultat comme une forme de repli sur soi, une interprétation étayée par une analyse poussée de la confiance interpersonnelle. Le chapitre 3 analyse la relation entre la violence criminelle, à travers l'insécurité vécue et perçue, et le comportement des travailleurs sur le marché du travail informel à Madagascar. Les résultats montrent que la victimisation et la peur de la criminalité affectent les travailleurs de manière très différente. Si les victimes semblent passer moins de temps au travail quel que soit le secteur d'activité, la peur de la criminalité affecte les pratiques de travail de manière opposée selon le secteur d'activité. Par ce travail, il apparaît essentiel d'intégrer la question du sentiment d'insécurité liée à la criminalité et, dans une plus large mesure, de l'insécurité générale dans les questions de développement.

General introduction

This PhD dissertation contributes to the economic literature of violence. It provides evidence on the impacts of the three existing types of violence: symbolic violence (Chapter 1), political violence (Chapter 2) and criminal violence (Chapter 3). As the existing literature in this area remains relatively scarce and very localised to some parts of the world, this work intends to close parts of the knowledge gap by investigating still uncovered issues in rarely studied areas. Its interest further lies in the international development agenda to promote inclusive and peaceful societies. Both post-2015 United Nations Sustainable development goals (SDG) and African Union Agenda 2063 make public authorities accountable on ‘peace, justice and strong institutions’ (SDG16), ‘good governance, democracy, respect for human rights, justice and the rule of law’ and peace and security (Aspirations 3 and 4 of Agenda 2063). The 2020 annual theme of the African Union is ‘Silencing the guns’. This work also falls within a global context of surge of wide political movements characterised by a pronounced resentment and violent expressions across the world, including in developed countries as in France (*Gilets jaunes* movement) and in the United States (Black Lives Matter in 2020). The aim is to provide keys to understanding about the relationship between violence, governance and economic development.

The focus is on Sub-Saharan African countries where violence has reached an unmatched level since the 1990s. I pay particular attention on countries rarely in the foreground of the literature: Mali (Chapter 2) and Madagascar (Chapter 3). As it aims to be highly grounded into local realities, this work is also the result of in-depth interactions with local researchers and civil society representatives thanks to multiple trips to these countries. Between 2018 and 2019, I had the opportunity to go to Bamako five times (and for security reasons nowhere else in Mali) as part of a training project and the co-production of a report on the dynamics of violence and security in Mali from 2014 to 2018 (Cissé et al., 2019). In November 2019, I benefited from a one-month visiting fellowship to Madagascar National Statistics

Office (INSTAT) funded by the Dauphine graduate program in economics.

This dissertation's main originality stems from centring the analyses on individuals' feeling of fear both as a cause and as a consequence of individual and local economic development paths. Fear remains poorly understood and largely uncovered in the field of development economics despite its undeniable role on individual behaviours and then to a larger extent on factors of local economic development. I am convinced that it is central to take further fear and more broadly perceptions into account in (development) economics. They are of particular interest in violent settings.

Chapter 1 questions through a methodological approach if individuals reveal their opinions and preferences when they are interviewed by public-related representatives. By doing so, we analyse the 'fear-of-the-state' bias in household surveys. Chapter 2 studies the impact of the Malian conflict on social capital through association participation. Available data allow us to interpret the results in light of the fear of the other. Chapter 3 analyses the relationship between perceived and experienced criminality and workers' behaviours on the informal labour market in Madagascar. This last chapter considers both crime-related insecurity and economic insecurity to explain potentially unproductive practices on the labour market.

This research relies on the combination of different usual data sources (public attitudes surveys, augmented labour force surveys and event location data) with an original and first-hand Governance, Peace and Security (GPS) survey modules conducted by National Statistics Offices (NSO). The use of different data sources submits a reflection on the measurement of governance, peace and security related issues.

All the research questions examined in this work present identification challenges that we address thoroughly. We first deal with omitted variable biases through the inclusion of a wide range of individual and household controls as well as very precise geo-climatic data (in Chapters 2 and 3) and the implementation of a very large set of robustness checks in each chapter. We also pay special attention to address the reverse causality or simultaneity bias. In Chapter 1, we implement a quasi-experimental design at national level which extends largely beyond usual randomised control trial lending external validity to our estimations (Deaton, 2010). We also address selection into perceived survey-sponsor identity with propensity score matching. In Chapter 2, we address the reverse causality (and omitted variable bias) through the demanding estimations of instrumental variable and difference-in-

differences models. In Chapter 3, we take advantage of the panel dimension of available surveys to mitigate endogeneity biases.

The remainder of the introduction presents first some background on violence, with a particular focus on Malian and Malagasy security contexts. Second, I suggest how the feeling of fear is central to the study of violence both as a determinant and a consequence. Third, I describe the different ways governance, peace and security are measured throughout this dissertation. Finally, I conclude by summarizing the following chapters of this dissertation.

0.1 Some background on violence

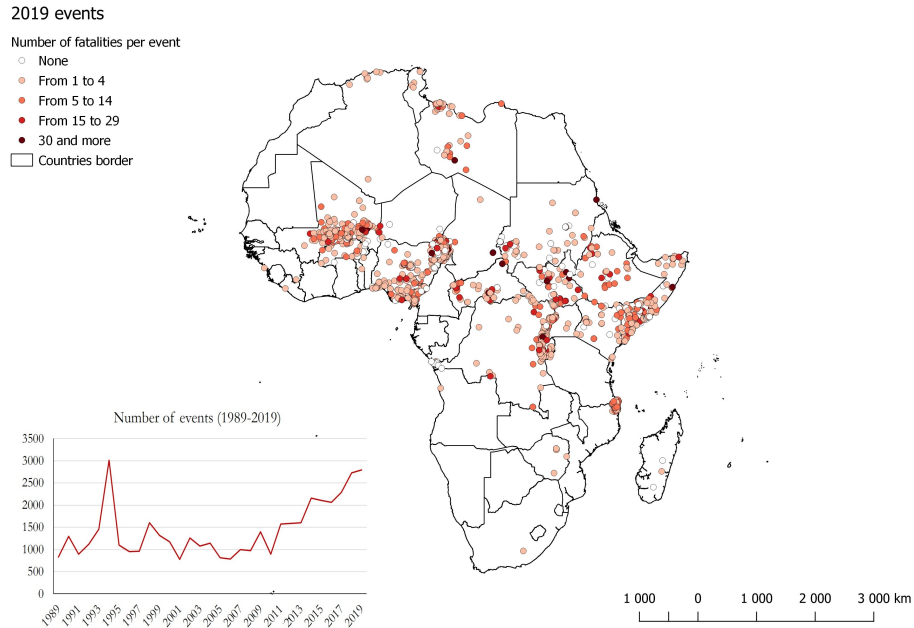
0.1.1 Different types of violence

Violence takes different shapes all impacting development paths on different levels. Violence could be classified into three main categories: symbolic, political or criminal violence. While political and criminal violence imply physical violence, symbolic violence does not. The latter supports one group's domination over the other. Symbolic violence is in general accepted by the dominated groups. De La Boétie as early as in 1576 the *Discourse on Voluntary Servitude* (de La Boétie, 1997) explained this submissiveness by the force of habit, further theorised by Bourdieu (1989). Besides, when symbolic violence is institutionalised the dominated groups should lack means to overthrow the balance of power as the dominating group benefits from the monopoly of legitimate violence. In the first chapter, we question the role of symbolic violence on individuals' promptness to reveal their preferences and opinions regarding institutions functioning when they are interviewed by public-related agents. Even though it does not correspond to the chapter core research question, it also suggests the extent to which symbolic violence can affect adults' revealed perceptions.

Political violence corresponds to physical violence incited by the claims of opposing groups. It can be narrowed here to armed conflict. Its study in Africa is essential. Indeed, the relative stability in the evolution of violence occurrence recorded since the mid-1990s shattered in the 2010s in Africa. Levels of violence reached comparable levels as those of 1994. These current levels of violence are all the more exceptional as they take place all over the continent, as shown in Figure 0.1, whereas 1994 events were mostly registered as part of the Rwandan genocide and Angolan civil conflict. The 'three-borders zone' between Niger, Burkina Faso and Mali figures among the most violence-prone area of the continent. To the best of our knowledge, we are the first in the economic literature to study the effects of the

Malian conflict at national level.

Figure 0.1: Evolution of violent events registered from 1989 to 2019 and 2019 location



Source: UCDP, Author's computation.

Conflict causes have been well documented in economics and political science, particularly in the case of Africa. We could briefly summarize them to bargaining failures (Fearon, 1995; Powell, 2006), appropriation opportunities (Berman et al., 2017) and opportunity costs of fighting (Couttenier & Soubeyran, 2014; Harari & La Ferrara, 2018). Inversely, their effects are still a seldom field of research, but studies acknowledge their negative impacts on education (Shemyakina, 2011; Bertoni et al., 2019), health (Bundervoet et al., 2009; Akresh et al., 2012) or poverty (Mercier et al., 2020). By contrast, the impacts of armed conflicts on civil commitments and social interactions remain somehow debated. We take part in the debate by analysing thoroughly its effects through association membership and interpersonal trust. Their analysis also provides some keys to understanding the ‘conflict trap’ (Collier et al., 2003) country might enter in.

Lastly, criminal violence is the result of individual’s (or group of individuals) illegal action that is harmful to other individuals. The causes of criminal violence were theorised relatively early in the economic literature. In a rational actor modelling, Gary S. Becker presents crime as the result of a simple cost-benefit analysis (Becker, 1968). Individuals would balance the gains from committing a crime against the

probability of getting apprehended and the costs of punishment (including the opportunity costs). In line with the literature's results, crime should particularly thrive in areas with substantial economic inequality, high relative poverty rates (Bourguignon et al., 2003) and weak public security schemes. We should expect higher crime rates in labour market characterised with low-income opportunities or long-term unemployment (Gould et al., 2002).

Criminal activities also represent a costly behaviour for the victims. Usually, the poorest bear a higher cost from victimisation (Barlund et al., 2007). It is also costly to the society as it finances the control and punishment of criminal activities.

For all these reasons, Madagascar should represent an ideal case to study crime-related insecurity. The Red Island ranks among the world's poorest countries. According to latest available World Bank Development indicators (2012), the poor accounted for 97% of the population at international threshold of USD 5.5 (purchasing power parity, 91% for USD 3.2 threshold). Its economy relies overwhelmingly on the agricultural sector (80% of its labour force) and nine workers out of ten work in the informal sector (INSTAT, 2013b). Its active population is thus overwhelmingly vulnerable as it does not have the means to protect themselves, face hard working conditions and benefits from very poor safety. Nevertheless, research in economics failed to consider Madagascar as a fieldwork of interest on crime. Chapter 3 of this thesis bridges part of this knowledge gap.

0.1.2 Security contexts in Mali and Madagascar

A recent work of Porteous (2020) shows that 5 countries (South Africa, Ghana, Kenya, Uganda, and Malawi) accounting for 16% of total African population represent almost half of the existing literature on African countries from 2000 to 2019. In the top 5 economic journals, this share reaches 65%. The author further shows that violent contexts are highly negatively correlated with research. Most research on violence focuses on very emblematic case studies.¹ We contribute to narrow this spatial knowledge gap through two case studies on the impacts of violence in Mali and Madagascar.

The Malian security context

Before the still ongoing Malian conflict started, the north (the Timbuktu, Gao and Kidal regions), where mostly Tuaregs, Arabs and nomadic groups live, accumu-

¹Analyses of conflict impacts are primarily oriented towards Eastern Africa (Voors et al., 2012; Gilligan et al., 2014) while studies of criminal violence rather settle in South Africa (Grabrucker & Grimm, 2018).

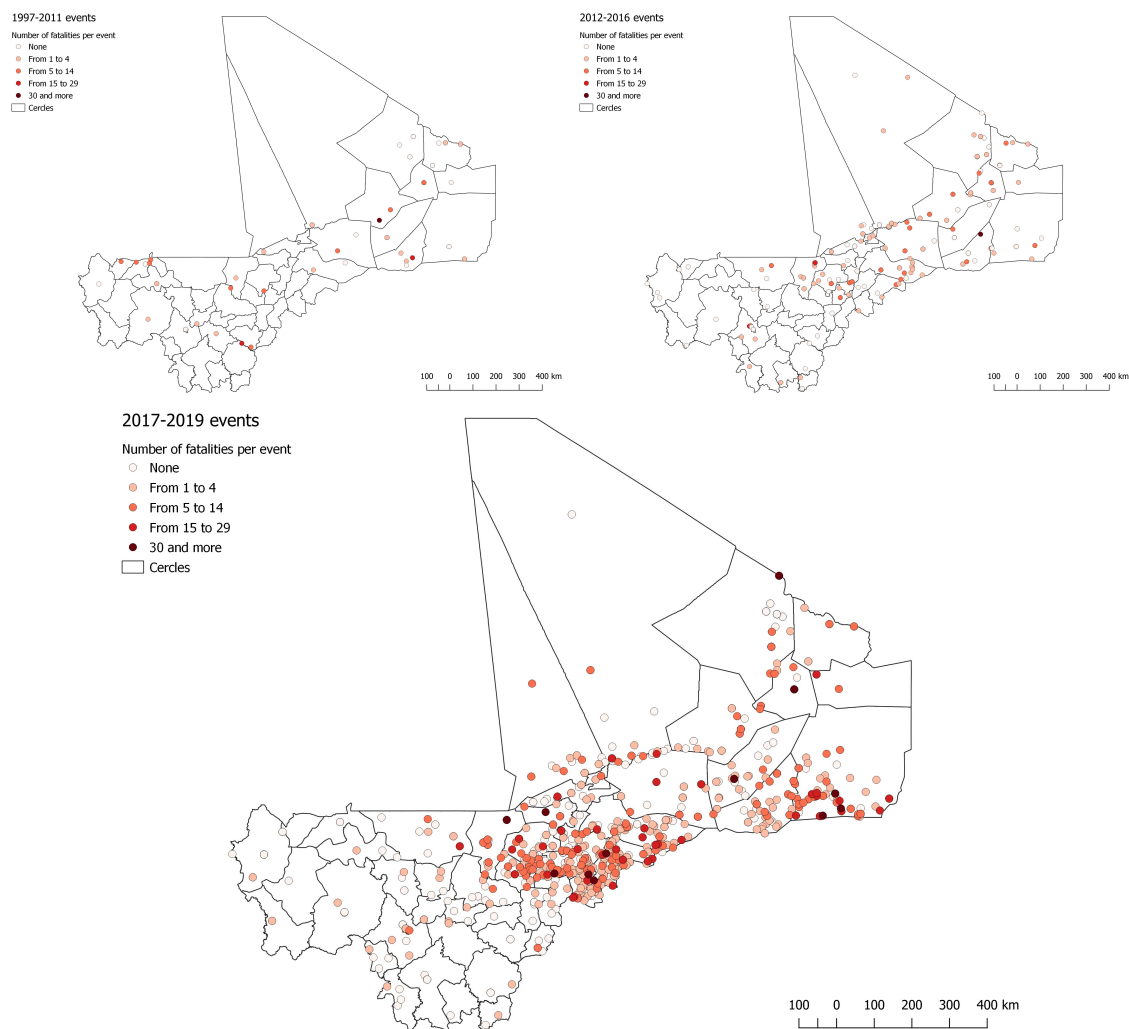
lated resentment: marginal interest from central authorities and increased economic inequality heightened this feeling in the north (Galy, 2013; Chauzal & van Damme, 2015). Cyclic uprisings led by Tuareg groups took place in 1963, 1991, 2007 and 2012. The latest to date gathered Tuareg rebel groups around the will of autonomy or independence of Northern Mali and jihadist groups keen to impose the Shariah law over the country. While the former are not at their first attempt to change the balance of power in the North, jihadist groups only start thriving since the late 2000s driven by growing insecurity (as goods and human trafficking expand) and central government withdrawal from the Sahelian regions (Julien, 2011). In the aftermath of Gaddafi's regime collapse in 2011, weapon circulation increased with the return of the Tuaregs militia in Mali (UNODC, 2013). This led to the reinforcement of jihadist groups such as Al-Qaeda in Islamic Maghreb (AQIM) and Ansar Dine in the Kidal region. After three first months of violent perpetrations which led the North to be under the yoke of insurgents, a military coup dismissed President Amadou Toumani Touré (ATT). *Serval* French military operation in 2013 (under the UN flag) helped Malian central authority to quickly take back control over the Northern Mali (at least on appearance) but did not end confrontations as shown in Figure 0.2.

On the contrary, despite regional (G5 Sahel) and international (UN MINUSMA) military intervention and the signature of peace accord in Ouagadougou in 2014 and Algiers in 2015, the rise in violence in 2015 announces the establishment of a cycle of violence which has never stopped intensifying and has progressively extended to the neighbouring countries Burkina Faso and Niger as reported in Figure 0.1. The causes of this violence outbreak are multiple and interwoven which make them difficult to solve. Nevertheless, since 2016-2017 the progressive surge of ethnic-based tensions and armed confrontations up to being described as an ethnic cleansing shifted the characteristics of the conflict nature towards a rooted opposition. Very recent deposition of President Ibrahim Boubacar Keïta by a military coup is an additional consequence of the conflict trap in which the country seems deadlock.

Chapter 2 falls within what we consider as the first part of the conflict, the 2012-2015 period. We analyse the effects of the conflict on interpersonal interactions through a very specific trait of Malian governance: local associations. According to their types, they play an essential role for members to cope with important events such as births and wedding through financial support as for the community, by providing public goods including small infrastructures (Kuepie & Sougane, 2014; Chauvet et al., 2015). Some also have the implicit attribution of making different

ethnic groups or communities seat around the same table.

Figure 0.2: Evolution of violence intensity in Mali (1997-2019)



Source: ACLED, Author's computation.

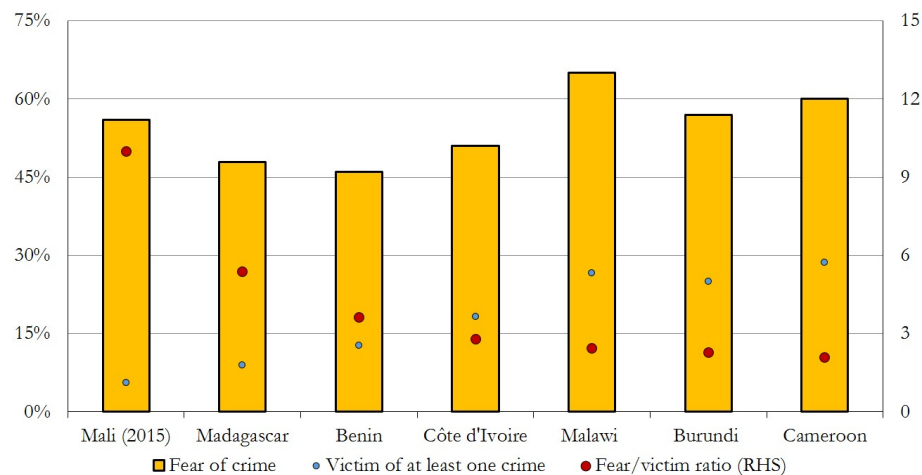
The Malagasy security context

The nature of insecurity in Madagascar remains puzzling similarly to its economic trajectory (Razafindrakoto et al., 2020). On the one hand, Madagascar presents signs of well-established violence (Dez, 1981; Beaujard, 1991). Media tend to report very extensively on criminal wrongdoing. Yet, according to the existing numbers, Madagascar should rather be considered as a peaceful country. According to WHO fragile estimates, homicide rates in Madagascar equals the Sub-Saharan African mean (11 per 100,000 in 2012) and remain below the neighbouring countries level of

violence (South Africa: 32, Lesotho: 38, Mozambique and Tanzania: 12.5).² This paradigm is confirmed by the relative low levels of non-homicidal violence declared in GPS-SHaSA modules collected in 2015: 9% of the adults have been a victim of at least one type of crime during the past 12 months.

On the other hand, this relatively well controlled level of violence needs to be put in perspective with a widely spread fear of crime in the country. One adult in two is worried about criminal violence in their day-to-day lives (Rakotomanana et al., 2016). The ratio of fearful adults per victim (of 5) is higher than any other countries with comparable levels of criminal violence and where same survey data (GPS-SHaSA data, see below) were collected as reported in Figure 0.3. The origins of this widespread feeling of insecurity in Madagascar should be found simultaneously in the usual determinants of the fear of crime (perception of disorder, isolation and communication) and in the particular context of the Red Island. The very rigid social hierarchy closely linked to the ideal of social harmony, depicted by the untranslatable notion of *fhavanana* (Ottino, 1998; Kneitz, 2014) seems to have brought up a taboo of violence (Razafindrakoto et al., 2017). This taboo prevents the population from getting used to occurrences of violence.

Figure 0.3: Victimization and the fear of crime



Sources: GPS-SHaSA modules, NSOs, Author's computation.

Chapter 3 studies simultaneously the relationship between perceived and experienced insecurity and workers' behaviours on the informal labour market. The informal sector is the prime contributor to the livelihoods of the poor (ILO, 2018)

²See UNODC (2014).

as it concentrates nine workers in ten (INSTAT, 2013b). As workers of the informal sector lack safety nets, victimisation and fear are likely to modify their productive practices.

0.2 Fear, the missing piece of the violence's puzzle?

0.2.1 Fear as a determinant

Fear is rarely explicitly considered in the economic literature as a determinant of individual or local economic development trajectory. This dissertation aims to give the feeling of fear a key role to shaping individuals' behaviours. On the case of symbolic violence in Chapter 1, we consider fear as a determinant of revealing or not to state-related organisations one's preferences and opinions on governance. One can expect that in order to avoid any potential reprisal from local or central authorities, or more broadly any threat of disclosure, individuals hide their opinions or censor themselves. This attitude has been modelled and observed in times of election. Collier & Vicente (2012) model the role of intimidation on turnout from voters of the opposition to ensure the incumbent re-election or to improve the challenger share of votes. It should favour clientelism and limit development prospects as it may limit the provision of public goods. The implied capture of power by the elite are greatly detrimental to the most vulnerable groups in middle- or low-income countries even in democratic settings (Pande, 2020).

Empirically, Collier & Vicente (2014) test the effects of insecurity on self-censorship in times of elections in Nigeria. Limiting perceptions of violence and as a result the feeling of insecurity during elections improved voters' turnout and reduced actual violence occurrence.

In the case of physical violence, the room left to the feeling of fear is even smaller. For criminal violence, research rather presents fear of criminal violence as a channel of transmission through which crime affects practices (see Velásquez, 2019). However, actual criminality and the fear of criminal violence are very poorly correlated (for an overview see Doran & Burgess, 2012).

The reasons of this low correlation between fear and actual crime rates are manifold. Jackson (2004) summarizes the expression of fear as the result of incivilities or social disorganisation or at least the make-up one has of them at neighbourhood level. Interpersonal communication and media coverage play a determinant role on the perception of violence. Social vulnerabilities and responsibilities are also consti-

tutive of the feeling of fear (Williams et al., 2018). Isolated communities tend also to be more fearful of criminal violence (Lagrange, 1984). Local context, tradition and customs can be catalysts of the fear of violence as well. In the case of Madagascar, the taboo of violence, which finds its origins in an ideal of social harmony well instrumentalised by the ruling class, along with a deeply rooted symbolic violence makes of every violence occurrence a source of fear (Razafindrakoto et al., 2017).

Because of the relative imbalance between the perceptions of violence and actual violence, the costs of fear can largely exceed the costs of actual violence as it has been measured in the case of Uganda by Rockmore (2016). To the best of my knowledge, only Chakraborty et al. (2018) present evidence of labour market exit of Indian women in localities with higher perceived rates of sexual violence. Regarding the fear of conflict-related violence, Tapsoba (2020) provides evidence that fear “triggers changes in the behaviour of economic agents even before/without any manifestation of violence in a given area”. Children’s health deteriorates due to the mere risk of violence rather than violence itself. I contribute to this literature by studying perceived and experienced violence in a developing country where fear is a central concern for the population.

0.2.2 Impacts of violence

In the second and third chapter of this dissertation, we question how violence, whether it is perceived and/or experienced, affects individuals’ practices. Results somehow enlighten also its effects on perceived economic and social insecurity. Hence, again, we put forward to a lesser extent the impacts of violence on the feeling of fear. In the case of the Malian conflict, we analyse how individuals exposed to violence connect differently with other individuals and other groups through the notion of social capital.³ We measure the formal social capital of adults via association participation according to their types whether they are inclusive (Putnamesque) or exclusive (Olsonian). We complement this analysis through the study of violence impacts on trust towards closely related groups and distanced groups. To the best of our knowledge, it is the first time that the notion of social capital is integrated as such in the conflict literature. By doing so, results should convey how violence affects the fear of the other.

If the literature has agreed upon the positive role of social capital on development (Knack & Keefer, 1997), the economic literature often misses its multifaceted

³Bourdieu (1980) defines social capital as “*the entire aggregate of current and potential resources associated with the possession of a durable network*”.

character. Yet, according to the literature in sociology, it is essential to differentiate bonding and bridging social capital. The former connects almost automatically individuals living in the same core with similar interests, while the latter links individuals to a wider extent with less common points. Bonding ties and particularly family ties can be harmful if they are intense (Alesina & Giuliano, 2014) despite their acknowledged utility including reliability and rapid access to information (Burt, 2001). Bridging social capital, or weak ties, represents the actual value-added of social capital (Burt, 2001). It prevents from exclusion from social interactions (Jackson et al., 2012) and limits market failures and insufficient public goods provision by facilitating access to information (limiting information asymmetry) and collective action (Putnam et al., 1993; Durlauf & Fafchamps, 2005). All other things being held equal, whether individuals tend to cooperate with outsiders or, on the contrary, avoid the other suggests respectively decreased or increased fear of the other (Kelley et al., 2003). Competition to access information and resources are potential drivers of such changes in attitudes.

We integrate these different aspects of social capital as precisely and grounded as possible to the Malian reality in the conflict literature. Social capital differentiation between inward-looking and outward-looking groups has been rarely documented as such to-date (Choi & Bowles, 2007; Cassar et al., 2013; Grosjean, 2014). On the contrary, some works even suggest that positive effects of conflict on social capital drives economic convergence of areas most intensely affected by violence (see for instance Voors et al., 2012) during post-war period (Davis & Weinstein, 2002; Brakman et al., 2004; Miguel & Roland, 2011).

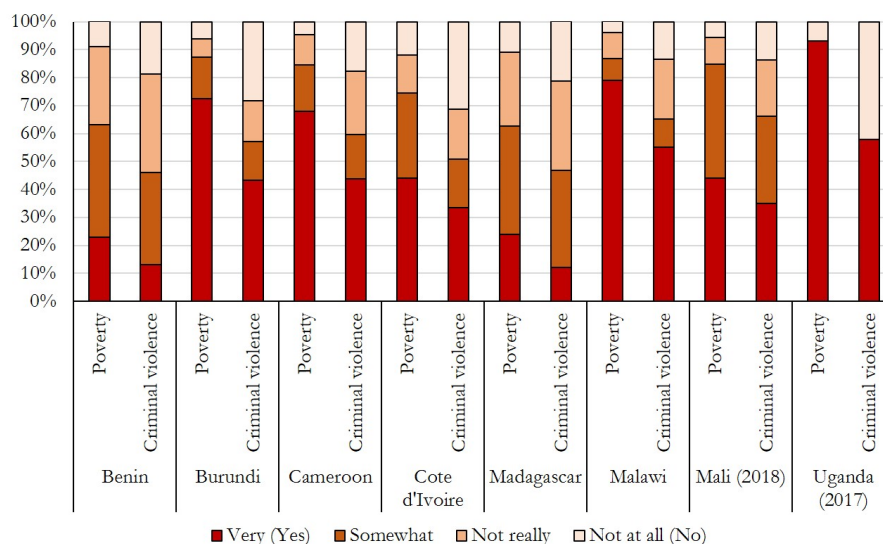
In the case of Madagascar, I try to disentangle the role of perceived and experienced violence on attitudes of workers of the informal sector.⁴ Workers of the informal labour market are particularly vulnerable to uncertainty and shocks. Exposition to crime-related insecurity should affect workers and to a larger extent their household's feeling of economic insecurity. It should affect the fear of losing even partly crops, livestock or any valuable belongings. The Malagasy case study encompasses the fear of economic losses through the analysis of working habits in a context of crime-related insecurity.

The third chapter integrates then two major characteristics of developing countries: the dominance of the informal sector and economic insecurity. First, the infor-

⁴Informal sector is broadly defined as the set of small production units (from own-account through household enterprises to enterprises of informal workers) not legally registered or without complete set of book accounts (ILO, 1993).

mal labour market contributes primarily to the livelihoods of the poor (De Vreyer & Roubaud, 2013; ILO, 2018), despite its acknowledged heterogeneity (Grimm et al., 2012). In Madagascar, the informal sector gathers 93% of the total labour force (IN-STAT, 2013b). Studies further provide evidence of the labour market segmentation between informal and formal sectors (Maurizio, 2014; Barlet, 2013) and of its relative unproductivity (in the case of Madagascar see Rakotomanana, 2014). Second, economic insecurity constitutes one of the main sources of fear in African countries (if not across the world). GPS-SHaSA data report that poverty represents a threat for the majority of adults in eight very different countries and the most prominent fear of a set of ten day-to-day threats listed (see Figure 0.4).

Figure 0.4: Share of worried adults by the poverty and criminal violence threats



Sources: GPS-SHaSA modules, NSOs, Author's computation.

0.3 The measurement of governance, peace and security

0.3.1 A very large set of available sources

Another contribution of this dissertation has to be found in the data sources used across chapters to measure governance, peace and security. It takes part in the scientific and policy-relevant debate on what we should measure and who should measure it. Available data sources are soaring on those matters each with their own limitations (Oman & Arndt, 2006). We can distinguish administrative, event location, household survey data and composite indicators based on experts' opinions.

The former and the latter are not used in this work. Their main limitations consist of the gap between their existence and their actual implementation in time and space (Kaufmann & Kraay, 2008) for *de jure* indicators and their unreliability to measure institutions day-to-day functioning (Razafindrakoto & Roubaud, 2010) for experts' assessments.

In Chapter 2, we use event location data to measure individual exposition to the Malian conflict. Event location databases compile all media coverage from newspaper briefs to NGOs' or military report of violence-related events. Available event location databases differ by their criteria of event inclusion: the types of event (only terrorism in Global Terrorism database), their intensity (at least one fatality as part of a conflict killing at least 25 in a calendar year for the Uppsala Conflict Data Program). They present the advantage of being highly precise as records includes the event type, the actors involved, their *modus operandi* and the best approximate number of victims. Their other comparative advantage lies in the geolocation of each event. It allows for precise merge with other data sources, particularly household or firm survey data. We opt for Armed Conflict Event Location Database (ACLED) to combine it with Malian annual household survey data.

ACLED is a census of all newspaper articles, press agency telegrams and NGOs organisation briefs reporting armed conflict and political related violent events since 1997 in Africa (Raleigh et al., 2010). Its inclusion criteria are looser than other existing databases as it does not limit to a minimum number of casualties nor to certain event types. It includes a very wide range of events from strategic development (arrests or establishment of a headquarter) through protests to remote violence.

One obvious concern of event location databases is the non-exhaustiveness of events registered. Indeed, events inclusion primarily rely on the presence of a locally dense network of media. The bias caused by measurement error may be large for events of low intensity and those taking place in highly remote areas. Moreover, as acknowledged by Raleigh et al. (2010), violent event intensity measured by the number of fatalities is not reliable information. Where the media does not report a specific number of fatalities in a violent event, ACLED (like other event location databases) assigns default numbers. As it is easier to verify the reality of an event occurrence than the number of deaths and considering the very low average exposition of households per year in Mali, the second chapter privileges the use of a binary variable of occurrence of violent events (including only battles, violence against civilians and remote violence) in the year prior to the survey at sub-district level. As

the Malian conflict intensifies, future research projects on the governance-violence nexus in Mali will rather include monthly number of violent events registered at sub-district level.

0.3.2 Bottom-up approaches: the GPS-SHaSA initiative

All chapters of this dissertation include household survey data with measures of governance, peace and security. This bottom-up approach takes advantage of the transparency of the measurement method and its representativeness. Their implementation at continent or sub-continent levels favours international comparisons. Its time-varying dimension also facilitates comparisons over time. Besides, it combines both perceptions and experiences. However, it is a costly methodology: survey implementation necessitates at least prior experience with data collection, a substantial workforce, highly-skilled statisticians and trainings (of interviewers and direct users). One way to reduce the costs of collecting such data is to integrate such modules within larger surveys collected by experienced organisations. The Governance, Peace and Security (GPS) survey modules used in all chapters of this work apply such methodology.

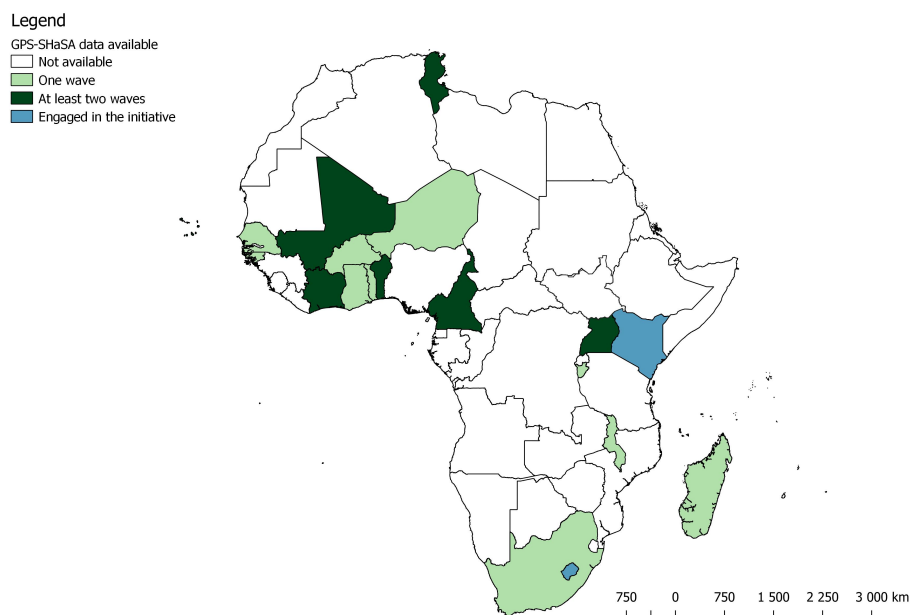
The quality of GPS data is evidenced in the first chapter of this thesis. GPS survey data offer unmatched precision and reliability on governance and security matters. Indeed, GPS survey modules are built on twenty years of experience. First experimented with in Madagascar ([Razafindrakoto et al., 2015](#)), they are now part of the Strategy for the Harmonisation of Statistics in Africa (SHaSA) under the African Union scope with the scientific support of DIAL-French Research Institute for Development (IRD) researchers. This reduces highly the chances to misinterpret proxies or to have to rely on surveys of uncertain quality that researchers often needs to deal with.

The GPS-SHaSA initiative started in 2012 with 5 pilot countries and now counts 17 countries as reported in [Figure 0.5](#). Data are collected not only in established democracies, but also in countries emerging from transition and still in the throes of democratisation. Several countries have already collected two or more waves of GPS-SHaSA survey modules.

Collected by NSOs, GPS-SHaSA data benefit from their long-lasting experience. They are integrated into very precise socio-demographic or augmented labour force surveys. Sampling methods vary from one country to the next, but they all present a similar general procedure ([Razafindrakoto & Roubaud, 2018](#)). The main survey is based on a stratified random sampling design. First, enumeration areas

are drawn randomly, with selection proportional to each region’s population size (from the latest available census) and taking into account the urban-rural distribution. Households are then drawn randomly within each stratum after obtaining an exhaustive list. Lastly, adults only are selected from the main survey for the GPS-SHaSA survey modules. The selection of GPS-SHaSA respondents is country specific: the surveys might interview all adults from randomly drawn households (as in Cameroon) or adults drawn from within each surveyed household (as in Mali). Hence, GPS-SHaSA data are at least a nationally representative sample of adults. Sample size ranges from 1,035 observations (in Ugandan first wave) through 15,135 in Mali to as many as 40,000 in Benin.

Figure 0.5: African countries with collected GPS-SHaSA data



Source: Author’s computation.

GPS-SHaSA survey sponsor identity represents an unmatched advantage of spatial precision and possible matching with a wide range of socio-economic measures. However, some concern from both researchers and policymakers has raised. NSOs’ relationship with central power could be conducive to self-censorship from respondents fearful of possible retaliation. International organisation even made this interrogation explicit: “N[atational] S[tatistics] O[ffice]s may suffer from being perceived as ‘agents of the state’ ” (UNDP, 2009).⁵ During our GPS schools (in Abidjan in 2018

⁵Note that international organisations changed their point of view as GPS-SHaSA data collection grew across African countries.

and Bamako afterwards), we were often reported high-ranking officials reluctance to believe in the trustfulness of the respondents to such state-sponsored surveys. On the contrary, voices also raise to advocate that NSOs are the only statistics organisations able to conduct properly statistical surveys with large samples. We take part in this debate in the first chapter of this thesis.

The module comprises one section on governance and a second on peace and security including at least 36 main questions and usually country-specific questions. The former section captures information on perception and experience of the political system functioning, democratic values, access to and trust in institutions, discriminations, corruption and civil and political participation. The latter informs about personal experience and perception of insecurity including crime-related insecurity, local conflict and dispute settlement organisations, interpersonal trust and discrimination and corruption by security forces.

On criminal-related questions, one could argue that criminal records should be more reliable to capture criminal activity. It could be in settings where institutions function to the best of their capacity. However, this is rarely the case in developing countries. Criminal records data are then limited by central public capacity of data collection from sub-national administrative repositories. They are also highly dependent on victims' willingness to report crimes to security forces or justice (MacDonald, 2002). The act of reporting is also largely dependent on the ability to access such institutions which are usually lacking in developing countries. NSOs data show that crime reporting (regardless of the organisations reported to) vary from 35% in Mali to 70% in Benin (GPS-SHaSA data). For these reasons, GPS-SHaSA appears best suited to identify crimes excluding homicides.

0.4 Chapters' summaries

The remainder of this dissertation consists of three chapters in article format. We take part in the scientific debate in developing economics, on violence-related issues and on the role attributed to fear in economics. It also provides evidence highly relevant to policymakers about the impacts of survey-sponsor identity, suggestive evidence on the establishment of cycles of violence and on the substantial role of the fear of crime on the labour market.

If Chapter 1 contributes to some extent to the literature of symbolic violence, it is primarily a methodological work. It studies the potential bias in responses to governance issues in surveys conducted by public organisations. We compare Afrobarometer (AB) survey data, collected in eight African countries by self-professed

independent institutions, with GPS-SHaSA survey data collected by NSOs. We identify over 20 similarly worded questions on democracy, trust in institutions and perceived corruption. We first compare responses from AB survey respondents based on who they believe the survey sponsor to be. No systematic response bias is found between respondents who believe the government to be behind the AB survey and those who consider it to be conducted by an independent institution. The absence of a systematic self-censorship or attenuation bias is further evidenced by means of an experimental design, whereby responses from GPS surveys conducted by NSOs (the treatment) are compared with AB surveys sponsored by reportedly independent bodies.

Chapter 2 examines the conflict's impacts on associational membership combining event location data with GPS-SHaSA data. We show that, in conflict-exposed areas, adult involvement in associations increases from 7 to 14 percentage points. Instrumental variable and difference-in-differences complementary strategies mitigate reverse causation and omitted variable biases as estimated results remain very consistent. Robust estimations constrained to non-migrants samples also rule out selection into migration. Yet this result, consistent with the argument that armed conflict cultivates social engagement, is not a positive outcome in the case of Mali. The increase is observed solely for family and political associations, which are comparatively inward-looking and act as interest groups. We interpret this finding as a form of withdrawal behind group or community boundaries, an interpretation supported by further analysis of interpersonal trust.

Chapter 3 studies the effects of crime-related insecurity on workers of the informal sector in Madagascar. I examine how victimisation and the fear of crime impact individuals' labour market outcomes by using labour force survey that includes GPS-SHaSA data. Results suggest that the effects of both victimisation and fear are detrimental for workers of the informal sector. The relationships between the number of hours worked and victimisation on the one hand and the fear of crime on the other hand are yet opposite. While victims appear to work less, and their earnings consequently diminish, fearful adults work on average up to two hours more per week than secure workers. This increased workload is entirely driven by workers of the agricultural sector. It suggests that in rural areas workers establish protection strategies. The fear of crime correlates negatively with workers' total productivity. Fearful workers become more exposed to risk as their earning sources become less diversified. Furthermore, the need to protect crops and livestock increases under

15 labour participation but does not affect their school attendance. In urban areas, workers of the nonagricultural sector seem to cope with fear in the opposite direction as the time spent at work decreases. Nonagricultural workers in urban areas tend to favour avoidance strategy.

Chapter 1

‘Fear of the State’ in governance surveys? Empirical evidence from African countries

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1.1 Introduction

The soaring number of household surveys in developed and developing countries is out of all proportion to studies of their quality and underlying biases. Common survey errors are divided mainly into sampling errors and non-sampling errors (Groves, 2004; Statistics Canada, 2010). The former are usually easier to observe than the latter, as non-sampling errors are highly heterogeneous. One such non-sampling error is called the “*threat of disclosure*”, which corresponds to the risks and potential costs to respondents of honestly reporting their answers (Tourangeau & Yan, 2007). One interpretation of the “*threat of disclosure*” is interviewee reluctance to let interviewer and survey sponsor identify their personal opinion. However, very little of the existing literature examines a response bias ascribable to survey sponsor identity. Some experts have expressed their reluctance to let public organisations collect sensitive data, particularly in non-democratic countries where “N[ational] S[tatistics] O[ffice]s may suffer from being perceived as ‘agents of the state’” (UNDP, 2009). Donor mistrust of state intervention largely explains the rise of non-governmental organisations (NGOs) in the development field, especially with respect to governance issues (Brass et al., 2018). The implicit assumption that private actors are more effective in promoting and monitoring human rights, democracy or accountability prevails. This assumption stems mainly from the under-reporting of the negative or inconclusive results of NGO interventions (Banks et al., 2015; Brass, 2016; Brass et al., 2018). Even though the new development agenda and current experiences are gradually changing this perception, with some players claiming National Statistics Office (NSO) legitimacy to collect sensitive data (UNDP, 2018), prejudices remain strong.

The Sustainable Development Goals (SDGs) have established the centrality of governance, peace and security issues for developed and developing countries. Goal 16 of the post-2015 SDG is to “promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective, accountable and inclusive institutions at all levels” (UN, 2015). African countries played a key role in the adoption of SDG16 (Cling et al., 2016; Razafindrakoto & Roubaud, 2018). The African Union Agenda 2063’s Aspiration 3 (“An Africa of good governance, democracy, respect for human rights, justice and the rule of law”) and Aspiration 4 (“A peaceful and secure Africa”) place even more importance on governance, peace and security (GPS) issues on the African continent. Particularly exposed to armed conflict and political instability, African countries are especially

concerned by GPS issues. Between the fall of the Soviet bloc and 2009, the African continent reported around half of all armed conflict fatalities worldwide (Human Security Report Project, 2012). In Transparency International’s ranking of 176 countries, three-quarters of Sub-Saharan African countries are below the median for their perceptions of corruption (Transparency International, 2018). There is a vital need for related indicators to be able to offer more suitable country-specific responses. Yet fierce debate continues to rage over the measurement of governance. The literature has used very different indicators to bridge the gap, each with their own particular limitations (Oman & Arndt, 2006). Indicators might be based on objective measures such as existing laws and the political regime or on administrative data or expert opinions. There has also been substantial interest from academics and policy-makers in survey-based measures of governance and peace and security. Seen as highly sensitive issues, it is feared that government-related organisations such as NSOs collect an erroneous picture of the people’s assessment of governance. Recent studies support this sentiment by questioning the reliability of household data on governance issues in autocratic countries (García-Ponce & Pasquale, 2015; Robinson & Tannenber, 2019; respectively in Zimbabwe and China), despite limited estimated bias (Panel, 2019). Respondents are thought to hide their real feelings and relate more positive perceptions in order to avoid potential reprisals. This intuition holds even when NSOs are reportedly neutral and independent from the central authority. The purpose of this paper is to reduce the gap in knowledge of the impact of survey sponsor identity on responses to apparently sensitive questions, particularly with respect to governance. The paper tests a simple hypothesis (albeit with huge policy implications), which we have called “the attenuation bias” hypothesis. It can be formulated as follows: *do NSO governance surveys present a systematic bias towards a rosier picture and non-critical view compared with alternative non-government sources?*

To the best of our knowledge, directly comparable literature is growing but still remains limited. They all support a “*fear-of-the-state bias*” (Zimbalist, 2018), but they are plagued by methodological shortcomings. This paper is the first ever attempt to disentangle the role of survey sponsor by means of a comparative analysis of survey data collected by two different organisations: reportedly independent collectors, the Afrobarometer (AB) network, and government-related collectors, the NSOs. The AB data is provided by an experienced and, most importantly, self-styled independent body set up with local partners comprising mainly advisory groups, research institutes and universities. The network benefits from technical

support from Michigan State University. The GPS data collected by the NSOs are add-on survey modules that are part of the Strategy for the Harmonization of Statistics in Africa (SHaSA) backed by the African Union Commission (AUC). Both datasets cover similar governance-related issues including perceptions of corruption, trust in public services and institutions, and political preferences. The questionnaires are comparable across a large subset of issues. Although they differ in some respects, both datasets present sufficient similarities (sampling procedures, wording of questions and period of data collection, among others) to allow for an extensive comparison to be made to study potential response bias due to survey sponsor identity.

A systematic comparison of responses to more than twenty similarly worded questions finds no evidence in the Afrobarometer samples of any systematic response bias due to the perceived survey sponsor. The differences found in AB interviewee responses depending on perceived survey sponsor identity are attributed to a selection bias. Propensity score matching (PSM) mitigates the latter bias and further confirms the absence of systematic differences based on perceived survey sponsor identity. A comparison of responses to selected questions between AB and NSO surveyed populations supports the absence of a ‘*fear-of-the-state*’ bias. Respondents to NSO agents do not systematically make a more positive assessment of national and local governance. Estimations should not be biased by reverse causations or omitted variable biases, as both surveys’ sampling methods are based on random selection of households. Nevertheless, the results found by this study can only be externally valid if similar protocols to the AB and GPS-SHaSA frameworks are adopted when collecting sensitive data. GPS-SHaSA data collection and analysis is guided, for instance, by additional, module-specific manuals and interviewer training, the establishment of independent steering committees and continuous technical support from national and external experts. The study does not intend to promote one survey sponsor over another, since both surveys’ data are complementary and serve different, interdependent purposes. Neither does this study seek to dismiss social desirability biases in sensitive surveys.

The paper is structured as follows. In section 1.2, we present the related literature. Then, in section 1.3, we present the data. Section 1.4 describes the empirical strategy. Section 1.5 presents our results from AB data comparisons based on the perceived survey sponsor and from survey comparisons (AB vs. GPS-SHaSA). We summarise our findings and add concluding remarks in section 1.6.

1.2 Related literature

Different survey data biases are disproportionately documented in the literature. Survey errors are divided mainly into sampling errors and non-sampling errors (Groves, 2004). Non-sampling errors can take the form of non-response biases and measurement errors, which can both be explained by the sensitive nature of a question. Tourangeau & Yan (2007) highlight three dimensions that define a question as sensitive. First, its intrusiveness dimension, meaning the embarrassment the question causes. Second, the utility respondents find in giving a different answer to the way they actually feel is another aspect to consider when asking sensitive questions. This dimension is called the ‘social desirability bias’, and it has been relatively well documented (Krumpal, 2011). Among the acknowledged determinants of the social desirability bias are question wording and bystander effects. Collection methods and designs are other potential determinants of the social desirability bias (Kreuter et al., 2008; Comblon et al., 2017). The interviewer’s identity has also been evidenced as influencing individuals’ answers. For instance, Adida et al. (2016) find a limiting effect on potential biases when matching the interviewer’s ethnic group with the respondent’s ethnic group. Many solutions are proposed to mitigate such risks, including the randomised response technique, bogus pipeline procedure, lists and endorsement experiments (Krumpal, 2011). The last dimension that defines a question as sensitive is called the “threat of disclosure” and is closely related to the social desirability bias. It corresponds to the risks and potential costs to surveyed individuals of honestly reporting their answers. One interpretation of the threat of disclosure is the unwillingness to let the interviewer and survey sponsor identify the respondent’s opinion. This might be partly explained by fear of being exposed to subsequent negative repercussions. These biases need to be taken into account ahead of survey implementation, including with intense interviewer training and careful question wording.

Some voices have recently emerged to suggest that the survey sponsor is determinant in limiting non-sampling errors in survey data. This subject has rarely been addressed by the literature and is primarily of interest to marketing studies to evidence potential determinants of response biases. Usually analysed with respect to data collected by online surveys, the survey sponsor has been shown to raise response rates if the sponsor is public, particularly if a university or government body is presented as being in charge of the survey (Doob & Freedman, 1973; Jones & Linda, 1978). Peterson (1975) also shows that response quality is higher and the response

bias apparently lower when the survey sponsor is a university. More recent studies have also shown that refusal rates are lower when respondents support the survey sponsor (Harris-Kojetin & Tucker, 1999; Groves et al., 2012). Nevertheless, although nonresponse rates tend to be higher among those who have a negative opinion of the survey sponsor, Groves et al. (2012) have brought evidence of more representative samples in publicly sponsored surveys. Yet none of these above-mentioned studies can be directly linked to our work, since first and foremost they do not address sensitive questions and are based on the study of different forms of collection.

To the best of our knowledge, very few papers have focused on the potential impact of sensitive data collection by government-related organisations on governance response biases. While some studies have focused on Zimbabwe and China to identify self-censorship in household surveys in these autocratic countries (García-Ponce & Pasquale, 2015; Robinson & Tannenber, 2019), only a couple of studies have presented evidence suggesting an attenuation bias in cross-country studies (Tannenber, 2017; Zimbalist, 2018). The authors of these studies rely on the same data source to put their argument: the AB surveys. To analyse potential preference falsification, both Tannenber (2017) and Zimbalist (2018) compare those who believe the government is behind the survey with those who rightly think that the survey is conducted by AB or its partners. Using survey rounds 3 and 4, collected from 2005 to 2008, Zimbalist (2018) estimates multi-level models with random country effects. At the aggregate level, the author apparently identifies a perceived-survey-sponsor effect: those who perceive the government as the survey sponsor tend to report a more positive assessment of national governance. They also appear to have more trust in the ruling party. Zimbalist suggests that response bias can be better explained by “*fear-of-the-state*” than social desirability, particularly where freedoms are less respected. The author confirms this hypothesis by studying three countries individually (namely Mozambique, Cape Verde and South Africa). These countries are differentiated by expert assessments of national governance based on respect for democratic freedoms. On the basis of this interpretation, Zimbalist recommends more of an emphasis on interviewer independence in AB surveys, and strengthening partnerships with institutions well known for their independence and separate from the state. He also advocates relying more on qualitative data collected directly from those who are the most knowledgeable about the political context. This latter recommendation is contradictory to previous analytical findings about the poor reliability of expert assessments. Expert assessments have been shown to differ a

great deal from citizens' actual perceptions and experiences of corruption (Razafindrakoto & Roubaud, 2010). Noticeably, Zimbalist classifies perceived survey sponsors between state and non-state bodies. The former match government-related bodies, but the latter include very different organisations, which could have different effects on responses. In addition, statistics offices are classified as non-state players as Panel (2019) does.

The second study by Tannenbergh (2017) uses more recent Afrobarometer survey rounds (rounds 5 and 6 from 2012 to 2015) to suggest that fear of the government biases responses in 'autocratic countries', but not in democratic countries. The very low number of sensitive questions tested (seven) limits the external validity of this study. Again, the group compared with the perceived government agency sponsor is made up of very different players, which complicates the interpretation. Four response categories are coded into binary responses, which could also be an oversimplification.

Panel (2019) provides evidence of under-reported support for democracy when the perceived survey sponsor is the government based on very similar methodology and the same survey data. Again, as in the previously cited studies, the paper fails to discuss the identification strategy when the risk of selection and omitted variable biases is substantial.

This paper seeks to go beyond the limitations of existing studies of the impact of government sponsorship on responses to governance questions. It aims to extensively answer emerging voices contending that the collection of such reportedly sensitive information by government-dependent bodies, NSOs, is inadequate. Individuals are expected to give government-sponsored interviewers biased responses to the national and local government's advantage in order to avoid potential reprisals or, more broadly, due to threat of disclosure.

1.3 Data

1.3.1 Data presentation

We take household survey data from two different sources to examine the potential "*fear-of-the-state*" bias: AB data collected by AB and its local partners, and GPS-SHaSA data collected by NSOs. Despite marked differences between these surveys, both datasets share a number of common features, including sampling method and question wording, which therefore allow for a precise comparison.

The first database is provided by the AB research network. AB has made governance-related questionnaires their focus. AB has long-established experience

in data collection and is widely acknowledged as a benchmark in the measurement of household perceptions and experience of national and local governance. AB is commonly presented as an independent and non-partisan network. Interviewers introduce themselves as representatives of “a politically independent and a non-governmental entity” (Bratton et al., 2004). They are now established in more than thirty countries with the assistance of core partners declared as independent in Benin, Ghana, Kenya and South Africa and technical support from Michigan State University. Most of their national partners are private institutions, consulting groups and non-governmental organisations. They do not explicitly depend on national or local government funding. However, in some countries, local partners happen to be local universities and thus public-related organisations. These partners play a key role in survey implementation.

The AB data collection methodology is the same from one country to the next: 1,200 to 2,400 individuals of voting age (18 and over) answer a total of one hundred questions on the country’s quality of governance based on their perceptions and experiences. Randomised primary and secondary sampling units are drawn first on a regional and urban-rural basis with a probability proportional to the population size from which the households are selected. One adult is quasi-randomly interviewed (random walk method), alternately a man and a woman. Samples are representative at national level. Given the small sample sizes, sub-national inference is out of the question. In this paper, we focus on two rounds (rounds 5 and 6) of data collection from 2012 to 2015. We focus in particular on the eight countries where both AB and GPS-SHaSA surveys have been conducted.

GPS-SHaSA data collection is part of an original framework comprising two survey modules, the first on Governance and the second on Peace and Security. These modules are incorporated into traditional socio-demographic household surveys, which are nationally representative (and usually also regionally representative). The NSO-collected information is destined to feed into a national statistical report and is therefore a matter of public interest. This approach has been tested for more than 20 years (since 1995), with the first experiment conducted in Madagascar where similar modules were incorporated into household surveys. In 2002, the modules were included in a 1-2-3 household survey conducted in seven West African Economic and Monetary Union capitals (Razafindrakoto & Roubaud, 2006; Herrera et al., 2007). In 2012, they were incorporated into a vast programme launched by the African Union Commission in a move to develop regular institutionalised statistics on gov-

ernance, peace and security at national and sub-national level. For example, the GPS-SHaSA modules are already an integral part of the annual Malian household survey, EMOP, with GPS-SHaSA data now available from 2014 onwards for precise dynamic analyses and studies (Razafindrakoto et al., 2015; Calvo et al., 2020). Fifteen countries have now grafted the GPS-SHaSA modules onto their Labour Force Surveys (LFSs). Four countries launched GPS-SHaSA data collection in 2018. The questionnaire covers a raft of key governance and security questions. GPS-SHaSA captures opinions on democratic governance (e.g. feelings about different types of regimes, importance and level of respect of the main democratic principles, and leadership accountability), perceptions and experience of discrimination, access to and trust in public institutions/services, perceptions and experience of corruption, and civic and political participation. The peace and security module includes questions on interpersonal trust, sense of security, fear of potential threats, and perception of existing local tensions. These modules contain at least 36 main questions and usually include country-specific questions. All NSOs are supervised to ensure compliance with good statistical practices: the DIAL-IRD research unit provides technical support and independent steering committees are set up to control data collection quality. This study draws on data collected from 2013 to 2015 from eight countries: Benin, Burundi,¹ Cameroon, Cote d'Ivoire, Madagascar, Malawi, Mali and Uganda.²

Sampling methods vary from one country to the next, but they all present a similar general procedure (Razafindrakoto & Roubaud, 2018). The main survey is based on a stratified random sampling design. First, enumeration areas are drawn randomly, with selection proportional to each region's population size (from the latest available census) and taking into account the urban-rural distribution. Households are then drawn randomly within each stratum after obtaining an exhaustive list. Lastly, adults only are selected from the main survey for the GPS-SHaSA survey modules. The selection of GPS-SHaSA respondents is country specific: the surveys might interview all adults from randomly drawn households (as in Cameroon) or adults drawn from within each surveyed household (as in Mali). In Burundi and

¹In Burundi, data were collected before the outbreak of the political crisis in late 2014 and announcement of the president's decision to stand again for a new term.

²The GPS-SHaSA modules were grafted onto the following support surveys: Benin (Household Survey of Living Conditions in Benin - EMICoV 2015), Burundi (Survey of Household Living Conditions - ECVMB 2014), Cameroon (Cameroonian Household Survey - ECAM 2014), Cote d'Ivoire (Living Standards Survey - ENV 2015), Madagascar (1-2-3 Survey 2015), Malawi (Welfare Monitoring Survey - WMS 2015), Mali (Continuous, Modular Household Survey - EMOP 2015) and Uganda (Uganda National Governance Baseline Survey - UNGBS 2013).

Benin, all adults from the initial sample were interviewed. Note that, in Mali, the survey was not conducted in the Kidal region for obvious security reason, but that sampling remains nationally representative. Sample size ranges from 1,035 observations (in Uganda) through 15,135 in Mali to as many as 40,000 in Benin. The GPS-SHaSA sampling methodology and inclusion in a broader-based household survey allows for national and regional inference and even, in some countries, district and sub-district inference.

These surveys are relatively well distributed across the continent, as shown in Figure 1.1, and representative of different past colonial and institutional influences [Acemoglu et al. \(2001\)](#). Data are collected not only in established democracies, but also in countries emerging from transition and still in the throes of democratisation. These countries are also fairly representative of the continent’s demographic and economic diversity as shown in appendix Figures 1.B1a and 1.B1b.³ The quality of governance is also very uneven, as illustrated by two composite governance indicators: the State Fragility index ([Marshall & Elzinga-Marshall, 2017](#)) and the Electoral Democracy Index ([Coppedge et al., 2019](#)). The eight countries are well distributed below and above the African average (appendix Figures 1.B2a and 1.B2b).⁴

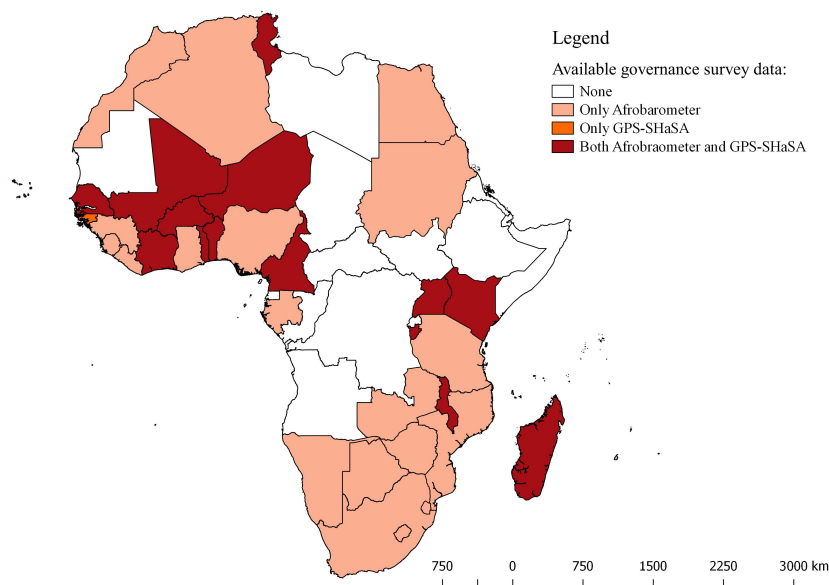
AB addresses governance issues more extensively than GPS-SHaSA. The questionnaire’s large size compensates for the relative scarcity of data on common socio-demographic and economic dimensions. The advantage of the GPS-SHaSA modules lies in their easy matching with an extended set of socioeconomic measures (labour market, poverty and other living conditions indicators). Both datasets allow for dynamic analyses with their regular data collection schedules.

Table 1.1 presents a summary of the data used in this study. GPS-SHaSA sample sizes are consistently larger than Afrobarometer samples, except in Uganda. GPS-SHaSA samples are eight times larger on average than AB samples (1,500 vs. 12,000). GPS-SHaSA’s large sample sizes make for precise sub-national analyses. In addition, most of the NSO and AB surveys were conducted within a relatively close space of time. Data were collected within six months of each other in half of the countries,

³The sample of countries differs by population size and socio-demographic characteristics (appendix Figure 1.B1a). The sample comprises both middle-income and low-income countries, with extremely heterogeneous GDP/capita and economic growth (appendix Figure 1.B1b). In 2015, Cameroon and Cote d’Ivoire’s GDP/capita stood at US\$1,470 (in constant 2010 US\$) compared with US\$220 for Burundi. Between 1990 and 2015, Madagascar and Burundi posted a deep, ongoing recession (-14% and -34% respectively), while Uganda benefited from a steady growth rate (+129%).

⁴Both indicators rank Benin as the most democratic country during the period of interest while Burundi, Uganda and Mali (for the SFI) and Cameroon (for the EDI) are among the least democratic.

Figure 1.1: Countries covered by AB (round 6) and GPS-SHaSA surveys



Sources: Authors.

while less than a year separates the two surveys in the other four countries.

We compare 21 questions administered in both surveys (reported in Table 1.2) to identify a potential response bias. These questions were selected on the basis of two inclusion criteria. First, the wording of the questions had to be similar in both surveys. This inclusion criterion assumes that respondents understand the questions in a similar way. Second, response options also needed to be similar for obvious comparison purposes. The questions selected can all be said to be sensitive and are divided into three categories: democratic governance, trust in institutions and perception of corruption. The democratic governance track includes questions on overall satisfaction with respect for democratic principles and opinions of other political systems. The set of questions on trust in institutions looks into the citizen’s level of trust in the public administration and other central government services. The corruption section includes questions on the respondent’s perceptions of corruption at all levels from president to local government. All these questions offer the same response options ranked from 1 to 4, with 1 the most negative response (“*not at all*” or “*never*”) and 4 the most positive answer (“*completely*” or “*always*”).⁵

⁵In a very small number of cases where GPS-SHaSA responses are binary (a few questions in Benin, Burundi and Madagascar), AB options have been aggregated into dichotomous options. In Malawi, GPS-SHaSA questions on trust in public organisations were administered only to those who had access to such bodies. This question is therefore excluded for Malawi. Some questions are also absent from the AB questionnaire in a certain number of other countries.

Table 1.1: AB and GPS-SHaSA surveys: Presentation

Country	Framework	Observations	Survey	Survey agent	Month	Year
					of data collection	
Benin	AB	1,200	AB round 6	African School of Economics	05-06	2014
	GPS-SHaSA	39,987	EMICoV	INSAE	03-06	2015
Burundi	AB	1,200	AB round 5	GRADIS	11-12	2012
	GPS-SHaSA	13,116	ECVMB	ISTEEBU	11-01	2014
Cameroon	AB	1,182	AB round 6	U of Yaoundé II	01-02	2015
	GPS-SHaSA	5,044	ECAM	INS	10-12	2014
Cote d'Ivoire	AB	1,199	AB round 6	CREFDI	08-09	2014
	GPS-SHaSA	3,082	ENV	INS	02-03	2015
Madagascar	AB	1,200	AB round 6	COEF Resources	12-01	2015
	GPS-SHaSA	7,166	1-2-3 Survey	INSTAT	11-12	2015
Malawi	AB	2,400	AB round 6	CSR (U of Malawi)	03-04	2014
	GPS-SHaSA	13,965	WMS	NSO	11-02	2015
Mali	AB	1,200	AB round 6	GREAT	12	2014
	GPS-SHaSA	15,135	EMOP	INSTAT	01-03	2015
Uganda	AB	2,400	AB round 5	Hatchile Consult Ltd	12-02	2012
	GPS-SHaSA	1,035	UNGBS	UBOS	11-12	2013
Total	AB	11,981		AB network	2012-2016	
	GPS-SHaSA	98,530		NSOs	2012-2015	

Note: Afrobarometer survey agents comprise GRADIS (Burundi): *Groupe de Recherche et d'Appui aux Initiatives Démocratiques*; CREFDI (Cote d'Ivoire): *Centre de Recherche et de Formation sur le Développement Intégré*; COEF Ressources (Madagascar): *COnseils - Expertises - Formations Ressources*; CSR (Malawi): Centre for Social Research; and GREAT (Mali): *Groupe de Recherche en Économie Appliquée et Théorique*. All GPS-SHaSA survey agents are national statistics offices.

Sources: AB network and NSOs; Authors.

In the Afrobarometer surveys, the perceived survey sponsor can be identified by the following concluding question: “*Who do you think sent us to do this interview?*”. The question captures which institutions interviewees believe the interviewer is working for, and hence into whose hands respondents think the data will first fall. In the AB round 6 surveys, interviewers were asked to code answers among 12 bodies, but no specific mention was made of NSOs. Nonetheless, previous AB survey rounds reveal that respondents rarely considered NSOs as potential survey sponsors. So we differentiate between three main types of survey sponsors: government-related organisations, AB and partners, and other organisations. Government-related bodies correspond to a very straightforward classification that includes all ministries, presidential staff, parliament, local government, the constitutional court, public enterprise and also the NSOs. We included in Afrobarometer and partners all potential data collection partners: non-governmental organisations, research institutes

and universities or equivalent. The remaining bodies concern mainly international organisations, private firms, media, religious associations and political parties.

1.3.2 Descriptive statistics

Descriptive statistics for the 21 selected questions are presented in appendix Table 1.A1. Table 1.A1 also identifies for both surveys those questions with different response options and answers not available. Partial non-responses are in themselves meaningful indicators of potential reluctance to reveal a point of view to a survey interviewer or sponsor. We thus first compare the frequency of answers coded as missing from the AB and GPS-SHaSA surveys. Missing answers include answers not given and answers that fall outside of the response options read by the interviewer. They capture all answers that do not express the interviewee's assessment of the quality of governance. The number of missing observations for each of the selected questions is reported in appendix Table 1.A2. No clear difference can be observed, as partial non-responses are relatively low in both surveys. Nevertheless, there is less likelihood of question avoidance in the GPS-SHaSA modules. Missing answers represent on average less than 1% of the GPS-SHaSA aggregated sample as opposed to 3.5% for the AB sample. This result is in line with previous findings in the literature whereby government-sponsored surveys tend to achieve higher response rates than those of other sponsors (Groves et al., 2012).

Table 1.3 reports who the AB respondents perceive to be behind the survey. Overall, almost half of surveyed adults (47%) think the government or a related organisation conducted the survey, despite interviewers describing the survey as independent, non-governmental and apolitical. A total of 43% of all eight selected countries' citizens rightly identify AB or its partners as the survey sponsor. This picture varies a great deal across countries: e.g. 28% of Ugandans versus 66% of Malagasy respondents rightly identify AB or its partners as the data collector. Still, a substantial share of the samples think the government commissioned the survey. Half of the selected countries – namely Burundi, Malawi, Mali and Uganda – are found to have a larger share of those who believe the survey to be state-sponsored than those who think AB is the survey sponsor.

Table 1.2: Common AB and GPS-SHaSA questions

	Afrobarometer	GPS-SHaSA
	Overall, how satisfied are you with the way democracy works in this country?	Overall, how satisfied are you with the way democracy works in this country?
	In this country, how free are you to say what you think?	Democracy is often associated with freedom of expression. Is it respected in this country? ^{BEN, BUR, MAD}
	In this country, how free are you to join any political organisation you want?	Democracy is often associated with political freedom. Is it respected in this country? ^{BEN, BUR, MAD}
<i>Democratic governance (8 questions)</i>	In this country, how free are you to choose who to vote for without feeling pressured?	Democracy is often associated with the free and fair elections. Is it respected in this country? ^{BEN, BUR, MAD}
	Would you disapprove or approve if the army ruled the country?	What do you think of a political system where the army rules the country?
	Would you disapprove or approve if elections and Parliament were abolished so that the president can decide everything?	What do you think of a political system where the power is concentrated in the hands of one leader, who does not worry about parliament or elections?
	How much of the time do you think members of parliament try their best to listen to what people like you have to say?	How often do you think the Members of Parliament listen to people like you?
	How much of the time do you think local government councillors try their best to listen to what people like you have to say?	How often do you think local elected officials/councillors listen to people like you?
<i>Trust in institutions (6 questions)</i>	How much do you trust the President?	How much do you trust the President? ^{BUR, MAD}
	How much do you trust the Parliament?	How much do you trust the Parliament? ^{BUR, MAD}
	How much do you trust the Army?	How much do you trust the Army? ^{BUR, MAD}
	How much do you trust the Revenue Authority?	How much do you trust the tax authorities? ^{BUR, MAD}
	How much do you trust the Police?	How much do you trust the Police? ^{BUR, MAD}
	How much do you trust the courts of law?	How much do you trust the courts of law? ^{BUR, MAD}
<i>Perceptions of corruption (7 questions)</i>	How many of the President and his/her office officials do you think are involved in corruption?	To what extent do you think the President is involved in corruption?
	How many of the members of Parliament do you think are involved in corruption?	To what extent do you think the members of Parliament are involved in corruption?
	How many of the government officials do you think are involved in corruption?	To what extent do you think the ministers are involved in corruption?
	How many of the local government councillors do you think are involved in corruption?	To what extent do you think local authorities are involved in corruption?
	How many of the police do you think are involved in corruption?	To what extent do you think the police is involved in corruption?
	How many of the tax officials do you think are involved in corruption?	To what extent do you think the tax/customs officials are involved in corruption?
	How many of the judges and magistrates do you think are involved in corruption?	To what extent do you think the judges, magistrates and courts of law officials are involved in corruption?

Note: ^{COUNTRIES} correspond to the countries where the number of response options differs from four.

Sources: Afrobarometer surveys and GPS-SHaSA surveys.

Table 1.3: AB perceived survey sponsor

% of respondents	Benin	Burundi	Cameroon	Cote d'Ivoire	Madagascar	Malawi	Mali	Uganda	Total
Afrobarometer and partners	61.7	37.5	49.8	47.8	66.6	34.5	36.0	28.3	43.0
Government-related body	33.6	47.9	38.5	44.9	21.8	50.0	52.8	65.6	46.7
Other	4.7	14.6	11.7	7.3	11.6	15.5	11.2	6.1	10.3

Note: Non-weighted samples.

Sources: AB surveys, rounds 5 and 6; Authors' calculations.

1.4 Econometric approach

The potential ‘attenuation bias’ is examined in three steps (see Figure 1.2). In keeping with the existing literature, we first constrain estimations to AB data. We simply examine then response bias on the basis of the perceived survey sponsor, estimating an ordered logit with the response of individual i in country c to selected question k . Our first set of estimations can be modelled as follows:

$$Y_{i,c,k}^* = \alpha + \gamma SurveySponsor_{i,c} + \beta X_{i,c} + \epsilon_{i,c,k}$$

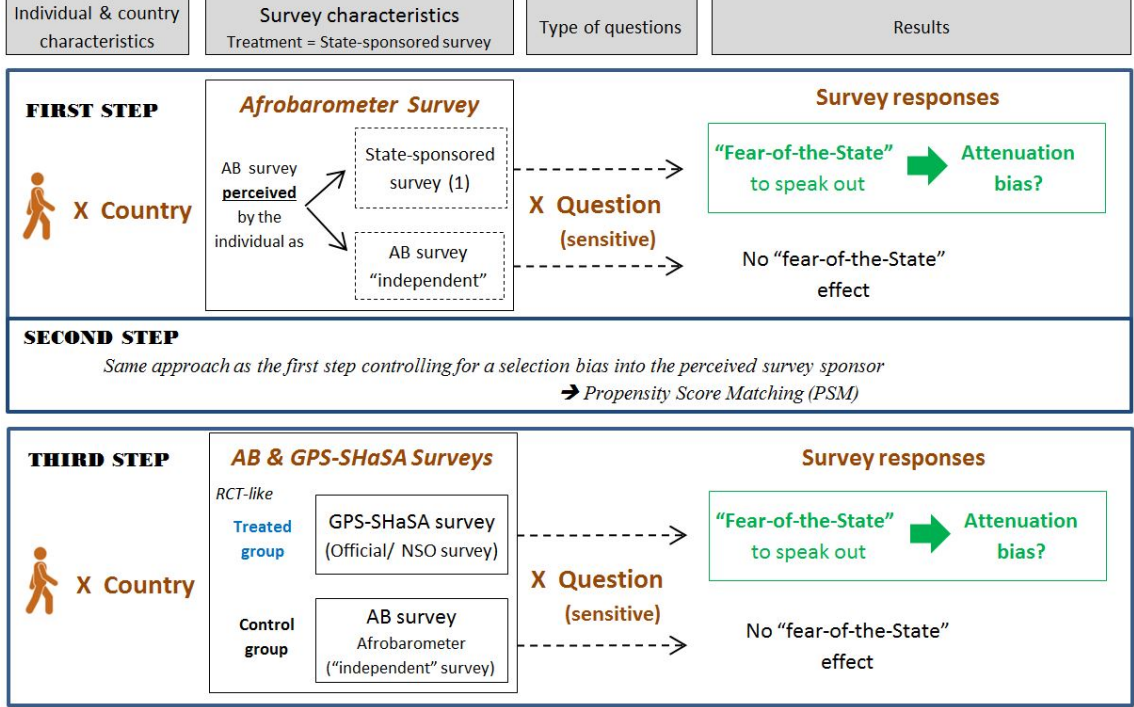
$$\begin{aligned} Y_{i,c,k} = 1 &\iff C_{1,c,k} \leq Y_{i,c,k}^* < C_{2,c,k} \\ Y_{i,c,k} = 2 &\iff C_{2,c,k} \leq Y_{i,c,k}^* < C_{3,c,k} \\ Y_{i,c,k} = 3 &\iff C_{3,c,k} \leq Y_{i,c,k}^* < C_{4,c,k} \\ Y_{i,c,k} = 4 &\iff C_{4,c,k} \leq Y_{i,c,k}^* < C_{5,c,k} \end{aligned} \tag{1.1}$$

where $Y_{i,c,k}$ is the answer from adult i in country c to question k . Answers are ranked from 1 (the most negative perception) to 4 (the most positive perception). $Y_{i,c,k}^*$ is the unobserved latent variable associated with the answer to question k . $X_{i,c}$ is a vector of individual controls including gender, age group, level of education and whether the adult identifies with a political party. The latter variable is included to control for upwardly or downwardly biased perceptions due to political proximity to the ruling party or the opposition. $SurveySponsor_{i,c}$ is the variable of interest: it takes the value 1 if the surveyed adult rightly identifies AB or one of its partners as the survey sponsor, 2 if the surveyed adult believes the government is behind the survey and 3 otherwise. $\epsilon_{i,c,k}$ corresponds to the error term. Standard errors are bootstrapped (100 replications). The estimation method is repeated for each question and each country. We also conduct estimations for each question, pooling all AB samples and including additional country dummies.

The ordered logit estimation method rests on a proportional odds assumption, also called a parallel regression assumption (Williams, 2006). This assumption holds when a non-significantly different relationship is found between all pairs of responses. This is rarely the case and the effect captured differs then by pair of answers of interest. Alternatively, multinomial logit methods, which relax the assumption of parallel regressions, are also implemented. Moreover, the results of the baseline estimations are potentially plagued by the following endogeneity biases: selection and omitted variable biases. More suitable estimation methods are used to minimise

the biases dealt with in the naïve baseline estimations.

Figure 1.2: Methodological approach



Second, for a ‘*fear-of-the-state*’ bias to be observed, respondents who believe they are being interviewed by government-related agents would be expected to give a systematically more positive assessment of the quality of national and local governance. Yet, such results are potentially exposed to estimation biases. Contrary to the existing literature, we seek to tackle this issue. Selection into the treatment, namely perception of the government as the survey sponsor, is one source of bias. Surveyed adults who believe they are responding to a state-related agent, defined as the treatment group, could present different characteristics to the rest of the AB samples. The treatment group might feel closer to the ruling party and thus return a better assessment of the current quality of governance. This potential bias is investigated and mitigated using a matching method, which estimates a propensity score for perception of the government as survey sponsor. Once individuals are matched, the average treatment effect on the treated (ATT) is calculated as the mean difference between the response to question k in country c by treatment group individual i ($Y_{i,c,k}^1$ - perceiving the government as the survey sponsor), and the response by matched control group individual j ($Y_{i,c,k}^0$), weighted by the distance of j to i (ω). N_T is the number of treated observations. The estimation can be modelled

as follows:

$$ATT = \frac{1}{N_T} \sum_{i=1}^{N_T} [Y_{i,c,k}^1 - \omega Y_{i,c,k}^0] \quad (1.2)$$

Third, endogeneity, in particular a potential omitted variable bias, is further ruled out by comparing AB and GPS-SHaSA responses to the selected questions. This method of pooling the two datasets collected by reportedly independent and government-related organisations, and defining the GPS-SHaSA sample as the treatment group, could be considered to be an experimental framework (RCT). First, the pooled sample (overall or for each country) is a random sample of the total population (as the sum of two independent random samples). Surveyed individuals are randomly assigned to the treatment group (GPS-SHaSA respondents), as being interviewed by a government-related agent, and to the control group, as being interviewed by a reportedly independent organisation. In addition, given that each sample is representative at national level, the same consequently holds true for the pooled samples, and our context extends beyond the usual RCT protocol, lending external validity to our estimations (Deaton, 2010). Although the time of data collection differs between the two groups in some countries, it generally remains very close. Moreover, in Cameroon and in Mali, data collection was simultaneous and thus provides a completely exogenous framework. We estimate an ordered logit with responses to the selected questions at individual level per country as the dependent variables.⁶ The estimation can be modelled as follows as a simple RCT-like method:

$$Y_{i,c,k} = \alpha + \gamma T + \beta X_{i,c} + \epsilon_{i,c,k} \quad (1.3)$$

where the treatment T is the actual survey sponsor. It takes the value 0 if the respondent is surveyed by an AB agent and the value 1 if the respondent is surveyed by an NSO agent. The covariates remain the same as in equation 1.1. Additional estimations with all pooled samples also include country dummies.⁷

⁶Neither the level of education nor political party proximity is available for Uganda.

⁷Uganda is always excluded from this aggregated estimation as some controls are unavailable. When one question authorizes for only binary responses in one country (or the question was not part of the country survey) are also excluded from the aggregated estimation.

1.5 Results

1.5.1 Effects of Afrobarometer’s perceived survey sponsor

The specifications modelled in equation 1.1 are estimated constraining the sample to AB data only.⁸ Tables 1.4 to 1.6 present the odds ratios of the adults’ assessments for the respondents who perceive the survey sponsor to be a government-related organisation (the group who believe they are answering a “state-sponsored survey”) compared with those who actually think that AB is behind the survey (the group who identify an “AB independent survey sponsor”). The “*other*” category is reported in appendix Table 1.A5 to keep the focus on the estimates of interest and for space-saving purposes. For ease of legibility, the same colour coding is applied to all tables below: odds ratios in red correspond to the likelihood of more negative answers from respondents who believe the survey is state-sponsored than from those who believe that AB or its partners are the sponsor. Green odds ratios correspond to the likelihood of more positive assessments from respondents who believe they are answering a government agent (*i.e.* with presumed “attenuation effect”). Estimates in black correspond to non-significantly different perceptions between groups. Perceptions are considered consistent when the government-sponsor coefficient is not different from zero at the 10% threshold. Only the odds ratio of the variable of interest is displayed to save space. Each odds ratio reported is derived from a separate estimation.

Table 1.4 presents the results for the democratic governance category of questions. For the full sample (all countries aggregated; column 1), AB respondents give consistent answers regarding the types of regime that should rule and MP accountability, irrespective of who they consider to be behind the survey. However, more negative views are held by both those who perceive the survey as state-sponsored (regarding local government accountability) and those who identify AB rightly as the independent survey sponsor (regarding respect for democratic freedoms and satisfaction with democratic governance).

Analyses per country qualify these results. On the one hand, respondents in Benin (column 2), Burundi (column 3), Cameroon (column 4) and Malawi (column 7) who stuck with the idea of an “AB independent survey sponsor” are significantly likely to be more sceptical of respect for freedoms. On the other hand,

⁸Simple tests of the equality of mean responses from respondents who believe they are answering an independent-sponsored survey or a state-sponsored survey are reported in appendix Table 1.B1. Aside from the case of the trust questions and respondents to the Burundi and Cote d’Ivoire surveys, the differences do not suggest any attenuation bias.

Table 1.4: Democratic governance by respondents who perceive AB as survey sponsor

Perceives the government as the sponsor (ref.: AB)	All countries	Benin	Burundi	Cameroon	Cote d'Ivoire	Madagascar	Malawi	Mali	Uganda
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Satisfaction with democracy	1.332*** (0.0573)	1.382** (0.184)	2.066*** (0.290)	1.029 (0.157)	1.500*** (0.198)	1.054 (0.175)	1.511*** (0.138)	1.021 (0.125)	1.137 (0.113)
Regime where power is in the hands of									
<i>One leader</i>	0.996 (0.0430)	0.738** (0.101)	1.223 (0.208)	0.526*** (0.0812)	1.719*** (0.220)	0.676** (0.112)	1.234 (0.176)	0.788* (0.0982)	1.223 (0.193)
<i>The army</i>	1.068 (0.0483)	0.954 (0.129)	0.999 (0.150)	1.008 (0.144)	1.459*** (0.182)	0.985 (0.156)	1.210 (0.177)	1.047 (0.112)	0.870 (0.110)
Freedom is respected									
<i>Speech</i>	1.173*** (0.0507)	1.481*** (0.225)	1.426*** (0.178)	1.384** (0.184)	1.143 (0.144)	0.865 (0.129)	1.011 (0.149)	0.777** (0.0956)	1.446*** (0.154)
<i>Political</i>	1.145*** (0.0476)	1.520*** (0.214)	1.305** (0.162)	1.519** (0.251)	0.814 (0.105)	0.722** (0.0972)	1.590*** (0.231)	0.888 (0.145)	1.197 (0.138)
<i>Vote</i>	1.236*** (0.0559)	1.827*** (0.267)	1.366** (0.187)	1.428** (0.253)	0.821 (0.114)	1.130 (0.189)	2.368*** (0.605)	1.122 (0.188)	1.125 (0.126)
Listen to people									
<i>MPs</i>	1.054 (0.0416)	0.632*** (0.0799)	1.048 (0.187)	1.036 (0.160)	1.124 (0.152)	1.266 (0.222)	1.333*** (0.123)	1.421*** (0.172)	0.894 (0.0795)
<i>Local government</i>	0.818*** (0.0378)	0.625*** (0.0776)	0.514*** (0.0692)	0.917 (0.127)	1.018 (0.133)	1.122 (0.198)	N/A	N/A	0.925 (0.0944)

Note: OR reported. Robust standard errors (bootstrapped 100 times) are in parentheses. Each OR corresponds to a separate estimation. All estimations include individual controls (gender, age group, level of education, identification with a political party and area of residence). Country dummies are included in column 1. Countries can be excluded if the question is absent from the country's questionnaire. The "other" category is presented in appendix Table 1.A5. Number of observations are reported in appendix Table 1.A4. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Sources: AB surveys, rounds 5 and 6; Authors' calculations.

respondents in Cote d'Ivoire (column 5), Madagascar (column 6), Mali (column 8) and Uganda (column 9) give non-significantly different answers. Moreover, in Benin and Burundi, respondents convinced of a "state-sponsored survey" are more likely to hold more negative views of representatives' accountability than those who believe the survey is being conducted independently.

The picture is also mixed for trust in institutions (Table 1.5) and perception of corruption (Table 1.6). Although the results for the pooled sample largely argue in favour of the existence of an attenuation bias, analysis per country mitigates such an interpretation. Those who perceive a "state-sponsored survey" in Benin, Burundi, Côte d'Ivoire, Malawi and Mali are likely to place more trust in public institutions. However, in three of these five countries, namely Benin, Mali and to a lesser extent Malawi, these same individuals do not return a significantly different assessment of corruption by civil servants. To be more precise, in Benin and Mali, citizens share the same perception of corruption levels from the president and his staff to police officers irrespective of the perceived survey sponsor. In addition, in Madagascar and Uganda, citizens do not return significantly different answers regarding trust in institutions. Nevertheless, Malagasy respondents who identified an "AB independent survey sponsor" are likely to report a more negative assessment

Table 1.5: Trust in institutions by respondents who perceive AB as survey sponsor

Perceives the government as the sponsor (ref.: AB)	All countries	Benin	Burundi	Cameroon	Cote d'Ivoire	Madagascar	Malawi	Mali	Uganda
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Trust in:									
<i>President</i>	1.542*** (0.0662)	2.718*** (0.312)	2.369*** (0.301)	0.934 (0.150)	1.565*** (0.205)	1.097 (0.140)	1.668*** (0.179)	1.356** (0.179)	1.196** (0.0945)
<i>Parliament</i>	1.364*** (0.0531)	1.831*** (0.248)	2.462*** (0.371)	0.764** (0.105)	1.578*** (0.211)	1.039 (0.155)	1.490*** (0.161)	1.479*** (0.163)	0.851* (0.0825)
<i>Army</i>	1.257*** (0.0571)	1.583*** (0.199)	1.769*** (0.251)	0.708*** (0.0870)	1.523*** (0.196)	1.076 (0.159)	1.036 (0.108)	1.717*** (0.242)	1.137 (0.0986)
<i>Courts of law</i>	1.325*** (0.0525)	1.725*** (0.209)	1.938*** (0.249)	0.735** (0.0956)	1.590*** (0.195)	1.225 (0.189)	1.391*** (0.129)	1.542*** (0.195)	0.932 (0.0969)
<i>Tax/customs</i>	1.244*** (0.0562)	1.518*** (0.194)	1.916*** (0.238)	0.854 (0.113)	1.220 (0.169)	0.838 (0.129)	1.291** (0.137)	1.380** (0.172)	1.099 (0.0956)
<i>Police</i>	1.305*** (0.0567)	1.703*** (0.200)	2.175*** (0.302)	0.720** (0.110)	1.311** (0.154)	0.987 (0.143)	1.332*** (0.114)	1.204* (0.120)	1.261** (0.118)

Note: See Table 1.4.

Sources: AB surveys, rounds 5 and 6; Authors' calculations.

of corruption by public servants. In Cameroon, those who consider the survey to be state-sponsored are likely to be more distrustful than the rest of the sample, and consistently assess the involvement of public servants in corruption.

No systematic attenuation bias can therefore be identified for either category of questions between respondents who perceive the government as survey sponsor and those who identify the Afrobarometer network as survey sponsor. Only in Burundi and Cote d'Ivoire are respondents identifying AB as the survey sponsor more critical when it comes to trust and corruption. Nevertheless, this feature does not hold for democratic governance. Uganda is the only country to display relative consistency of perceptions irrespective of the perceived survey sponsor. In the five remaining countries, differences in assessments between groups are inconsistent from one question to the next. This further dismisses the assumption of a systematic response bias by those who believe they are answering a “state-sponsored survey”. The explanation for the observed discrepancies lays elsewhere, such as in potential differences in the composition of the groups who perceive respectively the government and AB as survey sponsor. This assumption is investigated below.

The above analyses focus on the supposed sensitive nature of the questions asked to test the hypothesis of an attenuation bias explained by the perception that the survey is state-sponsored. A systematically higher likelihood of respondents in the “state-sponsored survey” group positively assessing a country’s quality of governance would confirm the validity of the ‘*fear-of-the-state*’ bias. In this case, however, a ‘*fear-of-the-state*’ bias should not be identified when it comes to non-

Table 1.6: Perceived level of corruption by respondents who perceive AB as survey sponsor

Perceives the government as the sponsor (ref.: AB)	All countries	Benin	Burundi	Cameroon	Cote d'Ivoire	Madagascar	Malawi	Mali	Uganda
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Perceived level of corruption:									
<i>President</i>	1.339*** (0.0545)	1.198 (0.144)	1.642*** (0.249)	0.735** (0.106)	1.564*** (0.231)	1.407** (0.202)	1.418*** (0.135)	1.180 (0.136)	1.485*** (0.150)
<i>Government officials</i>	1.302*** (0.0588)	1.110 (0.142)	1.489*** (0.212)	1.081 (0.164)	1.576*** (0.205)	1.381** (0.202)	1.147 (0.110)	1.022 (0.135)	1.534*** (0.172)
<i>MPs</i>	1.191*** (0.0520)	0.918 (0.118)	1.658*** (0.245)	0.897 (0.122)	1.719*** (0.274)	1.350** (0.179)	1.253** (0.144)	1.086 (0.145)	0.968 (0.115)
<i>Local government</i>	1.229*** (0.0680)	1.016 (0.136)	1.197 (0.157)	0.783* (0.114)	1.670*** (0.222)	1.831*** (0.305)	N/A	N/A	1.113 (0.120)
<i>Court of law officials</i>	1.285*** (0.0502)	1.324* (0.208)	1.497*** (0.199)	0.815 (0.105)	2.091*** (0.315)	1.586*** (0.260)	1.356*** (0.134)	1.075 (0.128)	0.995 (0.106)
<i>Tax/customs officials</i>	1.288*** (0.0488)	1.178 (0.128)	1.563*** (0.225)	1.164 (0.163)	1.851*** (0.265)	1.202 (0.205)	1.273** (0.143)	1.020 (0.139)	1.224** (0.125)
<i>Police</i>	1.254*** (0.0585)	1.001 (0.137)	1.631*** (0.228)	1.183 (0.169)	1.494*** (0.194)	1.151 (0.157)	1.086 (0.106)	1.061 (0.114)	1.492*** (0.158)

Note: See Table 1.4.

Sources: AB surveys, rounds 5 and 6; Authors' calculations.

sensitive questions. A comparison of non-sensitive questions will therefore capture non-significantly different assessments based on respondent perception of the survey sponsor's identity. In keeping with Tannenberg (2017), we thus estimate the same baseline models for trust in relatives and neighbours. Usually, the vast majority of the population say they trust closely related individuals such as family members and neighbours. Variation in trust in relatives and neighbours can hardly be explained by a person's fear of being interviewed by a government servant.

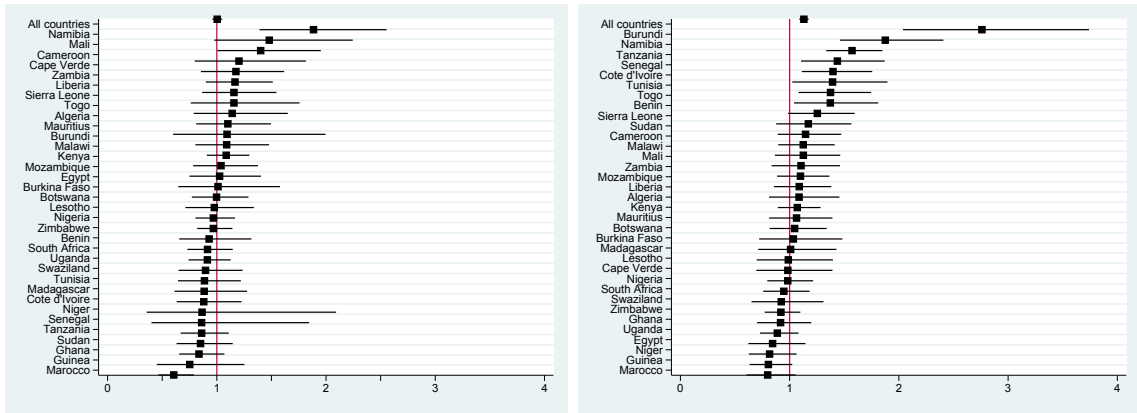
Questions about interpersonal trust were absent from AB round 6 questionnaires. Nevertheless, they were included in the previous AB round conducted from 2012 to 2013. We hence repeat the step-one estimations using trust in relatives and neighbours as the dependent variables. The questions are asked as follows: "How much do you trust your relatives? – your neighbours?" Again, the response categories are ranked from 1 to 4, with one being the most negative and four the most positive response. We compile results for both questions for all 35 countries surveyed by the fifth AB round of data collection. We use the same controls as previously and include country dummies for the pooled estimation. Odds ratios for $SurveySponsor_{i,c}$ when individuals believe they are answering a state-sponsored survey are reported in Figure 1.3. With respect to trust in relatives (Figure 1.3a), whereas the aggregated estimation does not reveal any significant difference, analysis per country finds some heterogeneity. For instance, in Cameroon, Mali and Namibia, interviewees identifying an "AB independent survey sponsor" are likely to place less trust in their family

members. In Morocco, trust in relatives is likely to be greater when respondents believe AB to be behind the survey. The differences are greater for trust in neighbours. In general, the level of trust in neighbours (Figure 1.3b) is likely to be lower among those who think AB is behind the survey than those who believe the survey is state-sponsored. Burundians are very significantly likely to be more distrustful when they think they are being interviewed by AB “independent” agents rather than by the government. The interpretation is similar for seven other countries, including Cote d’Ivoire and Benin.

Figure 1.3: Interpersonal trust by respondents who perceive AB as survey sponsor

(a) Trust in relatives

(b) Trust in neighbours



Note: Robust standard errors (bootstrapped 100 times). Each row corresponds to a separate ordered logit estimation. It displays the odds ratios based on the perception of a government-related organisation as survey sponsor compared with the perception of the AB network as survey sponsor. All estimations include the abovementioned individual controls. Country dummies are also included in the aggregated estimation.

Sources: AB surveys, round 5; Authors’ calculations.

Discrepancies in responses to non-sensitive questions by perceived survey sponsor cast further doubt on a ‘*fear-of-the-state*’ bias.⁹ Indeed, these differences suggest rather selection into the treatment in the form of the belief of being interviewed by a government-related agent. Response differences would be better explained by the group characteristics of those who perceive the government versus those who perceive an independent institution as the survey sponsor.

⁹It is confirmed by the estimations based on responses to another non-sensitive question: personal opinion of gender equality in politics. The results again display significant differences by perceived survey sponsor, but given the nature of the question, they cannot be explained by any possible threat of disclosure.

Table 1.7: Relative characteristics of those perceiving AB survey as state-sponsored

	All countries	Benin	Burundi	Cameroon	Cote d'Ivoire	Madagascar	Malawi	Mali	Uganda
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Female	0.0670*** (0.0102)	0.0342 (0.0318)	0.111*** (0.0335)	-0.00430 (0.0338)	0.0472 (0.0308)	0.00931 (0.0365)	0.148*** (0.0247)	0.0529 (0.0316)	0.116*** (0.0248)
Age	0.167 (0.277)	-0.568 (0.883)	1.054 (0.939)	-2.321** (0.758)	1.119 (0.759)	1.917 (1.022)	1.286 (0.700)	-1.240 (0.919)	1.693** (0.624)
Level of education	-0.339*** (0.0184)	-0.220*** (0.0636)	-0.376*** (0.0518)	-0.249*** (0.0498)	-0.479*** (0.0530)	-0.273*** (0.0495)	-0.338*** (0.0363)	-0.329*** (0.0538)	-0.430*** (0.0414)
Identification w/ pol. party	0.0496*** (0.00984)	-0.0157 (0.0317)	0.0432 (0.0310)	0.0479 (0.0348)	-0.0448 (0.0307)	-0.123*** (0.0372)	0.00191 (0.0203)	-0.0629* (0.0289)	0.0178 (0.0205)
Rural	0.126*** (0.00921)	0.150*** (0.0315)	0.102*** (0.0269)	0.0694* (0.0336)	0.133*** (0.0305)	0.116*** (0.0294)	0.0811*** (0.0178)	0.0187 (0.0278)	0.0498** (0.0175)
Observations	9,536	1,081	895	894	1,052	1,01	1,651	1,038	1,915

Note: Differences in means between respondents who perceive the government as the AB survey sponsor and those who rightly identify AB as the survey sponsor. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Sources: AB surveys, rounds 5 and 6; Authors' calculations.

1.5.2 Different perceived sponsor, different group characteristics

Tests of the equality of the means in intra-Afrobarometer samples confirm a selection bias based on perceived survey sponsor identity. As presented in Table 1.7, those who perceive a “state-sponsored survey” are the most vulnerable adults. They more frequently live in rural areas and have a lower level of education on average. They are also significantly more often women. Furthermore, they have significantly less access to the different media and hence to information (reported in appendix Table 1.B2). Noticeably, the members of the “state-sponsored survey” group (who believe the government to be behind AB survey) tend to identify significantly more with a political party, and more with the ruling party (see appendix Table 1.B2).¹⁰ These differences are particularly sharp in the case of Burundi (column 3) where adults perceiving a “state-sponsored survey” are 15 percentage points more supportive of the ruling party than the rest of the sample. A lower average level of education is observed for all eight countries. The ‘treated’ are also more rural in six of the eight countries.

Propensity score matching (PSM) appears to be the strategy best suited to overcome this observed selection bias. The effect of the perceived survey sponsor is captured better by matching individuals who think the government is behind the

¹⁰The ruling party variable takes the value 1 if an individual supports the president’s party or the parliamentary ruling party, and 0 otherwise.

survey with the rest of the AB sample. We predict a score for belonging to the “state-sponsored survey” group by estimating a logit with the same covariates as the baseline specification. The variable capturing individual proximity to the ruling party is not included in this specification, as responses could be driven by the identity of the perceived survey sponsor.

The results of the estimation of the propensity scores are reported in appendix Table 1.A6 and affect the treatment as expected. We then implement the nearest neighbour matching algorithm with a caliper of 0.005 in order to limit poor matches. This algorithm best meets the need to match individuals in the control group with the most similar individuals in the treatment group, i.e. the “state-sponsored survey” group. Kernel matching is unsuitable here, as poor matches are more likely. The common support assumption is largely satisfied, as presented in appendix Figure 1.A1 for the entire pooled sample. The share of observations excluded off-support never exceeds 0.2% of the pooled samples. Balancing tests on the covariates, reported in appendix Table 1.A7, further confirm the quality of the matching conducted as none of the differences in mean between the treatment and control groups is significant once observations are matched.

Results of the average treatment effects on the treated (ATT) are reported in Table 1.8. The same colour coding as in Tables 1.4 to 1.6 is kept. They confirm the hypothesis of a selection bias in each observed group. Indeed, per country differences are no longer significant once individuals are matched. This outcome is particularly striking for Burundi. The post-matching negative bias remains statistically significant for just two questions (satisfaction with democratic governance and trust in Parliament). In Benin, Cameroon, Madagascar, Malawi and Mali, where we have already cast doubt on a potential systematic bias due to “*fear-of-the-state*”, differences are significant for just four or less questions. In Cote d’Ivoire, differences remain statistically significant for five of the questions, including three in the trust-in-institutions category. The remaining observed differences could well be explained by the sparing use of covariates in the PSM estimation (see sub-section 1.5.4).

The potential systematic bias explained in previous studies by self-censorship due to the survey sponsor’s identity finds its roots rather in an over-representation of vulnerable adults among those who perceive the government as survey sponsor. They have less access to contradictory information and are more exposed to the official line to which they might be sensitive. In some countries, those who wrongly believe that the AB survey is state-sponsored are also more likely to be supporters of the ruling

Table 1.8: ATT of matched individuals (PSM)

	All countries	Benin	Burundi	Cameroon	Cote d'Ivoire	Madagascar	Malawi	Mali	Uganda
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Satisfaction with democracy	0.219*** (0.062)	0.101 (0.122)	0.373** (0.159)	0.0329 (0.147)	0.171 (0.121)	0.112 (0.126)	0.557*** (0.198)	-0.0878 (0.153)	0.187 (0.136)
Regime where power is in the hands of									
<i>One leader</i>	0.0527 (0.0447)	0.0334 (0.0828)	-0.126 (0.103)	-0.222** (0.112)	0.203** (0.0792)	-0.21* (0.121)	0.298** (0.12)	-0.0102 (0.116)	0.037 (0.0807)
<i>The army</i>	-0.0147 (0.0524)	0.152 (0.11)	-0.122 (0.122)	-0.0585 (0.133)	0.247*** (0.0793)	-0.169 (0.146)	0.0621 (0.0972)	-0.058 (0.163)	-0.117 (0.0976)
Freedom is respected									
<i>Speech</i>	0.0685 (0.0602)	0.118 (0.101)	0.0515 (0.156)	-0.0251 (0.127)	-0.0403 (0.134)	-0.264* (0.155)	-0.0314 (0.142)	-0.140 (0.160)	0.450*** (0.143)
<i>Political</i>	0.141*** (0.0541)	0.171* (0.0949)	-0.0252 (0.141)	0.0644 (0.118)	-0.0719 (0.127)	-0.367** (0.15)	0.211 (0.149)	0.0782 (0.109)	0.362*** (0.137)
<i>Vote</i>	0.0771* (0.0466)	0.122 (0.0826)	0.0188 (0.106)	0.100 (0.105)	0.0667 (0.122)	-0.0439 (0.0922)	0.0712 (0.104)	0.0601 (0.0836)	0.135 (0.123)
Listen to people									
<i>MPs</i>	0.055 (0.0521)	-0.0572 (0.101)	0.112 (0.0779)	0.0976 (0.133)	-0.0764 (0.105)	0.161* (0.09)	0.355*** (0.112)	0.0971 (0.173)	-0.175 (0.119)
<i>Local government</i>	-0.0571 (0.0653)	-0.203* (0.113)	-0.155 (0.154)	0.0122 (0.149)	-0.155 (0.107)	0.313** (0.123)	N/A	N/A	-0.023 (0.124)
Trust in:									
<i>President</i>	0.210*** (0.0734)	0.625*** (0.144)	0.284** (0.137)	-0.264* (0.151)	0.366** (0.153)	-0.0173 (0.183)	-0.0066 (0.211)	0.509*** (0.179)	0.160 (0.154)
<i>Parliament</i>	0.124* (0.0682)	0.370*** (0.124)	0.487*** (0.169)	-0.151 (0.163)	0.167 (0.153)	-0.205 (0.169)	-0.00664 (0.201)	0.238 (0.17)	0.0671 (0.146)
<i>Army</i>	0.0778 (0.0684)	0.234 (0.147)	0.233* (0.139)	-0.465*** (0.149)	0.315** (0.134)	-0.0563 (0.175)	-0.00664 (0.201)	0.358** (0.149)	0.205 (0.154)
<i>Courts of law</i>	0.0657 (0.0684)	0.216* (0.131)	0.279* (0.151)	-0.121 (0.161)	0.00866 (0.135)	0.165 (0.173)	-0.115 (0.185)	0.319* (0.165)	0.0111 (0.155)
<i>Tax/customs</i>	0.156** (0.0663)	0.161 (0.133)	0.149 (0.169)	-0.155 (0.154)	-0.0714 (0.129)	0.101 (0.164)	0.21 (0.203)	0.551*** (0.172)	0.083 (0.147)
<i>Police</i>	0.195*** (0.0686)	0.304** (0.144)	0.315* (0.171)	-0.272 (0.168)	0.342*** (0.13)	0.026 (0.165)	0.183 (0.207)	0.0666 (0.174)	0.279* (0.152)
Perceived level of corruption:									
<i>President</i>	0.140** (0.0588)	0.0799 (0.117)	0.0891 (0.13)	-0.00893 (0.132)	0.145 (0.118)	0.222 (0.146)	0.111 (0.166)	0.338** (0.136)	0.138 (0.141)
<i>Government officials</i>	0.0852 (0.0547)	0.0962 (0.106)	-0.0645 (0.127)	0.0723 (0.129)	0.124 (0.116)	0.0885 (0.151)	0.0202 (0.142)	0.219* (0.125)	0.111 (0.107)
<i>MPs</i>	0.045 (0.0533)	0.0531 (0.11)	0.157 (0.134)	-0.0602 (0.126)	0.158 (0.113)	-0.0396 (0.146)	0.0658 (0.142)	0.0282 (0.125)	-0.031 (0.0933)
<i>Local government</i>	0.0082 (0.0606)	0.0571 (0.103)	-0.0493 (0.116)	-0.126 (0.124)	0.217** (0.108)	0.117 (0.113)	N/A	N/A	-0.0384 (0.111)
<i>Court of law</i>	0.0906* (0.0545)	0.0958 (0.103)	0.0479 (0.139)	-0.012 (0.134)	0.126 (0.101)	0.279 (0.175)	0.116 (0.131)	0.018 (0.141)	0.110 (0.108)
<i>Tax/customs officials</i>	0.0842 (0.0552)	0.075 (0.104)	-0.17 (0.141)	0.227 (0.138)	0.201* (0.115)	0.262* (0.156)	0.0938 (0.136)	0.135 (0.143)	0.0106 (0.12)
<i>Police</i>	0.0815 (0.057)	-0.00273 (0.109)	0.177 (0.143)	0.140 (0.132)	0.246** (0.117)	0.152 (0.169)	0.0198 (0.148)	-0.158 (0.145)	0.151 (0.119)

Note: Each cell corresponds to a separate estimation. Standard errors are in parentheses. Matching is based on logit estimated propensity scores of identification of the government as survey sponsor. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

Sources: AB surveys, rounds 5 and 6; Authors' calculations.

party and so express a more positive assessment of the country's governance. PSM methods are able to correct this selection bias. Yet PSM estimation methods depend on the hypothesis that the selection is only explained by observed characteristics. This estimation method cannot rule out a potential endogeneity bias, in particular

an omitted variable bias that would explain both responses to sensitive questions and survey sponsor identity. The framework that randomly attributes adults to an interviewer sent by a government-related organisation, namely an NSO, or an independent organisation, namely the AB network, rules out all remaining potential endogeneity biases. Results are presented in the next subsection.

1.5.3 Effects of being interviewed by an NSO agent

Simple tests of the equality of mean responses from AB and GPS-SHaSA surveyed adults are reported first in appendix Table 1.B3. Results are summarised in Table 1.9. Overall, GPS-SHaSA respondents return a significantly more negative assessment of the country’s governance for 46% of the 21 selected questions asked in the eight countries. For 13% of the selected questions, AB and GPS-SHaSA respondents share a consistent view of the quality of governance. For two-fifths of the questions (41%), average perceptions reported in GPS-SHaSA survey modules are more positive than those expressed in AB.

The picture remains unchanged for the democratic governance and corruption questions. For half of these questions, GPS-SHaSA respondents have a more negative perception on average. Both surveys present consistent trust in public institutions on average for 30% of the questions, while half of trust-related responses collected by GPS-SHaSA are more positive than those collected by the AB network. These results need to be put into perspective from the point of view of country-specific differences. In Burundi and Cote d’Ivoire alone, the hypothesis of a potential “fear-of-the-state” bias finds some quantitative ground. However, the differences could also be explained by the time lapse between the two surveys. In 2012, for example, political violence in Burundi was rising to levels unseen since the last boycotted presidential elections of 2010 (HRW, 2012), while 2014 coincides more with a calmer security and political situation (HRW, 2014) before the new cycle of political violence in 2015. In Cote d’Ivoire, the year of GPS-SHaSA data collection was also a democratic presidential election year, which could have changed the assessment of the country’s quality of governance. In all six other countries, at least 60% of the responses to NSO interviewers are non-significantly different or more negative than AB respondents’ perceptions. In Cameroon and Mali, where data collection was simultaneous, perceptions collected by the GPS-SHaSA framework are consistent with or more negative than the AB surveys for more than three-quarters of the questions. For 84% and 52% respectively of the selected questions in the two countries, GPS-SHaSA respondents’ average assessments are significantly more negative than AB

respondents. A raw comparison of perception levels from AB and GPS-SHaSA surveys rules out any response bias from those interviewed by a government-dependent organisation, namely GPS-SHaSA respondents surveyed by NSO interviewers.

Table 1.9: Summary table of test of the equality of the means (% of selected questions)

		Benin	Burundi	Cameroon	Cote d'Ivoire	Madagascar	Malawi	Mali	Uganda	Total
Democratic governance	<i>More negative</i>	50.0	37.5	62.5	62.5	62.5	42.9	71.4	50.0	55.0
	<i>Consistent</i>	0.0	0.0	37.5	0.0	0.0	0.0	0.0	0.0	5.0
	<i>More positive</i>	50.0	62.5	0.0	37.5	37.5	57.1	28.6	50.0	40.0
Trust in the institutions	<i>More negative</i>	16.7	0.0	100.0	0.0	0.0		16.7	16.7	19.5
	<i>Consistent</i>	33.3	0.0	0.0	0.0	50.0	<i>N/A</i>	50.0	66.7	29.3
	<i>More positive</i>	50.0	100.0	0.0	100.0	50.0		33.3	16.7	51.2
Corruption	<i>More negative</i>	85.7	0.0	100.0	14.3	50.0	100.0	66.7	42.9	55.8
	<i>Consistent</i>	14.3	14.3	0.0	0.0	16.7	0.0	16.7	14.3	9.6
	<i>More positive</i>	0.0	85.7	0.0	85.7	33.3	0.0	16.7	42.9	34.6
Total	<i>More negative</i>	52.4	14.3	84.2	28.6	40.0	69.2	52.6	36.8	45.8
	<i>Consistent</i>	14.3	4.8	15.8	0.0	20.0	0.0	21.1	26.3	13.1
	<i>More positive</i>	33.3	81.0	0.0	71.4	40.0	30.8	26.3	36.8	41.2

Note: Based on t-test of the equality of means reported in appendix Table 1.B3. Consistent answers correspond to a non-significant mean difference.

Sources: AB surveys, rounds 6 and GPS-SHaSA surveys; Authors' calculations.

Given the experimental framework adopted, the comparisons of means should suffice to exclude the hypothesis of a causal impact of government-related survey sponsor on interviewees' responses. However, to take into account potential imbalances due to sample selection (only balanced in expectations), we further examine the potential response bias by adding additional controls to our unconditional tests of difference in means. We estimate an ordered logit as modelled in equation 1.3 in section 1.4.¹¹ Tables 1.10 and 1.11 report the odds ratios for the treatment variable per question and per country. Complete estimations are presented for the satisfaction-with-democracy question in appendix Table 1.B4. Overall, young people living in rural areas are significantly more positive about governance, while more educated adults are likely to have a more negative view, other things being equal.

Table 1.10 displays the estimates for the eight democratic governance questions. Overall, no systematic bias can be identified (see also appendix Figure 1.A2). Although GPS-SHaSA respondents hold a more negative view for the majority of the

¹¹The same colour coding is applied again for the sake of legibility: odds ratios in red correspond to questions for which NSO-interviewed adults are likely to express more negative perceptions than AB respondents; green odds ratios correspond to a more positive assessment by NSO-surveyed adults (*i.e.* presumed "attenuation effect"), while estimates in black correspond to non-significantly different perceptions between both data sources. Perceptions are considered consistent when estimates are significant at most at the 10% threshold.

questions, the differences do not follow any clear pattern. Taking all countries together (column 1), GPS-SHaSA respondents are likely to express a dimmer view of respect for democracy’s essential freedoms (freedom of speech, freedom to join the political party of their choice and freedom to vote). Yet, these latter results should be interpreted with caution. Indeed, while AB interviewees answer direct questions in the second person, GPS-SHaSA interviewees answer indirect questions in the passive tense (see Table 1.2). Some studies have presented evidence of a limiting effect of indirect questions on partial non-response and social desirability bias (see for instance, Fisher, 1993; McNeeley, 2012). In our study, first, such wording differences have no effect on partial non-response. Second, although the potential attenuation bias is underestimated for these particular questions, the magnitudes of the odds ratios are substantial enough to hold with second person questions.¹²

AB respondents are more likely to express dissatisfaction with democratic governance and government accountability. Yet the differences in perceptions appear to be highly country-specific. The assumption of a noncritical judgement by GPS-SHaSA respondents finds the most support in Burundi (column 3). Still, no significant difference can be identified in the latter country regarding respect for freedom of speech. GPS-SHaSA respondents in Burundi are even likely to give a more negative assessment of respect for free elections for political freedom. In Cameroon and Mali (columns 4 and 8), where both GPS-SHaSA and AB surveys were conducted almost simultaneously, only two questions lend credit to the hypothesis of a systematic attenuation bias in responses when information is collected by a government-dependent body. In Cameroon, these two questions correspond to the perceived accountability of MPs and local government officials. In Mali, AB respondents express less satisfaction with democratic governance and perceive MPs as less accountable. Benin (column 2) is a very good illustration of the absence of a systematic response bias in terms of democracy-related issues. With respect to interviewee perceptions of a regime with one strong leader or the army in power: AB survey adults present more opposition to a regime with one leader, while GPS-SHaSA respondents are more likely to be more reluctant to give political power to the army. A similar diagnosis holds for perceived accountability of members of parliament and local government

¹²In Burundi, the GPS-SHaSA survey module includes both indirect and direct questions about respect for fundamental freedoms. RCT-like estimations based on responses to direct questions in AB and GPS-SHaSA confirm the absence of an attenuation bias. While AB respondents are more likely to feel that they are less able to speak their mind, they are more likely to feel more able to vote freely than GPS-SHaSA respondents. Both surveys’ respondents feel equally free to support the political party of their choice.

officials.

Table 1.10: Democratic governance by survey sponsor (AB vs. GPS-SHaSA)

<i>Treatment:</i> GPS-SHaSA	All countries	Benin	Burundi	Cameroon	Cote d'Ivoire	Madagascar	Malawi	Mali	Uganda
respondent	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Satisfaction with democracy	2.584*** (0.0714)	20.40*** (1.497)	1.720*** (0.119)	0.931 (0.0674)	1.774*** (0.142)	5.755*** (0.354)	1.628*** (0.0749)	1.686*** (0.123)	2.643*** (0.189)
Regime where power is in the hands of									
<i>One leader</i>	2.928*** (0.0948)	16.18*** (0.959)	25.51*** (1.882)	0.577*** (0.0431)	0.350*** (0.0278)	0.458*** (0.0250)	4.225*** (0.276)	0.519*** (0.0388)	
<i>The army</i>	1.016 (0.0224)	0.831*** (0.0467)	1.578*** (0.0911)	0.419*** (0.0281)	0.335*** (0.0289)	0.781*** (0.0487)	4.746*** (0.334)	0.628*** (0.0498)	N/A
Freedom is respected									
<i>Speech</i>	0.365*** (0.00999)	0.196*** (0.0185)	0.970 (0.0671)	0.308*** (0.0221)	0.526*** (0.0394)	0.352*** (0.0308)	0.201*** (0.0114)	0.620*** (0.0449)	0.523*** (0.0363)
<i>Political</i>	0.485*** (0.0162)	0.196*** (0.0198)	0.446*** (0.0382)	0.508*** (0.0331)	0.636*** (0.0437)	0.437*** (0.0376)	0.379*** (0.0231)	0.447*** (0.0311)	0.926 (0.0692)
<i>Vote</i>	0.227*** (0.00922)	0.0498*** (0.00664)	0.125*** (0.0164)	0.166*** (0.0107)	0.299*** (0.0237)	0.0690*** (0.00957)	0.144*** (0.0142)	0.308*** (0.0222)	0.441*** (0.0348)
Listen to people									
<i>MPs</i>	2.821*** (0.0725)	1.562*** (0.102)	4.243*** (0.355)	1.306*** (0.0883)	2.562*** (0.203)	6.864*** (0.441)	2.884*** (0.155)	2.235*** (0.166)	1.436*** (0.121)
<i>Local government</i>	2.272*** (0.0827)	0.522*** (0.0457)	4.166*** (0.257)	1.386*** (0.110)	2.805*** (0.219)	3.511*** (0.243)	N/A	N/A	4.642*** (0.339)

Note: OR reported. Robust standard errors (bootstrapped 100 times) are in parentheses. Each OR corresponds to a separate estimation. Italic OR are estimated by logit (ordered logit otherwise). All estimations include individual controls (gender, age group, level of education, identification with a political party and area of residence). Country dummies are also included in column 1. Uganda is excluded from the column 1 estimations. Other countries can be excluded if the question is absent or if responses are binary. Numbers of observations are reported in appendix Table 1.A8. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

Sources: AB surveys, rounds 5 and 6 and GPS-SHaSA surveys; Authors' calculations.

Table 1.11 presents the estimates for trust-in-institutions questions and the perceived level of corruption. On three questions, AB respondents express a higher level of distrust in general in public representation and organisations. At the same time, no significant differences can be observed in trust in parliament, the army and the police. Yet, in Burundi and Cote d'Ivoire (columns 3 and 5), AB respondents express a systematically higher level of distrust. In Benin (column 2), GPS-SHaSA respondents are more distrustful of the police and show no difference in trust in the courts of law compared with AB respondents. AB and GPS-SHaSA respondents living in Madagascar (column 6) share a similar level of trust in the highest level of political power, the president and parliament. AB respondents are likely to be more distrustful of the other public bodies in Benin and Madagascar. In Cameroon (column 4), citizens are always more likely to hold a dimmer view when they are interviewed by NSO agents. This result is contradictory to the findings of Tannenbergh (2017) and Zimbalist (2018), who come to the conclusion of a larger bias in least democratic countries. Indeed, Cameroon has one of the lowest Varieties of Democracy Electoral Democracy scores (Coppedge et al., 2019). Yet responses to the GPS-SHaSA survey are more negative than the AB survey. Differences are balanced in Mali and Uganda

(columns 8 and 9). In Mali, results are relatively consistent: adults interviewed by statistics office agents show a consistent level of trust in parliament and tax officials, more distrust of the army and more trust in the president, courts and the police. Responses in Uganda are highly consistent: across six questions, AB respondents express more distrust of the president, but place equal trust in parliament, the army, tax officials and the police, and more trust in the courts of law than GPS-SHaSA respondents.

The picture is highly mixed and country-specific. No evidence of systematic self-censorship is observed from data collected by government-related bodies. The systematic differences in Burundi and Cote d'Ivoire might cast doubt on the absence of a '*fear-of-the-state*' bias. Yet in Cameroon, where governance is characterised by low inclusiveness, the bias is in the opposite direction. GPS-SHaSA respondents appear to be less likely to have better assess to the institutions.

Turning to the perceived level of corruption by civil servants, unlike the trust-in-institutions questions, GPS-SHaSA respondents are likely to assess public servants as more corrupt. These results contradict the potential systematic attenuation bias partially observed for the trust-in-public-institutions questions. President aside, across all pooled samples, respondents interviewed by NSOs are always likely to perceive officials as more corrupt compared with AB respondents. Even when it comes to the president's involvement in corruption, estimates are likely to be higher in four countries (Burundi, Benin, Madagascar and Malawi) and lower in three countries (Cote d'Ivoire, Mali and Uganda).¹³ In Benin, Cameroon and Malawi, all agents are likely to be perceived as more corrupt by GPS-SHaSA respondents. In Cote d'Ivoire, Madagascar, Mali and Uganda, perception levels are mixed and do not appear to follow any set rule. Burundi (column 3) remains an exception: AB respondents express a more negative perception of all public bodies of interest. This almost systematically more negative perception from AB respondents in Burundi does not appear to correspond to a survey sponsor bias, as the bias is in the opposite direction for Cameroon where the governance indicators are very similar.

There is no evidence to support the assumption that the collection of apparently sensitive data by government-related agents implies systematic self-censorship by respondents. NSO-surveyed adults do not assess the country's governance any better than they would if they had been interviewed by self-professed independent survey agents. Indeed, the calculation of ordered logit estimations for the 21 se-

¹³Data are not available in Cameroon.

Table 1.11: Trust in institutions and perceived corruption by survey sponsor (AB vs. GPS-SHaSA)

<i>Treatment:</i> GPS-SHaSA	All countries	Benin	Burundi	Cameroon	Cote d'Ivoire	Madagascar	Malawi	Mali	Uganda
respondent	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Trust in:									
<i>President</i>	1.446*** (0.0747)	1.223** (0.110)	2.634*** (0.254)	N/A	1.494*** (0.128)	0.963 (0.0623)		1.440*** (0.111)	1.356*** (0.102)
<i>Parliament</i>	1.092* (0.0499)	1.348*** (0.106)	3.128*** (0.231)	0.635*** (0.0376)	1.434*** (0.138)	1.137* (0.0851)		1.093 (0.0830)	0.888 (0.0776)
<i>Army</i>	0.932* (0.0398)	1.209** (0.0924)	2.296*** (0.234)	0.553*** (0.0366)	1.694*** (0.157)	1.192*** (0.0784)		0.717*** (0.0503)	0.947 (0.0749)
<i>Courts of law</i>	1.434*** (0.0596)	1.156 (0.103)	1.938*** (0.123)	0.750*** (0.0598)	2.432*** (0.190)	2.316*** (0.181)	N/A	1.719*** (0.152)	0.707*** (0.0536)
<i>Tax/customs</i>	1.221*** (0.0453)	1.661*** (0.107)	4.745*** (0.344)	0.765*** (0.0500)	1.593*** (0.140)	1.543*** (0.114)		1.146* (0.0926)	0.988 (0.0782)
<i>Police</i>	0.999 (0.0415)	0.820** (0.0732)	1.876*** (0.141)	0.651** (0.0443)	1.533*** (0.135)	1.660*** (0.113)		1.211** (0.105)	1.182* (0.104)
Perceived level of corruption:									
<i>President</i>	1.054** (0.0264)	0.735*** (0.0357)	3.784*** (0.177)	N/A	3.508*** (0.293)	0.263*** (0.0159)	0.715*** (0.0238)	1.917*** (0.110)	5.610*** (0.665)
<i>Government officials</i>	0.680*** (0.0172)	0.597*** (0.0384)	3.822*** (0.205)	0.147*** (0.00993)	2.876*** (0.227)	N/A	0.297*** (0.0120)	1.203*** (0.0588)	1.584*** (0.167)
<i>MPs</i>	0.578*** (0.0133)	0.517*** (0.0271)	2.613*** (0.155)	0.176*** (0.0113)	1.986*** (0.131)	0.845*** (0.0490)	0.268*** (0.0113)	0.770*** (0.0417)	1.022 (0.0985)
<i>Local government</i>	0.739*** (0.0266)	0.533*** (0.0269)	5.421*** (0.337)	0.232*** (0.0165)	2.100*** (0.156)	0.238*** (0.0129)	N/A	N/A	1.676*** (0.159)
<i>Court of law</i>	0.546*** (0.0110)	0.500*** (0.0283)	1.321*** (0.0646)	0.196*** (0.0147)	0.903 (0.0584)	2.510*** (0.162)	0.205*** (0.00810)	0.691*** (0.0432)	0.421*** (0.0432)
<i>Tax/customs officials</i>	0.455*** (0.0125)	0.450*** (0.0228)	1.211*** (0.0777)	0.153*** (0.0124)	0.877* (0.0695)	1.107** (0.0568)	0.206*** (0.00914)	0.576*** (0.0406)	0.743*** (0.0710)
<i>Police</i>	0.500*** (0.0120)	0.570*** (0.0378)	1.839*** (0.106)	0.128*** (0.0103)	0.592*** (0.0410)	2.729*** (0.164)	0.180*** (0.00810)	0.646*** (0.0433)	0.314*** (0.0285)

Note: See Table 1.10.

Sources: AB surveys, rounds 5 and 6 and GPS-SHaSA surveys; Authors' calculations.

lected questions finds that GPS-SHaSA respondents are not likely to have a more positive perception of the quality of governance than AB respondents. Differences in perception between the two data sources might hence be explained by other factors such as sampling errors, the time of data collection and the questionnaire design.¹⁴ Nonetheless, in Mali, where both surveys were conducted simultaneously, responses are among the most consistent. Nor are results driven by the national level of freedom, as has been suggested in the recent literature. In countries with the lowest Electoral Democracy score, such as Cameroon and Uganda, respondents do not give any more positive responses. Respondents interviewed by the NSO in Cameroon are likely to hold a more negative view of national and local governance. In Uganda, perceptions are relatively balanced and no rule can be evidenced from survey spon-

¹⁴Systematic analysis of the questions should be explored further, in particular to test both question sequence and procedural- vs. outcome-lens interpretation of democratic governance questions, trust in institutions and level of corruption (Mattes & Bratton, 2007; van der Meer & Hakhverdian, 2016).

surveyor identity. Results are very robust to multinomial logit estimation methods (and generalised ordered logit).

The study is also applied to non-sensitive questions, namely trust in relatives and trust in neighbours.¹⁵ We can conduct the analysis for Burundi, Cameroon and Uganda, where round 5 data were collected relatively close in time to GPS-SHaSA data. Estimates are reported in appendix Table 1.A9 (with the same colour coding). The effects captured by survey sponsor identity are also significant. In Burundi and Cameroon, trust is likely to be lower in relatives (columns 1 and 2) and higher in neighbours (columns 4 and 5) when adults are interviewed by NSO agents. In Uganda, respondents are likely to share a consistent view of trust in relatives (column 3). Yet AB respondents are likely to trust more in their neighbours than GPS-SHaSA respondents. These results cast further doubt on any role played by the survey sponsor in survey responses.

1.5.4 Robustness checks

We test the robustness of our results for a large set of specifications and estimation methods, for all three steps of our estimation strategy (keeping with the same colour coding across estimations). They are discussed below step by step. Overall, the results remain highly consistent across all robustness checks conducted.

First-step estimations

A mistaken perception of the survey sponsor might be thought to be due mainly to interviewers failing to adequately identify the apolitical, independent nature of the AB survey in their introductory speech (Zimbalist, 2018). Also, to disentangle the misidentified attenuation bias in the naïve estimations from a potential social desirability bias, we test whether the effects of the perceived survey sponsor capture more of an interviewer effect.¹⁶ Indeed, the literature has emphasized the role of interviewers' characteristics (such as co-ethnicity: Adida et al., 2016) on response bias and particularly on social desirability bias (Krumpal, 2011). We control for interviewers' characteristics by including interviewer dummies in step-one estimations. Results are reported in appendix Table 1.B5. Most of the survey sponsor coefficients become non-significant. However, this should be interpreted with caution. Indeed, interviewers are responsible for collecting data from 30 to 50 surveyed adults. The inclusion of an interviewer effect might just capture most of the variation within each country. This latter assumption appears to be valid as, in the pooled sample,

¹⁵It has also been conducted for gender equality in politics.

¹⁶Identification of the GPS-SHaSA interviewers is not available.

the results remain highly consistent with the naïve estimates.

Alternatively, to account for sub-national time-invariant differences as well as sub-national survey-year characteristics, we include region dummies in the baseline estimation (at pooled and country levels). Again, the results remain highly consistent. The consistency of alternative specifications confirms that selection into perceived survey sponsor is primarily driven by individual socio-economic characteristics, rather than interviewer or geographic characteristics. The more vulnerable the respondents, the more likely they are to choose the state-sponsored survey option.

Second-step estimations

The propensity score estimation might be biased if the perceived survey sponsor were to explain one or some of the included covariate(s), since this would introduce reverse causality bias. Gender, age group, level of education and urban-rural area should not actually be exposed to reverse causality. However, respondents might be expected to be more likely to say that they identify with a political party when they think they are answering a state-sponsored survey. We argue that this prospect should be marginal. First, the question does not imply revealing the political party with which the respondent identifies. The potential attenuation bias should therefore be reduced. Second, as reported in Table 1.7, at pooled level, respondents who believe they are answering a state-sponsored survey are more likely to identify with a political party. Yet, in the rare countries where the difference between perceived survey sponsor is significant (Madagascar and, to a lesser extent, Mali), respondents who believe they are answering a state-sponsored survey are less likely to identify with a political party. This rather reflects the scarcity of available information for the most vulnerable populations. Nevertheless, given this potential bias, we use propensity score matching to estimate the average treatment effect on the treated using solely the exogenous set of controls. With a constrained set of controls, the average treatment effects on the treated are overestimated but remain highly consistent with the baseline PSM estimations. A very small share of the results remains significant. Interviewees answer in the same way irrespective of the perceived survey sponsor.

The remaining differences in responses from one perception group to the next are dismissed by the re-estimation of the propensity scores including individuals' support for the ruling party in the set of control variables in countries where respondents identifying the survey sponsor as government-related are very much more likely to support the ruling party. In Cote d'Ivoire, the inclusion of this additional variable

confirms the absence of attenuation bias to an even greater extent. The majority of the previously significant results are no longer significant. The results confirm that the remaining differences may well be explained by the sparing use of covariates in the PSM estimation.

Thrid-step estimations

The ordered logit estimation method is reliant on a proportional odds assumption, also called a parallel regression assumption (Williams, 2006). This assumption holds when a non-significantly different relationship is found between all pairs of responses. This is rarely the case and the captured effect then differs by pair of responses of interest. Alternatively, simple OLS or multinomial logit methods, which relax the assumption of parallel regressions, are also implemented. The results remain highly consistent. The RCT-like estimations are also robust to sub-national time-invariant characteristics. Indeed, the results remain very robust to the inclusion of region dummies (reported in appendix Table 1.B6).

We implement sensitivity checks which further support the absence of an attenuation bias due to survey sponsor identity. If a systematic bias conducive to a positive assessment is to be expected when a respondent is interviewed by a government-related employee, the response bias will be negated to a very large extent when all respondents answer (or believe they are answering) a state-sponsored survey. To test this hypothesis, assuming GPS-SHaSA respondents are well aware of survey sponsor identity, we run step-three estimations comparing answers from GPS-SHaSA respondents solely with those from AB respondents who believe they are being interviewed by a government-related entity. Results are reported in appendix Table 1.B7. The estimates are again highly consistent with unconstrained estimations across questions and countries. Similarly, we run RCT-like estimations comparing GPS-SHaSA responses with all AB responses differentiated by perceived survey sponsor. The results remain highly consistent. The evidence further suggests that the remaining differences should be explained by other factors than survey sponsor, including such elements as sampling differences, question sequence and wording.

Lastly, as presented in Table 1.1, GPS-SHaSA sample sizes are substantially larger than AB samples. The highly significant results of the RCT-like estimations might be explained by low standard errors due to the very high statistical power of the unconstrained sample (driven by the GPS samples). To address this issue, we randomly re-sample the GPS-SHaSA surveys to get the same sample size as in the AB surveys. The results reported in table 1.B8 are again highly consistent, as the

standard errors are marginally larger.

1.6 Conclusion

The need to collect data on governance-related issues has been growing since the 1990s (UNDP, 2010; Wilde, 2011). In particular, the indicator industry mushroomed with the emergence of the aid selectivity principle (aid should be allocated on the basis of good governance achievements). Later, the international post-2015 agenda created further momentum for governance data initiatives with the adoption of SDG16 on governance in 2015. African countries are now leading the process of collecting harmonised governance, peace and security (GPS-SHaSA) data from households driven by the African Union Commission’s Strategy for the Harmonisation of Statistics in Africa (SHaSA) and National Statistics Office experience. Yet the possibility has recently been raised that what is seen as sensitive survey data such as governance indicators collected by government-dependent institutions are potentially biased due to self-censorship by respondents. This study compares first-hand AB and GPS-SHaSA data from eight African countries to identify a potential ‘*fear-of-the-state*’ bias. Results exclude a bias due to survey sponsor identity following a comparison of responses to more than 20 similarly worded questions. Answers are never systematically more or less positive when collected by NSOs. Respondents do not show any reluctance to report a negative assessment of national or local governance compared with Afrobarometer survey adults. This result holds irrespective of the level of development of democracy and is also robust to the AB respondents’ perception of survey sponsor identity.

We cast further doubt on the existence of such a bias, since responses still differ by actual or perceived survey sponsor when considering non-sensitive data. The reasons for different assessments of the quality of governance (positive or negative) by respondents interviewed by the government (or believing that to be the case) need to be found elsewhere, including in selection issues. We find AB survey adults who believe they are answering a survey conducted by a government-related organisation to be different from the rest of the sample. They are among the most vulnerable and least educated, have less access to information and, in some countries, identify more with the ruling party.

To wrap up our results, in our chosen specification (experimental design), of the 173 regressions (on 21 questions addressing a broad range of governance issues in eight individual countries for the pooled sample), 76 show AB respondents to be significantly more critical than GPS-SHaSA interviewees. Inverse perceptions are found

in 78 cases, while responses are consistent between both sources in the remaining 19 cases. We obtain the same mixed picture when comparing unconditional averages, or intra-AB analysis by perceived survey sponsor. This result is further confirmed by the many robustness checks conducted. The attenuation bias hypothesis tested in this paper is therefore quite definitely rejected.

Three main conclusions can be drawn from this absence of a systematic attenuation bias. First, NSOs should not be assumed to have no legitimacy to collect data on governance issues in general. They are fully qualified to monitor SDG16 and Agenda 2063 (Aspiration 3 and 4) indicators. Not only are they not any more prone to the collection of biased data than other survey sponsors, but there are many other reasons for putting NSOs in the driver's seat. NSO surveys respect best statistical survey practices, and NSOs are the institutions where most of the statistical skills are concentrated in African countries. In the specific case of governance, NSO surveys provide better estimates than others: they are not biased (or at least not any more biased) and they are much more precise (given the sample sizes). NSOs have the mandate and legitimacy to collect such data, while fostering national ownership less easily achieved by unofficial statistical sources. Governance data constitute a public good that should be collected by public institutions as a matter of national sovereignty, as with all other kinds of socio-economic statistics, where NSO expertise is undisputed: unemployment, poverty, living conditions, prices, international trade, national accounts, etc. Naturally, putting NSOs on the front line does not mean that other sponsors (like AB) are illegitimate to collect data on governance. Far from it. Alternative governance surveys form a good stimulus to further improve data quality. This paper is a good example of the advantage of having two sources of data on the same issue. Furthermore, the existence of unofficial sources can play a role of watchdog in the event of attempted manipulation for political reasons.

Second, contrary to popular belief, governance data are not especially sensitive. Despite being a relatively new field in statistics, they are not particularly tricky to collect. In some instances, it is even easier to gather information on governance than on other topics. On the supply side, governance indicators are less challenging (for instance, compared with monetary poverty indicators). On the demand side, people are keener to speak out about governance issues, especially in case of poor governance, than more classical questions (such as income and expenditure). Hence reluctance to embark on governance surveys should be dispelled. More should be done to promote governance statistics in advocacy activities with stakeholders (pub-

lic authorities, civil society, donor community, and statisticians themselves, prone to self-censorship).

Lastly, although the evidence suggests that NSO surveys on governance are not specifically biased compared with other sources, we cannot rule out the possibility of potential measurement errors irrespective of survey sponsor (as with in all other fields of statistics). The observed differences between AB and GPS-SHaSA remain largely unexplained. There may be many reasons for such discrepancies (at all stages of the survey process from sampling design to non-response and imputation, question wording and sequence, questionnaire administration, and data capture and processing). This issue should be investigated further to bridge the knowledge gap.

Appendix A

Table 1.A1: Summary statistics for the selected questions

		Benin		Burundi		Cameroon		Cote d'Ivoire		Madagascar		Malawi		Mali		Uganda	
		AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS
<i>Democratic governance</i>																	
Satisfaction with democracy	-- — No	21.0	1.2	13.3	5.4	29.5	22.7	28.3	15.9	41.9	13.1	24.3	14.4	20.5	11.0	16.1	9.4
	-	36.4	7.8	21.1	17.6	30.9	41.0	33.2	27.8	45.8	33.9	23.2	21.3	29.3	31.5	30.4	18.3
	+	34.6	39.5	34.3	39.7	32.1	29.7	30.3	41.1	10.0	41.5	32.4	38.9	33.6	44.0	40.9	34.8
	++ — Yes	8.0	51.5	31.3	37.4	7.5	6.6	8.3	15.3	2.3	11.6	20.2	25.4	16.6	13.5	12.7	37.4
Agree with army ruling	-- — No	48.9	48.9	64	54.5	41.9	62	49.4	69.7	29.7	39.2	80.8	47.5	47.2	45.7	71.9	N/A
	-	33.8	27.9	23.8	22.7	31.0	24.3	39.4	23.7	39.4	31.2	8.9	37.3	20.2	39.6	19.2	
	+	12.8	15.7	10.6	14.0	19.4	8.8	9.5	4.6	26.1	19.6	5.0	10.8	19.7	10.0	5.6	
	++ — Yes	4.5	7.5	1.6	8.8	7.7	5	1.8	2.0	4.9	10	5.3	4.4	12.9	4.8	3.4	
Agree with one leader ruling	-- — No	60.6	10.1	65.6	9.6	56.5	66.2	52.7	70.4	38.2	61.4	78.8	46.5	58.1	62.2	80.9	N/A
	-	33.8	16.2	22.4	9.5	34.2	24.7	40.6	24.9	49.8	25.1	9.0	38.9	30.8	36.7	13.3	
	+	4.1	29.9	10.9	19	6.4	5.7	4.9	3.5	8.3	10.2	4.9	10.2	7.6	0.8	3.7	
	++ — Yes	1.6	43.9	1.2	61.8	3.0	3.4	1.8	1.3	3.7	3.4	7.3	4.4	3.5	0.3	2.2	
Freedom of speech respected	-- — No	3.9	47.2	14.2	32.2	7.4	14.7	14.3	17.1	5.1	43.2	3	6.9	7.5	6.4	4.5	11.6
	-	10.3		17.7		18.3	41.5	24.2	34.9	17.0		7.4	27.7	16.2	25.3	11.6	22.6
	+	32.9		34.7		31.7	24.6	30.2	31.5	42.2		12.0	23.8	23.9	34.4	31.9	22.2
	++ — Yes	52.9	51.8	33.4	67.8	42.6	19.3	31.3	16.5	35.7	56.8	77.6	41.6	52.5	33.9	52.0	43.7

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Table 1.A1 – *Continued*

			Benin		Burundi		Cameroon		Cote d'Ivoire		Madagascar		Malawi		Mali		Uganda	
			AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS
<i>Democratic governance</i>																		
Political freedom respected	- -	<i>No</i>	3.1	40.7	6.9	30.5	4.7	7.7	8.4	9.2	6.6	40.6	2.6	2.3	1.6	1.3	4.4	9.6
	-		7.1		9.6		7.2	25.2	13.7	23.8	15.5		6.0	10.6	4.6	11.9	8.4	12.2
	+		27.5		37.5		25.9	21.0	32.3	35.7	43.8		6.0	19.9	18.3	32.0	27.3	16.8
	++	<i>Yes</i>	62.3	59.3	46.0	69.6	62.2	46.1	45.6	31.3	34.1	59.4	85.4	67.2	75.6	54.8	60.0	61.5
Free and fair elections respected	- -	<i>No</i>	2.3	58.9	3.0	39.7	2.8	16.1	6.4	12.8	1.8	45.4	0.9	1.6	1.0	2.7	2.9	13.7
	-		4.9		4.9		5.5	29.1	9.5	25.4	3.9		1.9	9.4	3.4	15.7	7.4	14.1
	+		20.8		31.9		21.5	22.4	29.9	35.8	33.6		2.6	18.8	16.6	30.6	22.2	18.8
	++	<i>Yes</i>	72.0	41.1	60.2	60.3	70.2	32.4	54.2	26.1	60.7	54.6	94.6	70.3	79	51	67.6	53.4
MPs listen to people	- -	<i>No</i>	43.4	32.1	77.5	47.1	49	44.3	56	28.6	75.0	32.9	57.1	30.7	51.8	28.9	37.4	36.3
	-		40.7	57.3	15.6	31.3	32.2	36.8	27.8	41.0	19.3	43.2	30.0	48.8	18.7	36.8	42.1	30.8
	+		14.9	9.1	6.2	13.2	13.7	14.5	12.5	24.1	5.3	19.9	6.6	13.1	15.2	28.5	15.8	18.7
	++	<i>Yes</i>	1.0	1.4	0.7	8.4	5.1	4.4	3.8	6.3	0.3	4.2	6.3	7.5	14.3	5.8	4.7	14.2
Local officials listen to people	- -	<i>No</i>	32.0	31.6	49.9	18.3	38.3	30.2	53.5	27.1	51.7	23.5		31.8		20.8	30.6	14.3
	-		39.7	58.8	26.4	40	33.7	40.4	29.2	38.6	30.9	45.2	<i>N/A</i>	43.7	<i>N/A</i>	39.0	44.0	21.6
	+		25.0	8.2	20.2	28.9	19.4	21.5	12.6	28.0	15.3	26.3	<i>N/A</i>	16.0	<i>N/A</i>	32.2	18.6	28.6
	++	<i>Yes</i>	3.3	1.4	3.6	13	8.6	7.9	4.7	6.4	2.1	5.1		8.5		8.0	6.8	35.5

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Table 1.A1 – *Continued*

		Benin		Burundi		Cameroon		Cote d'Ivoire		Madagascar		Malawi		Mali		Uganda	
		AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS
<i>Trust in institutions</i>																	
President	-- — <i>No</i>	31.3	16.3	4.8	5.9	11.2		20.8	7.3	25.2	50.6	46.9		12.2	2.7	13.4	18.3
	-	22.0	27.9	8.9		19.3		24.9	16.6	22.9		23.4	<i>N/A</i>	17.4	18.9	26.9	13.3
	+	18.2	43.2	24.6		28.5	<i>N/A</i>	14.5	38.7	31.6		9.0	<i>N/A</i>	27.4	43.1	27.0	17.6
	++ — <i>Yes</i>	28.5	12.6	61.7	94.1	41.1		39.8	37.4	20.3	49.4	20.7		42.9	35.4	32.7	50.8
Parliament	-- — <i>No</i>	19.3	11.3	9.4	9.6	25.1	33.8	25.5	7.9	25.4	56.4	23.0		13.1	5.4	9.3	17.3
	-	31.1	31.2	15.2		28.9	31.9	28.6	24.2	31.7		24.7	<i>N/A</i>	25.0	30.4	21.9	18.9
	+	27.9	46.6	27.7		27.4	21.0	15.9	50.4	30.3		17.9	<i>N/A</i>	31.5	44.6	32.4	23.0
	++ — <i>Yes</i>	21.7	11.0	47.8	90.4	18.6	13.3	30.0	17.6	12.6	43.6	34.5		30.5	19.6	36.5	40.9
Army	-- — <i>No</i>	15.1	8.2	3.8	6.0	12.7	17.7	26.4	11.0	29.1	55.3	9.0		6.8	1.2	10.5	20.3
	-	26.7	26.5	8.8		15.7	26.6	32.5	26.8	26.8		9.7	<i>N/A</i>	11.1	14.7	22.2	13.2
	+	27.3	49.0	33.5		24.8	25.9	17.4	43.9	28.4		14.1	<i>N/A</i>	22.8	42.1	26.7	19.0
	++ — <i>Yes</i>	30.9	16.3	53.9	94.0	46.8	29.8	23.7	18.3	15.7	44.7	67.2		59.3	42.0	40.6	47.5
Justice	-- — <i>No</i>	18.8	8.6	11.8	20.5	27.2	31.3	25.3	9.3	41.4	52.3	10.5		26.7	10.0	9.3	19.0
	-	31.0	32.5	20.9		28.5	34.0	36.8	24.4	29.7		16.6	<i>N/A</i>	28.0	40.0	22.6	19.0
	+	29.1	47.8	34.2		26.8	22.8	20.0	48.5	20.0		20.1	<i>N/A</i>	25	37.1	35.2	28.9
	++ — <i>Yes</i>	21.1	11.1	33.1	79.5	17.5	11.9	17.9	17.8	8.9	47.7	52.8		20.2	12.9	32.9	33.1

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Table 1.A1 – *Continued*

		Benin		Burundi		Cameroon		Cote d'Ivoire		Madagascar		Malawi		Mali		Uganda	
		AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS
<i>Trust in institutions</i>																	
Tax/customs	-- — <i>No</i>	23.0	14.1	26.3	17.8	36.6	42.7	17.5	7.2	19.9	46.9	22.2		18.4	7.1	24.1	31.8
	-	33.1	34.9	24.4		28.6	30.4	38.2	27.8	36.2		21.2	<i>N/A</i>	24.7	35.5	35.0	26.3
	+	30.6	39.9	26.4		24.6	17.7	21.8	50.5	33.3		19.3	<i>N/A</i>	31.8	41.9	26.5	20.5
	++ — <i>Yes</i>	13.4	11.1	23.0	82.2	10.2	9.2	22.5	14.6	10.6	53.1	37.3		25.1	15.5	14.5	21.5
Police	-- — <i>No</i>	17.4	10.7	12.7	19.6	25.9	30.7	22.6	12.8	34.6	51.7	19.2		24.1	10.6	18.9	23.0
	-	29.6	34.2	17.4		23.8	31.9	35.0	26.4	28.7		19.4	<i>N/A</i>	24.2	38.8	30.5	19.8
	+	25.8	44	31.2		29.3	24.2	20.9	46.8	24.2		18.6	<i>N/A</i>	25.2	37.1	27.9	23.4
	++ — <i>Yes</i>	27.2	11.2	38.8	80.4	21	13.3	21.5	14.0	12.6	48.3	42.8		26.5	13.5	22.8	33.8
<i>Perceived corruption</i>																	
President	-- — <i>All</i>	22.5	23.7	2.8	3.3	15.8		10.2	5.1	6.8	41.8	24.7	39.9	9.1	8.0	15.4	16.6
	-	30.8	33.6	14.7	6.1	24.2	<i>N/A</i>	14.9	8.9	22.1	23.6	24.4	18.9	26.5	21.4	22.6	8.5
	+	39.7	34.8	43.1	16.3	52.2	<i>N/A</i>	54.9	29.0	44.3	21.3	41.0	24.4	46.5	40.7	55.5	19.2
	++ — <i>None</i>	7.1	7.9	39.4	74.3	7.8		20.1	57.0	26.9	13.3	10.0	16.8	18.0	29.9	6.5	55.7
Ministers	-- — <i>All</i>	20.1	24.9	3.2	3.5	17.6	62.5	10.5	5.8	7.4		11.8	44.9	9.3	9.2	10.4	24.0
	-	35.8	40.6	21.8	8.1	33.1	22.5	20.1	12.0	28.1	<i>N/A</i>	27.5	25.0	34.3	34.7	31.8	17.8
	+	40.4	29.1	47	23.0	43.5	11.5	53.5	36.1	44.1	<i>N/A</i>	51.2	21.7	43.1	38.5	54.4	23.6
	++ — <i>None</i>	3.7	5.3	28.0	65.4	5.8	3.5	16.0	46.1	20.4		9.5	8.5	13.3	17.6	3.5	34.6

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Table 1.A1 – *Continued*

		Benin		Burundi		Cameroon		Cote d'Ivoire		Madagascar		Malawi		Mali		Uganda	
		AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS
<i>Perceived corruption</i>																	
MPs	-- — <i>All</i>	16.8	21.8	2.9	2.8	15.4	52.4	9.6	5.1	7.9	15.8	9.8	41.8	8.8	11.5	7.2	23.6
	-	31.6	39.9	14.3	8.0	25.7	27.2	15.5	14.8	27.5	27.6	21.0	24.1	27.8	36.9	22.3	17.9
	+	45.3	32.9	44.9	24.3	51.6	15.8	56.8	40.7	44.5	35.5	54.3	24.8	47.5	37.7	65.0	25.6
	++ — <i>None</i>	6.3	5.4	38.0	65.0	7.2	4.6	18.1	39.4	20.1	21.2	15.0	9.4	15.8	13.9	5.6	32.9
Local government	-- — <i>All</i>	16.6	19.8	4.4	1.9	15.1	42.1	10.5	7.2	1.9	15.9		29.9		15.2	9.4	18.7
	-	31.9	43.4	18.9	4.5	23.9	33.6	22.6	18.2	11.3	34.4	<i>N/A</i>	20.1	<i>N/A</i>	40.8	22.2	14.1
	+	47.1	31.4	42.1	18.1	53	19.4	53.7	41.2	48.4	33.6	<i>N/A</i>	30.8	<i>N/A</i>	29.5	61.0	30.8
	++ — <i>None</i>	4.4	5.4	34.6	75.5	8.0	5.0	13.2	33.5	38.4	16.1		19.2		14.5	7.4	36.4
Court of law officials	-- — <i>All</i>	15.2	22.3	13.4	13.6	26.1	61.5	13.0	16.3	18	8.9	7.4	44.4	24.2	26.8	9.5	33.4
	-	35.4	40.5	37.8	31.2	29.6	24.4	23.5	22.8	31.0	18.8	18.3	23.6	32.4	40.4	22.1	21.7
	+	45.0	32.3	36.0	33.8	39.4	10.8	52.7	41.7	32.8	35.9	55.6	23.0	33.7	24.5	61.6	22.0
	++ — <i>None</i>	4.4	4.9	12.8	21.4	5.0	3.3	10.8	19.2	18.2	36.5	18.7	9.0	9.7	8.3	6.9	22.8
Tax/ customs officials	-- — <i>All</i>	15.7	24.7	12.2	11.6	30.9	70.9	14.6	16.4	7.6	12.3	9.5	47.1	15.2	19.5	20.3	38.3
	-	38.4	43.5	39.1	34.0	28.6	19.8	24.7	25.9	27.8	24.8	22.6	24.7	31.5	42.8	27.8	18.2
	+	41.8	27.2	34.8	35.4	36.2	7.0	50.1	38.8	43.7	34.2	53.8	19.6	39.0	27.5	48.3	17.9
	++ — <i>None</i>	4.1	4.7	14.0	19.0	4.4	2.3	10.6	18.8	20.9	28.6	14.2	8.6	14.3	10.2	3.6	25.6

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Table 1.A1 – *Continued*

		Benin		Burundi		Cameroon		Cote d'Ivoire		Madagascar		Malawi		Mali		Uganda	
		AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS
<i>Perceived corruption</i>																	
	- - — <i>All</i>	17.7	19.7	16.9	11.1	26.3	71.4	20.8	30.7	15.9	8.1	14.3	60.0	19.2	22.4	28.2	60.1
Police	-	37.7	46.3	39.7	31.1	32.7	19.5	29.0	34.3	33.3	18.4	28.4	19.3	34.2	43.5	35.4	15.9
	+	38.7	28.9	30.7	36.0	36.8	7.4	40.8	25.7	35.9	37.1	46.8	14.3	33.9	25.8	34.3	12.0
	++ — <i>None</i>	6.0	5.1	12.7	21.8	4.2	1.8	9.4	9.4	15.0	36.5	10.5	6.5	12.7	8.3	2.0	12.0

Sources: AB surveys, rounds 5 and 6 and GPS-SHaSA surveys; Authors' calculations.

Table 1.A2: Partial non-response to the selected questions

	All countries		Benin		Burundi		Cameroon		Cote d'Ivoire		Madagascar		Malawi		Mali		Uganda	
	AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS
<i>Observations</i>	11,981	98,530	1,200	39,987	1,200	13,116	1,182	5,044	1,199	3,082	1,200	7,166	2,400	13,965	1,200	15,135	2,400	1,035
<i>Democratic governance</i>																		
Democracy	663	279	80	2	12	145	83	127	72	0	141	0	182	5	14	0	79	0
One leader ruling	566	202	41	0	84	70	97	127	31	0	133	0	100	5	34	0	46	N/A
Army ruling	611	202	59	0	78	71	116	127	26	0	114	0	99	4	62	0	57	N/A
Freedom of speech	94	192	4	1	12	68	31	120	9	0	1	0	19	3	0	0	18	0
Political freedom	138	193	3	1	12	68	50	121	17	0	8	0	24	3	0	0	24	0
Free and fair elec.	83	194	3	1	5	68	38	122	10	0	3	0	11	3	1	0	12	0
MPs accountable	329	224	15	0	24	80	110	136	23	0	5	0	41	8	33	0	78	0
Local officials acc.	207	228	13	1	8	82	93	136	36	0	3	0	N/A	9	N/A	0	54	0
<i>Trust in institutions</i>																		
President	176	98	2	1	5	97	42	N/A	8	0	3	0	71	N/A	2	0	43	0
Parliament	307	318	17	0	33	91	60	135	14	0	9	0	108	N/A	7	0	59	92
Army	245	226	16	0	12	91	31	135	3	0	4	0	79	N/A	0	0	100	0
Justice	331	212	30	0	15	78	46	134	26	0	4	0	72	N/A	2	0	136	0
Tax/customs	756	284	40	0	177	78	63	135	74	0	10	0	218	N/A	9	0	165	71
Police	92	212	8	0	6	77	23	135	3	0	2	0	35	N/A	2	0	13	0
<i>Perceived corruption</i>																		
President	1 021	141	47	1	216	86	183	N/A	75	0	19	0	288	12	22	0	168	42
Ministers	835	579	36	1	197	84	136	138	61	0	22	N/A	265	11	9	0	109	45
MPs	982	258	53	0	228	84	177	138	73	0	20	0	299	10	8	0	124	26
Local gvt	435	240	21	0	109	82	117	138	71	0	12	0	N/A	11	N/A	0	105	9
Court of law off.	825	265	64	0	76	81	108	138	55	0	14	0	291	8	5	0	212	38
Tax officials	955	275	52	0	131	80	94	138	69	0	25	0	383	7	10	0	191	50
Police	499	232	28	0	78	79	84	138	28	0	9	0	206	8	5	0	61	7

Sources: AB surveys, rounds 5 and 6 and GPS-SHaSA surveys; Authors' calculations.

Table 1.A3: Summary statistics for the covariates

	Benin		Burundi		Cameroon		Cote d'Ivoire		Madagascar		Malawi		Mali		Uganda	
	AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS
Female	0.50 (0.50)	0.53 (0.50)	0.50 (0.50)	0.54 (0.50)	0.50 (0.50)	0.53 (0.50)	0.50 (0.50)	0.48 (0.50)	0.50 (0.50)	0.51 (0.50)	0.50 (0.50)	0.53 (0.50)	0.50 (0.50)	0.54 (0.50)	0.50 (0.50)	0.49 (0.50)
Age	35.84 (28.15)	38.04 (14.70)	37.15 (13.98)	37.48 (15.37)	32.49 (10.85)	36.33 (16.11)	35.46 (12.31)	37.00 (14.40)	39.52 (13.77)	38.71 (15.31)	34.56 (13.89)	36.50 (15.67)	40.03 (14.58)	38.76 (15.53)	35.18 (12.81)	40.36 (15.74)
Age group																
18-24	0.23 (0.42)	0.17 (0.37)	0.20 (0.40)	0.23 (0.42)	0.26 (0.44)	0.28 (0.45)	0.20 (0.40)	0.26 (0.44)	0.14 (0.35)	0.21 (0.41)	0.28 (0.45)	0.27 (0.44)	0.15 (0.36)	0.20 (0.40)	0.21 (0.41)	0.15 (0.35)
25-30	0.26 (0.44)	0.22 (0.41)	0.20 (0.40)	0.20 (0.40)	0.28 (0.45)	0.20 (0.40)	0.21 (0.41)	0.22 (0.42)	0.17 (0.37)	0.16 (0.37)	0.21 (0.41)	0.18 (0.39)	0.18 (0.38)	0.19 (0.39)	0.25 (0.43)	0.19 (0.40)
31-40	0.23 (0.42)	0.27 (0.44)	0.26 (0.44)	0.21 (0.41)	0.25 (0.44)	0.21 (0.41)	0.29 (0.46)	0.24 (0.43)	0.26 (0.44)	0.22 (0.42)	0.25 (0.44)	0.22 (0.42)	0.26 (0.44)	0.23 (0.42)	0.26 (0.44)	0.24 (0.43)
41-50	0.14 (0.34)	0.17 (0.37)	0.16 (0.36)	0.15 (0.36)	0.12 (0.33)	0.13 (0.34)	0.17 (0.38)	0.13 (0.33)	0.23 (0.42)	0.18 (0.38)	0.12 (0.32)	0.14 (0.35)	0.18 (0.39)	0.15 (0.36)	0.16 (0.37)	0.18 (0.38)
51-60	0.091 (0.29)	0.095 (0.29)	0.11 (0.31)	0.12 (0.32)	0.065 (0.25)	0.078 (0.27)	0.075 (0.26)	0.077 (0.27)	0.13 (0.33)	0.13 (0.33)	0.064 (0.24)	0.086 (0.28)	0.13 (0.34)	0.12 (0.33)	0.066 (0.25)	0.11 (0.31)
61 and +	0.059 (0.24)	0.082 (0.27)	0.073 (0.26)	0.10 (0.29)	0.019 (0.14)	0.10 (0.30)	0.045 (0.21)	0.073 (0.26)	0.077 (0.27)	0.098 (0.30)	0.077 (0.27)	0.096 (0.30)	0.10 (0.30)	0.10 (0.30)	0.059 (0.24)	0.13 (0.33)

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Table 1.A3 – *Continued*

	Benin		Burundi		Cameroon		Cote d'Ivoire		Madagascar		Malawi		Mali		Uganda	
	AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS	AB	GPS
Rural	0.51 (0.50)	0.52 (0.50)	0.82 (0.38)	0.89 (0.32)	0.48 (0.50)	0.56 (0.50)	0.46 (0.50)	0.49 (0.50)	0.81 (0.39)	0.75 (0.43)	0.85 (0.36)	0.82 (0.39)	0.75 (0.43)	0.73 (0.44)	0.86 (0.34)	0.83 (0.37)
Level of education																
<i>None</i>	0.39 (0.49)	0.62 (0.48)	0.33 (0.47)	0.54 (0.50)	0.047 (0.21)	0.23 (0.42)	0.13 (0.33)	0.54 (0.50)	0.085 (0.28)	0.19 (0.39)	0.13 (0.33)	0.0042 (0.065)	0.64 (0.48)	0.74 (0.44)	0.12 (0.33)	
<i>Primary</i>	0.22 (0.41)	0.15 (0.36)	0.49 (0.50)	0.18 (0.39)	0.19 (0.39)	0.28 (0.45)	0.26 (0.44)	0.19 (0.39)	0.54 (0.50)	0.40 (0.49)	0.56 (0.50)	0.67 (0.47)	0.23 (0.42)	0.20 (0.40)	0.40 (0.49)	
<i>Secondary</i>	0.32 (0.46)	0.19 (0.39)	0.15 (0.36)	0.26 (0.44)	0.52 (0.50)	0.38 (0.48)	0.45 (0.50)	0.23 (0.42)	0.34 (0.47)	0.34 (0.47)	0.27 (0.44)	0.27 (0.44)	0.085 (0.28)	0.041 (0.20)	0.33 (0.47)	<i>N/A</i>
<i>Post-sec.</i>	0.073 (0.26)	0.043 (0.20)	0.032 (0.18)	0.014 (0.12)	0.25 (0.43)	0.10 (0.31)	0.16 (0.36)	0.049 (0.22)	0.037 (0.19)	0.069 (0.25)	0.043 (0.20)	0.059 (0.23)	0.047 (0.21)	0.019 (0.14)	0.15 (0.35)	
Id. with a political party	0.42 (0.49)	0.066 (0.25)	0.70 (0.46)	0.49 (0.50)	0.49 (0.50)	0.33 (0.47)	0.62 (0.49)	0.39 (0.49)	0.56 (0.50)	0.21 (0.41)	0.76 (0.42)	0.55 (0.50)	0.68 (0.47)	0.35 (0.48)	0.77 (0.42)	<i>N/A</i>
Observations	1,200	39,987	1,200	13,116	1,182	5,044	1,199	3,082	1,200	7,166	2,400	13,965	1,200	15,135	2,400	1,035

Sources: AB surveys, rounds 5 and 6 and GPS-SHaSA surveys; Authors' calculations.

Table 1.A4: Number of observations per baseline estimations

	All countries	Benin	Burundi	Cameroon	Cote d'Ivoire	Madagascar	Malawi	Mali	Uganda
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Democracy	9,741	1,047	1,010	888	1,039	966	1,766	1,155	1,870
Regime where power is in the hands of									
<i>The army</i>	9,759	1,059	959	876	1,07	982	1,822	1,107	1,884
<i>One leader</i>	9,808	1,076	949	896	1,064	965	1,834	1,136	1,888
Freedom is respected									
<i>Speech</i>	10,152	1,109	1,01	923	1,083	1,076	1,872	1,169	1,910
<i>Political</i>	10,114	1,110	1,007	907	1,076	1,071	1,867	1,169	1,907
<i>Vote</i>	10,154	1,110	1,015	915	1,082	1,074	1,876	1,168	1,914
Listen to people									
<i>MPs</i>	9,986	1,099	1,002	865	1,073	1,073	1,86	1,136	1,878
<i>Local gut</i>	7,014	1,102	1,014	877	1,062	1,075	<i>N/A</i>	<i>N/A</i>	1,884
Trust in									
<i>President</i>	10,109	1,111	1,013	914	1,084	1,075	1,848	1,167	1,897
<i>Parliament</i>	10,015	1,096	992	904	1,079	1,071	1,831	1,162	1,880
<i>Army</i>	10,052	1,097	1,009	923	1,088	1,074	1,836	1,169	1,856
<i>Courts of law</i>	9,988	1,084	1,008	914	1,071	1,073	1,847	1,167	1,824
<i>Tax/customs</i>	9,672	1,082	883	905	1,032	1,068	1,739	1,160	1,803
<i>Police</i>	10,164	1,104	1,015	930	1,088	1,075	1,871	1,167	1,914
Perceived level of corruption									
<i>President</i>	9,516	1,078	849	843	1,031	1,064	1,699	1,148	1,804
<i>Gvt officials</i>	9,660	1,084	859	869	1,042	1,063	1,726	1,160	1,857
<i>MPs</i>	9,559	1,070	839	844	1,032	1,065	1,702	1,161	1,846
<i>Local gut</i>	6,871	1,097	934	877	1,032	1,068	<i>N/A</i>	<i>N/A</i>	1,863
<i>Courts of law off.</i>	9,666	1,058	956	887	1,048	1,066	1,705	1,164	1,782
<i>Tax/custom off.</i>	9,555	1,070	910	897	1,038	1,059	1,630	1,159	1,792
<i>Police</i>	9,901	1,090	953	898	1,068	1,071	1,768	1,164	1,889

Sources: AB surveys, rounds 5 and 6; Authors' calculations.

Table 1.A5: Sensitive questions by respondents who perceive *other* as survey sponsor

Perceives 'other' organisations as the sponsor (ref.: AB)	All countries	Benin	Burundi	Cameroon	Cote d'Ivoire	Madagascar	Malawi	Mali	Uganda
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Satisfaction with democracy	0.984 (0.0651)	0.800 (0.292)	1.534** (0.279)	0.763 (0.154)	0.956 (0.224)	1.072 (0.223)	1.381** (0.181)	0.592*** (0.102)	0.715** (0.120)
Regime where power is in the hands of									
<i>One leader</i>	1.001 (0.0789)	0.763 (0.254)	1.738*** (0.339)	1.052 (0.219)	1.207 (0.303)	0.876 (0.175)	1.111 (0.233)	0.443*** (0.120)	1.604* (0.453)
<i>The army</i>	1.106 (0.0737)	1.348 (0.373)	1.186 (0.244)	1.645** (0.355)	0.975 (0.250)	1.011 (0.203)	0.906 (0.193)	0.810 (0.169)	1.388 (0.326)
Freedom is respected									
<i>Speech</i>	0.906 (0.0555)	1.091 (0.319)	1.128 (0.187)	0.783 (0.139)	0.742 (0.139)	0.912 (0.168)	1.166 (0.206)	0.593** (0.130)	0.818 (0.168)
<i>Political</i>	0.942 (0.0626)	1.497 (0.548)	1.074 (0.197)	0.643* (0.154)	0.725 (0.160)	1.117 (0.201)	1.051 (0.209)	0.866 (0.201)	0.883 (0.209)
<i>Vote</i>	1.009 (0.0781)	1.493 (0.601)	0.933 (0.191)	0.606** (0.137)	0.663* (0.141)	1.229 (0.228)	1.698* (0.533)	1.052 (0.297)	1.221 (0.288)
Listen to people									
<i>MPs</i>	0.995 (0.0665)	0.868 (0.277)	0.778 (0.214)	1.104 (0.219)	0.932 (0.212)	0.816 (0.182)	1.050 (0.160)	1.516** (0.289)	0.928 (0.201)
<i>Local government</i>	0.842** (0.0691)	0.736 (0.231)	0.570*** (0.109)	0.873 (0.148)	1.019 (0.233)	0.817 (0.151)	N/A	N/A	1.282 (0.225)
Trust in:									
<i>President</i>	1.187*** (0.0761)	1.881** (0.503)	1.000 (0.195)	0.655* (0.152)	1.170 (0.264)	0.904 (0.155)	1.608*** (0.229)	1.541* (0.344)	0.755* (0.125)
<i>Parliament</i>	1.069 (0.0669)	1.347 (0.452)	1.340 (0.287)	0.692* (0.136)	1.028 (0.267)	0.906 (0.140)	1.272* (0.164)	1.374* (0.240)	0.587*** (0.115)
<i>Army</i>	1.019 (0.0671)	1.136 (0.293)	1.209 (0.268)	0.842 (0.165)	1.256 (0.258)	0.872 (0.148)	1.013 (0.147)	1.359 (0.264)	0.764 (0.147)
<i>Courts of law</i>	1.051 (0.0672)	1.657 (0.520)	1.156 (0.193)	0.938 (0.204)	1.118 (0.243)	0.751 (0.146)	1.147 (0.180)	1.058 (0.201)	0.964 (0.207)
<i>Tax/customs</i>	0.987 (0.0662)	1.272 (0.374)	1.270 (0.250)	1.160 (0.252)	1.045 (0.203)	0.534*** (0.101)	1.035 (0.155)	1.102 (0.217)	0.961 (0.205)
<i>Police</i>	1.203*** (0.0839)	1.640 (0.581)	1.359* (0.239)	1.063 (0.188)	0.972 (0.198)	0.840 (0.141)	1.409*** (0.181)	1.315 (0.220)	0.982 (0.160)
Perceived level of corruption:									
<i>President</i>	1.278*** (0.0890)	1.931* (0.669)	1.141 (0.247)	1.147 (0.274)	1.104 (0.231)	1.369* (0.235)	1.388** (0.201)	1.490** (0.280)	0.907 (0.138)
<i>Government officials</i>	1.222*** (0.0873)	1.704 (0.604)	1.408* (0.266)	1.241 (0.250)	1.164 (0.239)	1.292 (0.228)	1.149 (0.168)	1.178 (0.221)	0.844 (0.156)
<i>MPs</i>	1.064 (0.0720)	1.032 (0.307)	1.071 (0.221)	1.090 (0.265)	0.877 (0.172)	1.203 (0.205)	1.043 (0.137)	1.578** (0.303)	0.707* (0.144)
<i>Local government</i>	0.961 (0.0751)	0.842 (0.274)	0.796 (0.152)	0.919 (0.198)	1.061 (0.172)	1.342** (0.191)	N/A	N/A	0.821 (0.167)
<i>Court of law officials</i>	1.181** (0.0812)	1.144 (0.397)	1.266 (0.241)	1.333 (0.368)	0.722* (0.141)	1.288 (0.233)	1.477*** (0.209)	1.185 (0.216)	0.698** (0.122)
<i>Tax/customs officials</i>	1.264*** (0.0898)	1.087 (0.293)	1.384 (0.284)	1.688* (0.477)	0.850 (0.180)	0.908 (0.186)	1.606*** (0.249)	1.139 (0.221)	1.233 (0.241)
<i>Police</i>	1.392*** (0.0920)	1.078 (0.346)	1.522** (0.281)	1.922*** (0.393)	0.773 (0.159)	1.319* (0.219)	1.519*** (0.227)	1.378 (0.294)	1.373* (0.252)

Note: See Table 1.4.

Sources: AB surveys, rounds 5 and 6; Authors' calculations.

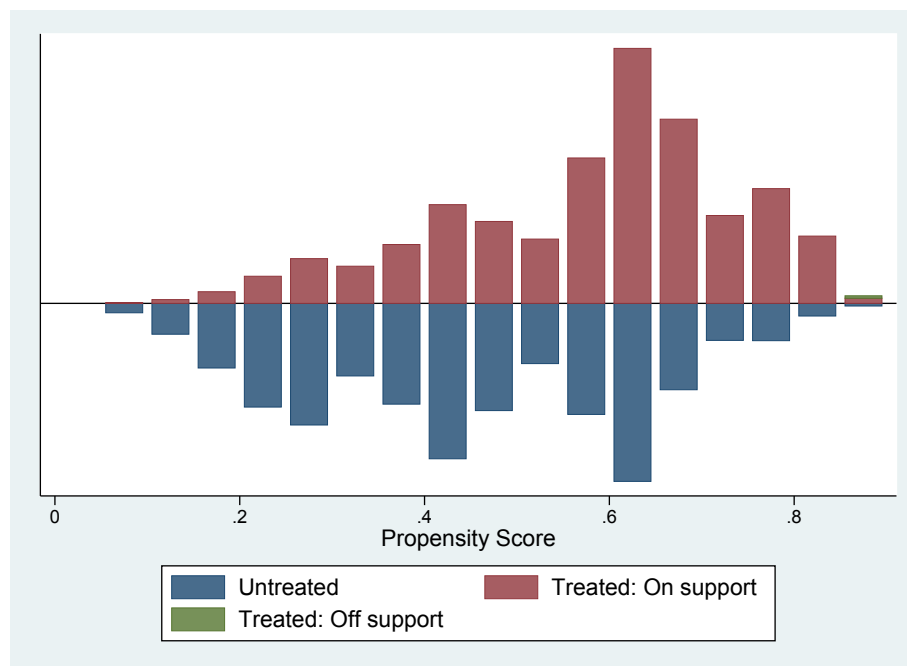
Table 1.A6: Propensity score of perceiving the government as survey sponsor

	All countries	Benin	Burundi	Cameroon	Cote d'Ivoire	Madagascar	Malawi	Mali	Uganda
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Rural	0.927 (0.0463)	0.922 (0.128)	1.050 (0.175)	1.178 (0.178)	0.838 (0.116)	0.590*** (0.0936)	1.210 (0.141)	0.771* (0.114)	1.079 (0.141)
Female	1.214*** (0.0564)	1.017 (0.144)	1.381** (0.210)	0.885 (0.131)	0.953 (0.132)	0.951 (0.152)	1.430*** (0.141)	0.969 (0.135)	1.516*** (0.166)
Age group (reference: 31 - 40 y.o.)									
18-24	0.669*** (0.0463)	0.853 (0.166)	0.436*** (0.104)	0.493*** (0.0984)	0.848 (0.177)	0.979 (0.279)	0.673*** (0.0930)	0.736 (0.178)	0.832 (0.129)
25-30	0.701*** (0.0473)	0.956 (0.193)	0.461*** (0.105)	0.519*** (0.107)	0.767 (0.149)	0.793 (0.213)	0.739** (0.0987)	0.818 (0.189)	0.940 (0.146)
41-50	0.762*** (0.0591)	0.781 (0.181)	0.587** (0.153)	0.320*** (0.0840)	0.621** (0.138)	1.336 (0.351)	0.862 (0.145)	0.868 (0.219)	1.361 (0.257)
51-60	0.744*** (0.0690)	0.879 (0.238)	0.636 (0.180)	0.233*** (0.0798)	1.035 (0.305)	1.250 (0.371)	1.136 (0.241)	0.593* (0.159)	0.885 (0.209)
61 and more	0.855 (0.0902)	0.669 (0.210)	0.942 (0.314)	0.800 (0.390)	1.272 (0.456)	1.229 (0.418)	1.278 (0.267)	0.445*** (0.125)	1.263 (0.402)
Level of education (reference: none)									
Primary	0.917 (0.0620)	0.995 (0.174)	0.923 (0.158)	1.220 (0.554)	0.698 (0.168)	0.933 (0.259)	0.955 (0.149)	0.879 (0.144)	0.663* (0.151)
Secondary	0.469*** (0.0347)	0.990 (0.171)	0.299*** (0.0718)	0.747 (0.322)	0.373*** (0.0839)	0.406*** (0.122)	0.530*** (0.0948)	0.408*** (0.100)	0.310*** (0.0717)
Post-secondary	0.218*** (0.0221)	0.180*** (0.0752)	0.193*** (0.0962)	0.279*** (0.126)	0.150*** (0.0415)	0.225** (0.150)	0.215*** (0.0645)	0.0801*** (0.0322)	0.222*** (0.0572)
Identification with a political party	1.210*** (0.0663)	1.717*** (0.235)	1.303 (0.253)	1.168 (0.175)	1.485*** (0.205)	1.697** (0.388)	1.076 (0.158)	0.698** (0.120)	0.905 (0.139)
Country dummies	YES	NO	NO	NO	NO	NO	NO	NO	NO
Observations	9,156	1,060	868	832	1,009	947	1,884	1,038	1,809

Note: OR reported. Standard errors are in parentheses. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Sources: AB surveys, rounds 5 and 6; Authors' calculations.

Figure 1.A1: Propensity score distribution (nearest neighbour matching) – All countries



Sources: AB surveys, rounds 5 and 6; Authors' calculations.

Table 1.A7: Balance of covariates after propensity score matching – All countries

Variable	Sample	Mean		t-test	p-value
		Treated	Control		
Rural	Unmatched	0.768	0.643	13.26	0.00
	Matched	0.767	0.772	-0.61	0.542
Female	Unmatched	0.516	0.448	6.48	0.00
	Matched	0.515	0.519	-0.41	0.681
Age group (reference: 31 -40 years)					
<i>25 - 30</i>	Unmatched	0.204	0.239	-4.02	0.00
	Matched	0.204	0.212	-0.91	0.363
<i>31 - 40</i>	Unmatched	0.254	0.268	-1.5	0.135
	Matched	0.254	0.253	0.19	0.85
<i>41 - 50</i>	Unmatched	0.162	0.156	0.77	0.439
	Matched	0.162	0.158	0.62	0.538
<i>51 - 60</i>	Unmatched	0.089	0.090	-0.24	0.809
	Matched	0.089	0.090	-0.14	0.886
<i>61 and more</i>	Unmatched	0.070	0.058	2.28	0.022
	Matched	0.070	0.064	1.19	0.234
Level of education (reference: none)					
<i>Primary</i>	Unmatched	0.427	0.307	11.94	0.00
	Matched	0.427	0.439	-1.12	0.264
<i>Secondary</i>	Unmatched	0.275	0.370	-9.77	0
	Matched	0.276	0.280	-0.46	0.647
<i>Post-secondary</i>	Unmatched	0.057	0.148	-14.67	0
	Matched	0.057	0.052	0.95	0.342
Identification with a political party	Unmatched	0.689	0.640	4.99	0.00
	Matched	0.688	0.700	-1.25	0.212

Sources: AB surveys, rounds 5 and 6; Authors' calculations.

Table 1.A8: Number of observations for RCT-like estimations

	All countries	Benin	Burundi	Cameroon	Cote d'Ivoire	Madagascar	Malawi	Mali	Uganda
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Democracy	103,047	41,048	14,057	5,913	4,112	8,169	13,427	16,321	3,338
Regime where the power is in the hands of									
<i>One leader</i>	103,188	41,084	14,061	5,914	4,146	8,176	13,506	16,301	<i>N/A</i>
<i>The army</i>	103,15	41,065	14,067	5,896	4,152	8,189	13,508	16,273	
Freedom is respected									
<i>Speech</i>	40,038	41,118	14,132	5,963	4,165	8,295	13,575	16,335	3,397
<i>Political</i>	40,008	41,119	14,131	5,945	4,158	8,290	13,570	16,335	3,392
<i>Vote</i>	40,034	41,119	14,139	5,956	4,164	8,293	13,580	16,334	3,403
Listen to people									
<i>MPs</i>	103,415	41,109	14,111	5,895	4,154	8,292	13,552	16,302	3,338
<i>Local gut</i>	73,576	41,110	14,123	5,907	4,142	8,294	<i>N/A</i>	<i>N/A</i>	3,361
Trust in:									
<i>President</i>	61,621	41,121	14,110	<i>N/A</i>	4,167	8,294		16,333	3,372
<i>Parliament</i>	67,534	41,106	14,090	5,940	4,160	8,289		16,328	3,264
<i>Army</i>	67,579	41,107	14,109	5,966	4,171	8,293	<i>N/A</i>	16,335	3,315
<i>Courts of law</i>	67,529	41,093	14,119	5,954	4,149	8,292		16,333	3,280
<i>Tax/customs</i>	67,454	41,086	13,960	5,939	4,103	8,287		16,326	3,181
<i>Police</i>	67,592	41,115	14,129	5,973	4,171	8,294		16,333	3,402
Perceived level of corruption:									
<i>President</i>	97,029	41,079	13,920	<i>N/A</i>	4,106	8,282	13,329	16,313	3,209
<i>Gvt officials</i>	94,713	41,088	13,944	5,882	4,120	<i>N/A</i>	13,353	16,326	3,265
<i>MPs</i>	102,878	41,072	13,913	5,852	4,109	8,283	13,322	16,327	3,269
<i>Local gut</i>	73,421	41,104	14,027	5,893	4,110	8,287	<i>N/A</i>	<i>N/A</i>	3,305
<i>Courts of law off.</i>	103,101	41,062	14,061	5,908	4,125	8,285	13,330	16,330	3,169
<i>Tax/custom off.</i>	102,96	41,073	14,006	5,919	4,113	8,278	13,246	16,325	3,178
<i>Police</i>	103,261	41,097	14,059	5,925	4,150	8,290	13,410	16,330	3,350

Sources: AB surveys, rounds 5 and 6 and GPS-SHaSA surveys; Authors' calculations.

Table 1.A9: Interpersonal trust by survey sponsor (AB vs. GPS-SHaSA)

	Trust in relatives			Trust in neighbours		
	Burundi	Cameroon	Uganda	Burundi	Cameroon	Uganda
	(1)	(2)	(3)	(4)	(5)	(6)
GPS-SHaSA respondent	0.389*** (0.0534)	0.440*** (0.0334)	1.076 (0.0734)	1.634*** (0.102)	2.270*** (0.172)	0.648*** (0.0462)
Observations	14,080	5,985	3,429	14,137	5,998	3,431

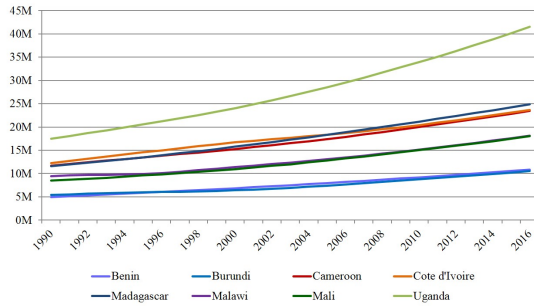
Note: OR reported. Robust standard errors (bootstrapped 100 times) are in parentheses. Each OR corresponds to a separate estimation. All estimations include individual controls (gender, age group, level of education, identification with a political party and area of residence). Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

Sources: AB surveys, round 5 and GPS-SHaSA surveys; Authors' calculations.

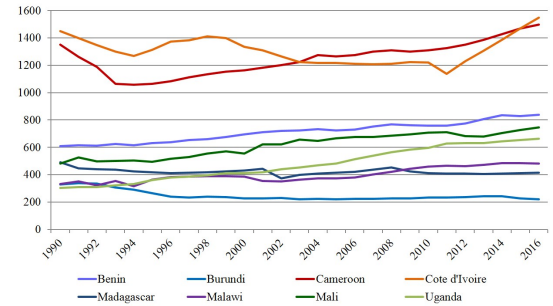
Appendix B

Figure 1.B1: Socio-economic indicators

(a) Total population



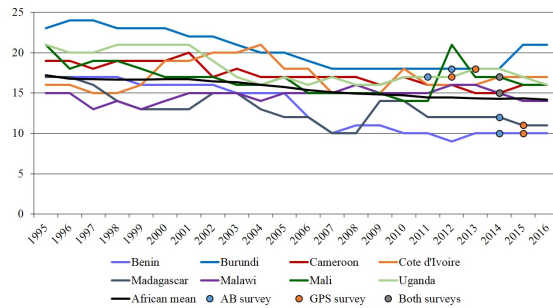
(b) GDP per capita



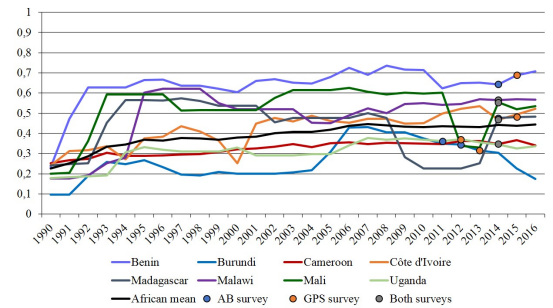
Source: World Bank data; Authors' computation.

Figure 1.B2: Governance indicators

(a) State Fragility Index



(b) Electoral Democracy Index



Sources: Centre for Systemic Peace; Varieties of Democracy (V-Dem). Authors' computations.

Table 1.B1: Differences in means between perceived survey sponsor (AB vs. Gov)

	Benin	Burundi	Cameroon	Cote d'Ivoire	Madagascar	Malawi	Mali	Uganda
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Satisfaction with democracy	-0.214*** (0.0585)	-0.507*** (0.0658)	-0.110 (0.0643)	-0.255*** (0.0593)	-0.0980 (0.0566)	-0.227*** (0.0547)	-0.00464 (0.0632)	-0.124** (0.0449)
Regime where power is in the hands of								
<i>One leader</i>	0.0277 (0.0431)	-0.171*** (0.0494)	0.148** (0.0505)	-0.234*** (0.0407)	0.111 (0.0576)	-0.153*** (0.0433)	-0.000611 (0.0513)	-0.0959*** (0.0289)
<i>The army</i>	-0.0494 (0.0550)	-0.103* (0.0512)	-0.0965 (0.0655)	-0.175*** (0.0446)	-0.0364 (0.0657)	-0.134*** (0.0396)	-0.111 (0.0696)	0.00276 (0.0366)
Freedom is respected								
<i>Speech</i>	-0.0301 (0.0220)	-0.118*** (0.0315)	-0.124* (0.0631)	-0.0885 (0.0646)	0.0116 (0.0302)	0.0467 (0.0369)	0.154* (0.0610)	-0.131** (0.0422)
<i>Political</i>	-0.0159 (0.0187)	-0.0632* (0.0250)	-0.145** (0.0532)	0.111 (0.0588)	0.0446 (0.0308)	-0.0687* (0.0324)	0.0610 (0.0397)	-0.0352 (0.0399)
<i>Vote</i>	-0.0318 (0.0163)	-0.0776*** (0.0177)	-0.123** (0.0447)	0.0657 (0.0547)	-0.0320 (0.0175)	-0.0454* (0.0206)	0.0217 (0.0351)	-0.0229 (0.0371)
Listen to people								
<i>MPs</i>	0.164*** (0.0470)	-0.0343 (0.0406)	-0.0394 (0.0639)	-0.0612 (0.0528)	-0.0445 (0.0447)	-0.159*** (0.0421)	-0.208** (0.0698)	0.0604 (0.0414)
<i>Local government</i>	0.181*** (0.0533)	0.289*** (0.0597)	-0.00961 (0.0684)	0.0254 (0.0548)	-0.0653 (0.0600)	N/A	N/A	0.00407 (0.0444)
Trust in:								
<i>President</i>	-0.707*** (0.0737)	-0.155*** (0.0226)	0.0521 (0.0697)	-0.319*** (0.0732)	-0.0253 (0.0366)	-0.377*** (0.0594)	-0.188** (0.0657)	-0.154** (0.0513)
<i>Parliament</i>	-0.390*** (0.0651)	-0.202*** (0.0290)	0.0901 (0.0737)	-0.305*** (0.0718)	-0.00859 (0.0365)	-0.308*** (0.0592)	-0.252*** (0.0640)	0.0971* (0.0477)
<i>Army</i>	-0.263*** (0.0670)	-0.0419 (0.0223)	0.209** (0.0725)	-0.279*** (0.0684)	-0.00350 (0.0364)	0.0286 (0.0482)	-0.246*** (0.0584)	-0.0538 (0.0506)
<i>Courts of law</i>	-0.331*** (0.0649)	-0.179*** (0.0313)	0.135 (0.0717)	-0.263*** (0.0640)	-0.0541 (0.0334)	-0.237*** (0.0523)	-0.282*** (0.0687)	0.0292 (0.0471)
<i>Tax/customs</i>	-0.249*** (0.0621)	-0.184*** (0.0357)	0.0866 (0.0697)	-0.106 (0.0650)	0.0264 (0.0367)	-0.183** (0.0608)	-0.192** (0.0657)	-0.101* (0.0496)
<i>Police</i>	-0.327*** (0.0665)	-0.203*** (0.0307)	0.128 (0.0744)	-0.187** (0.0656)	-0.00666 (0.0354)	-0.276*** (0.0585)	-0.147* (0.0709)	-0.187*** (0.0502)
Perceived level of corruption:								
<i>President</i>	-0.115* (0.0579)	-0.249*** (0.0575)	0.0829 (0.0580)	-0.199*** (0.0549)	-0.167** (0.0644)	-0.208*** (0.0501)	-0.0923 (0.0560)	-0.201*** (0.0413)
<i>Government officials</i>	-0.0754 (0.0527)	-0.229*** (0.0587)	-0.0748 (0.0581)	-0.185*** (0.0538)	-0.151* (0.0638)	-0.0836* (0.0423)	-0.0345 (0.0536)	-0.174*** (0.0359)
<i>MPs</i>	0.00395 (0.0548)	-0.206*** (0.0573)	0.0519 (0.0592)	-0.183*** (0.0527)	-0.157* (0.0638)	-0.111** (0.0428)	-0.0427 (0.0542)	0.00966 (0.0342)
<i>Local government</i>	-0.0210 (0.0521)	-0.0708 (0.0603)	0.0947 (0.0586)	-0.202*** (0.0534)	-0.224*** (0.0523)	N/A	N/A	-0.0226 (0.0370)
<i>Court of law</i>	-0.118* (0.0512)	-0.211*** (0.0604)	0.0693 (0.0609)	-0.323*** (0.0523)	-0.233** (0.0718)	-0.151*** (0.0418)	-0.0576 (0.0599)	-0.00175 (0.0378)
<i>Tax/customs officials</i>	-0.0767 (0.0509)	-0.233*** (0.0632)	-0.112 (0.0622)	-0.278*** (0.0545)	-0.0894 (0.0630)	-0.142** (0.0436)	-0.0346 (0.0585)	-0.128** (0.0422)
<i>Police</i>	-0.0319 (0.0538)	-0.280*** (0.0635)	-0.112 (0.0607)	-0.248*** (0.0575)	-0.0915 (0.0671)	-0.0984* (0.0442)	-0.0565 (0.0589)	-0.234*** (0.0408)

Note: Differences in means reported. Differences in red express more negative perception by interviewees who believe to answer a state-sponsored survey, more positive in green and consistent in black. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

Sources: AB surveys, rounds 5 and 6; Authors' calculations.

Table 1.B2: Relative characteristics of respondents who perceive AB as state-sponsored

	All countries	Benin	Burundi	Cameroon	Cote d'Ivoire	Madagascar	Malawi	Mali	Uganda
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Support the ruling party	0.0906*** (0.00988)	0.0290 (0.0271)	0.151*** (0.0335)	0.109** (0.0337)	0.0713** (0.0263)	-0.0429 (0.0272)	-0.0164 (0.0224)	-0.0219 (0.0298)	0.0544* (0.0254)
Own									
<i>A radio</i>	-0.0877*** (0.00952)	-0.113*** (0.0289)	-0.110*** (0.0320)	-0.0790** (0.0289)	-0.0904** (0.0307)	-0.0485 (0.0312)	-0.178*** (0.0239)	-0.0418 (0.0312)	-0.0604** (0.0199)
<i>A television</i>	-0.124*** (0.00934)	-0.174*** (0.0304)	-0.0884*** (0.0184)	-0.0774** (0.0272)	-0.0366 (0.0308)	-0.127*** (0.0329)	-0.0834*** (0.0181)	-0.0586* (0.0289)	-0.0115 (0.0180)
<i>A mobile phone</i>	<i>N/A</i>	-0.115*** (0.0263)	<i>N/A</i>	-0.0622*** (0.0165)	-0.0237 (0.0164)	-0.0761* (0.0365)	-0.179*** (0.0247)	-0.0335 (0.0281)	<i>N/A</i>
Frequent access to information from									
<i>Radio</i>	-0.103*** (0.0155)	-0.148** (0.0453)	-0.236*** (0.0547)	-0.255*** (0.0489)	-0.0406 (0.0528)	-0.0285 (0.0582)	-0.205*** (0.0405)	-0.181*** (0.0455)	-0.111*** (0.0275)
<i>Television</i>	-0.276*** (0.0187)	-0.437*** (0.0564)	-0.221*** (0.0409)	-0.211*** (0.0440)	-0.121* (0.0490)	-0.300*** (0.0621)	-0.181*** (0.0347)	-0.117* (0.0570)	-0.128** (0.0401)
<i>Press</i>	-0.188*** (0.0144)	-0.113** (0.0341)	-0.158*** (0.0273)	-0.212*** (0.0518)	-0.281*** (0.0513)	-0.204*** (0.0516)	-0.219*** (0.0316)	-0.0626* (0.0304)	-0.335*** (0.0383)
<i>Internet</i>	-0.150*** (0.0121)	-0.133*** (0.0339)	-0.111*** (0.0267)	-0.185*** (0.0544)	-0.310*** (0.0483)	-0.0545 (0.0280)	-0.131*** (0.0254)	-0.152*** (0.0333)	-0.107*** (0.0248)
Observations	9,536	1,081	895	894	1,052	1,010	1,651	1,038	1,915

Note: Differences in means reported between respondents perceiving the government as the sponsor and others. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

Sources: AB surveys, rounds 5 and 6; Authors' calculations.

Table 1.B3: Differences in means between AB and GPS-SHaSA respondents

	Benin	Burundi	Cameroon	Cote d'Ivoire	Madagascar	Malawi	Mali	Uganda
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Satisfaction with democracy	-1.125*** (0.0207)	-0.163*** (0.0277)	0.0158 (0.0290)	-0.471*** (0.0326)	-0.761*** (0.0280)	-0.275*** (0.0227)	-0.109*** (0.0259)	-0.423*** (0.0347)
Regime where power is in the hands of								
<i>One leader</i>	-0.0841** (0.0289)	-0.249*** (0.0299)	0.337*** (0.0289)	0.259*** (0.0233)	0.0947** (0.0316)	-0.406*** (0.0185)	0.213*** (0.0263)	N/A
<i>The army</i>	-1.577*** (0.0302)	-1.887*** (0.0297)	0.115*** (0.0249)	0.199*** (0.0217)	0.231*** (0.0266)	-0.345*** (0.0187)	0.189*** (0.0169)	N/A
Freedom is respected								
<i>Speech</i>	0.332*** (0.0145)	0.0549*** (0.0146)	0.602*** (0.0314)	0.183*** (0.0333)	0.220*** (0.0151)	0.644*** (0.0211)	0.259*** (0.0280)	0.357*** (0.0344)
<i>Political</i>	0.295*** (0.0142)	-0.185*** (0.0143)	0.379*** (0.0317)	0.184*** (0.0322)	0.189*** (0.0151)	0.240*** (0.0171)	0.273*** (0.0224)	0.108** (0.0327)
<i>Vote</i>	0.510*** (0.0143)	0.370*** (0.0146)	0.866*** (0.0333)	0.473*** (0.0326)	0.394*** (0.0146)	0.339*** (0.0155)	0.439*** (0.0245)	0.438*** (0.0324)
Listen to people								
<i>MPs</i>	-0.0631** (0.0197)	-0.550*** (0.0278)	-0.0522 (0.0294)	-0.449*** (0.0299)	-0.616*** (0.0254)	-0.379*** (0.0193)	-0.206*** (0.0275)	-0.215*** (0.0336)
<i>Local government</i>	0.218*** (0.0192)	-0.602*** (0.0274)	-0.0664* (0.0305)	-0.457*** (0.0303)	-0.455*** (0.0264)	N/A	N/A	-0.759*** (0.0347)
Trust in:								
<i>President</i>	-0.0794** (0.0270)	-0.0561*** (0.00868)	N/A	-0.433*** (0.0333)	0.0265 (0.0156)		-0.094*** (0.0247)	-0.0973* (0.0408)
<i>Parliament</i>	-0.0620* (0.0247)	-0.122*** (0.0105)	0.282*** (0.0340)	-0.350*** (0.0314)	-0.00509 (0.0155)		0.0281 (0.0251)	0.109** (0.0392)
<i>Army</i>	-0.0101 (0.0249)	-0.0469*** (0.00840)	0.354*** (0.0352)	-0.385*** (0.0325)	-0.00842 (0.0155)		0.114*** (0.0230)	0.101* (0.0403)
<i>Courts of law</i>	-0.0775** (0.0239)	-0.0902*** (0.0130)	0.181*** (0.0329)	-0.523*** (0.0307)	-0.158*** (0.0153)	N/A	-0.143*** (0.0256)	0.229*** (0.0371)
<i>Tax/customs</i>	-0.153*** (0.0264)	-0.297*** (0.0135)	0.158*** (0.0326)	-0.296*** (0.0302)	-0.0770*** (0.0156)		-0.00163 (0.0251)	-0.0183 (0.0392)
<i>Police</i>	0.0909*** (0.0247)	-0.0765*** (0.0128)	0.254*** (0.0334)	-0.284*** (0.0312)	-0.0900*** (0.0155)		-0.00607 (0.0260)	-0.0666 (0.0395)
Perceived level of corruption:								
<i>President</i>	0.0676* (0.0272)	-0.416*** (0.0250)	N/A	-0.593*** (0.0288)	0.842*** (0.0325)	0.156*** (0.0260)	-0.152*** (0.0277)	-0.603*** (0.0354)
<i>Government officials</i>	0.146*** (0.0254)	-0.486*** (0.0258)	0.833*** (0.0277)	-0.561*** (0.0290)	N/A (0.0306)	0.598*** (0.0230)	0.0164 (0.0263)	-0.144*** (0.0337)
<i>MPs</i>	0.212*** (0.0253)	-0.299*** (0.0257)	0.829*** (0.0298)	-0.393*** (0.0287)	0.133*** (0.0306)	0.687*** (0.0234)	0.206*** (0.0259)	0.0663* (0.0325)
<i>Local government</i>	0.193*** (0.0244)	-0.584*** (0.0215)	0.668*** (0.0294)	-0.433*** (0.0298)	0.719*** (0.0289)	N/A	N/A	-0.110*** (0.0328)
<i>Court of law officials</i>	0.212*** (0.0250)	-0.112*** (0.0293)	0.705*** (0.0271)	-0.0973** (0.0318)	-0.497*** (0.0302)	0.845*** (0.0233)	0.213*** (0.0266)	0.402*** (0.0338)
<i>Tax/customs officials</i>	0.241*** (0.0249)	-0.0589* (0.0288)	0.791*** (0.0240)	-0.0875** (0.0323)	-0.0500 (0.0310)	0.805*** (0.0235)	0.302*** (0.0264)	0.118** (0.0368)
<i>Police</i>	0.154*** (0.0241)	-0.261*** (0.0286)	0.743*** (0.0249)	0.137*** (0.0326)	-0.522*** (0.0292)	0.824*** (0.0217)	0.248*** (0.0259)	0.415*** (0.0332)

Note: Differences in means reported. Differences in red express more negative perception by GPS-SHaSA respondents, more positive in green and consistent in black. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

Sources: AB surveys, rounds 5 and 6 and GPS-SHaSA surveys; Authors' calculations.

Table 1.B4: Complete estimations of satisfaction with democracy and AB/GPS-SHaSA sponsors

	All countries (1)	Benin (2)	Burundi (3)	Cameroon (4)	Cote d'Ivoire (5)	Madagascar (6)	Malawi (7)	Mali (8)	Uganda (9)
GPS-SHaSA respondent	2.635*** (0.0744)	20.40*** (1.406)	1.720*** (0.116)	1.139* (0.0785)	1.779*** (0.132)	5.755*** (0.434)	1.628*** (0.0763)	1.686*** (0.127)	2.643*** (0.178)
Rural	1.236*** (0.0158)	0.901*** (0.0164)	1.738*** (0.0655)	1.099** (0.0516)	0.947 (0.0615)	1.556*** (0.0932)	1.113** (0.0496)	2.063*** (0.0663)	1.846*** (0.141)
Female	1.009 (0.0110)	0.949** (0.0194)	1.155*** (0.0317)	1.014 (0.0523)	0.804*** (0.0488)	1.001 (0.0409)	1.080** (0.0337)	1.136*** (0.0346)	1.407*** (0.100)
Age group (reference: 31-40 years)									
18-24	1.075*** (0.0199)	0.920** (0.0298)	1.104** (0.0513)	1.198*** (0.0712)	1.123 (0.0949)	1.062 (0.0586)	1.189*** (0.0577)	1.236*** (0.0600)	1.025 (0.104)
25-30	1.003 (0.0187)	0.944** (0.0271)	0.921 (0.0466)	1.224*** (0.0875)	1.075 (0.0784)	1.034 (0.0718)	1.080 (0.0511)	1.076 (0.0497)	0.865 (0.0856)
41-50	1.027 (0.0188)	1.091*** (0.0313)	0.980 (0.0444)	1.134 (0.0959)	0.890 (0.0765)	0.953 (0.0569)	1.027 (0.0606)	0.947 (0.0399)	1.155 (0.123)
51-60	1.067*** (0.0228)	1.158*** (0.0425)	1.090 (0.0678)	0.968 (0.102)	1.000 (0.115)	0.996 (0.0688)	0.929 (0.0613)	0.966 (0.0511)	1.264 (0.186)
61 and more	1.070*** (0.0241)	1.086** (0.0422)	1.334*** (0.0844)	1.084 (0.109)	0.998 (0.117)	0.949 (0.0749)	1.014 (0.0703)	0.900* (0.0523)	1.207 (0.199)
Level of education (reference: none)									
Primary	0.977 (0.0166)	1.232*** (0.0325)	0.844*** (0.0379)	0.759*** (0.0628)	0.691*** (0.0557)	0.723*** (0.0404)	1.030 (0.127)	0.789*** (0.0301)	
Secondary	0.818*** (0.0153)	1.348*** (0.0403)	0.560*** (0.0201)	0.630*** (0.0505)	0.467*** (0.0370)	0.470*** (0.0272)	0.860 (0.108)	0.623*** (0.0425)	
Post-secondary	0.742*** (0.0244)	1.570*** (0.0948)	0.331*** (0.0323)	0.507*** (0.0489)	0.314*** (0.0359)	0.232*** (0.0226)	0.817 (0.118)	0.690*** (0.0638)	
Identification with a political party	1.523*** (0.0214)	1.590*** (0.0537)	1.686*** (0.0508)	1.458*** (0.0768)	1.270*** (0.0766)	1.105** (0.0545)	1.322*** (0.0441)	1.910*** (0.0612)	
Country dummies	YES	NO	NO	NO	NO	NO	NO	NO	NO
Observations	103,047	41,048	14,057	5,913	4,112	8,169	13,427	16,321	3,338

Note: OR reported. Robust standard errors (bootstrapped 100 times) are in parentheses. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

Sources: AB surveys, rounds 5 and 6 and GPS-SHaSA surveys; Authors' calculations.

Table 1.B5: Sensitive questions by perceived AB survey sponsor (with interviewer dummies)

Perceives the government as the sponsor (ref.: AB)	All countries	Benin	Burundi	Cameroon	Cote d'Ivoire	Madagascar	Malawi	Mali	Uganda
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Satisfaction with democracy	1.157*** (0.0590)	0.794 (0.153)	1.602*** (0.292)	0.828 (0.144)	1.288 (0.208)	1.200 (0.282)	1.232* (0.154)	1.373** (0.193)	1.014 (0.116)
Regime where power is in the hands of									
<i>One leader</i>	1.313*** (0.0832)	1.213 (0.293)	1.680** (0.376)	0.861 (0.176)	1.908*** (0.321)	0.905 (0.212)	1.629** (0.319)	0.961 (0.183)	1.273 (0.239)
<i>The army</i>	1.222*** (0.0724)	1.216 (0.265)	1.378 (0.306)	1.125 (0.208)	1.334* (0.210)	0.998 (0.204)	1.548** (0.293)	1.222 (0.200)	0.933 (0.144)
Freedom is respected									
<i>Speech</i>	1.104* (0.0618)	0.921 (0.219)	1.350* (0.243)	1.018 (0.186)	1.429** (0.229)	0.855 (0.176)	0.992 (0.178)	0.989 (0.150)	1.221 (0.150)
<i>Political</i>	1.060 (0.0642)	0.816 (0.209)	1.057 (0.219)	1.122 (0.195)	1.021 (0.166)	0.667* (0.140)	1.523** (0.284)	0.864 (0.166)	1.177 (0.154)
<i>Vote</i>	1.171** (0.0797)	0.981 (0.342)	1.196 (0.286)	0.928 (0.208)	1.007 (0.156)	1.055 (0.223)	1.978** (0.611)	1.140 (0.219)	1.249 (0.181)
Listen to people									
<i>MPs</i>	1.056 (0.0581)	0.758 (0.191)	1.511* (0.368)	0.905 (0.171)	1.125 (0.195)	1.205 (0.303)	1.284* (0.171)	0.955 (0.142)	0.925 (0.105)
<i>Local government</i>	0.951 (0.0616)	1.095 (0.256)	1.056 (0.193)	0.915 (0.162)	0.935 (0.167)	1.058 (0.217)	N/A	N/A	0.862 (0.0981)
Trust in:									
<i>President</i>	1.426*** (0.0711)	1.274 (0.275)	2.129*** (0.398)	1.237 (0.208)	1.543*** (0.221)	1.609** (0.318)	1.384** (0.194)	1.195 (0.162)	1.326*** (0.144)
<i>Parliament</i>	1.323*** (0.0673)	1.450** (0.268)	1.966*** (0.409)	0.862 (0.151)	1.647*** (0.220)	1.252 (0.263)	1.259** (0.136)	1.301* (0.205)	1.054 (0.125)
<i>Army</i>	1.187*** (0.0638)	1.061 (0.205)	1.300 (0.263)	0.854 (0.140)	1.310* (0.203)	1.321 (0.246)	1.032 (0.142)	1.621*** (0.246)	1.137 (0.133)
<i>Courts of law</i>	1.270*** (0.0649)	0.980 (0.219)	1.497** (0.306)	0.977 (0.171)	1.316* (0.187)	1.424* (0.286)	1.246* (0.159)	1.416** (0.232)	1.163 (0.136)
<i>Tax/customs</i>	1.191*** (0.0598)	0.989 (0.211)	1.474** (0.233)	0.943 (0.162)	1.169 (0.151)	1.323 (0.288)	1.184 (0.128)	1.236 (0.183)	1.140 (0.129)
<i>Police</i>	1.207*** (0.0602)	1.095 (0.204)	1.809*** (0.314)	0.896 (0.164)	1.105 (0.151)	1.118 (0.208)	1.343** (0.170)	1.230 (0.170)	1.087 (0.117)
Perceived level of corruption:									
<i>President</i>	1.207*** (0.0656)	1.444* (0.315)	1.180 (0.244)	0.787 (0.145)	1.137 (0.193)	1.280 (0.253)	1.330** (0.178)	1.095 (0.158)	1.320** (0.170)
<i>Government officials</i>	1.185*** (0.0623)	1.436 (0.333)	1.175 (0.211)	0.985 (0.178)	1.302 (0.229)	1.190 (0.206)	1.114 (0.151)	1.178 (0.161)	1.167 (0.141)
<i>MPs</i>	1.166*** (0.0623)	1.357 (0.290)	1.705*** (0.337)	0.853 (0.144)	1.253 (0.212)	1.054 (0.208)	1.119 (0.153)	1.112 (0.153)	1.137 (0.146)
<i>Local government</i>	1.166** (0.0769)	1.453* (0.319)	1.364 (0.266)	0.699** (0.128)	1.285 (0.228)	1.501* (0.344)	N/A	N/A	1.035 (0.130)
<i>Court of law</i>	1.209*** (0.0633)	1.246 (0.268)	1.459** (0.247)	0.840 (0.156)	1.437** (0.207)	1.256 (0.246)	1.093 (0.154)	1.208 (0.150)	1.236 (0.162)
<i>Tax/customs officials</i>	1.141** (0.0599)	1.356 (0.296)	1.334* (0.216)	0.955 (0.157)	1.496*** (0.216)	1.034 (0.210)	1.126 (0.132)	1.073 (0.169)	0.995 (0.120)
<i>Police</i>	1.216*** (0.0622)	1.190 (0.237)	1.806*** (0.269)	1.042 (0.201)	1.317* (0.202)	0.889 (0.174)	1.139 (0.130)	1.086 (0.156)	1.302** (0.150)

Note: See Table 1.4.

Sources: AB surveys, rounds 5 and 6; Authors' calculations.

Table 1.B6: Responses by survey sponsor (AB vs. GPS-SHaSA – with region dummies)

<i>Treatment:</i> GPS-SHaSA	All countries	Benin	Burundi	Cameroon	Cote d'Ivoire	Madagascar	Malawi	Mali	Uganda
respondent	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Satisfaction with democracy	2.567*** (0.0704)	20.13*** (1.497)	1.714*** (0.107)	1.005 (0.0718)	1.777*** (0.132)	6.499*** (0.403)	1.603*** (0.0753)	1.507*** (0.118)	2.881*** (0.230)
Regime where power is in the hands of									
<i>One leader</i>	3.039*** (0.113)	19.79*** (1.265)	28.73*** (1.782)	0.584*** (0.0410)	0.361*** (0.0335)	0.456*** (0.0287)	4.209*** (0.267)	0.548*** (0.0451)	N/A
<i>The army</i>	1.071*** (0.0265)	0.934 (0.0560)	1.600*** (0.115)	0.427*** (0.0275)	0.341*** (0.0250)	0.808*** (0.0488)	4.714*** (0.321)	0.688*** (0.0552)	N/A
Freedom is respected									
<i>Speech</i>	0.344*** (0.0111)	0.164*** (0.0152)	0.976 (0.0701)	0.308*** (0.0222)	0.487*** (0.0381)	0.326*** (0.0295)	0.196*** (0.0111)	0.570*** (0.0328)	0.513*** (0.0410)
<i>Political</i>	0.467*** (0.0162)	0.163*** (0.0170)	0.432*** (0.0391)	0.501*** (0.0352)	0.609*** (0.0450)	0.393*** (0.0335)	0.377*** (0.0317)	0.424*** (0.0299)	0.894 (0.0776)
<i>Vote</i>	0.211*** (0.00836)	0.0438*** (0.00535)	0.117*** (0.0135)	0.167*** (0.0117)	0.270*** (0.0226)	0.0541*** (0.00872)	0.142*** (0.0154)	0.272*** (0.0213)	0.434*** (0.0351)
Listen to people									
<i>MPs</i>	2.901*** (0.0796)	1.563*** (0.114)	4.214*** (0.347)	1.442*** (0.0987)	2.508*** (0.187)	7.885*** (0.681)	2.895*** (0.144)	2.263*** (0.208)	1.461*** (0.108)
<i>Local government</i>	2.319*** (0.0902)	0.551*** (0.0474)	4.107*** (0.297)	1.472*** (0.107)	2.782*** (0.221)	3.791*** (0.276)	N/A	N/A	5.123*** (0.505)
Trust in:									
<i>President</i>	1.429*** (0.0730)	1.180* (0.101)	2.647*** (0.270)	N/A	1.526*** (0.119)	0.953 (0.0686)		1.367*** (0.123)	1.398*** (0.123)
<i>Parliament</i>	1.074* (0.0464)	1.327*** (0.100)	3.163*** (0.266)	0.665*** (0.0512)	1.395*** (0.143)	1.124 (0.0870)		1.017 (0.0807)	0.893 (0.0795)
<i>Army</i>	0.910** (0.0401)	1.137 (0.112)	2.282*** (0.228)	0.546*** (0.0373)	1.732*** (0.137)	1.193*** (0.0767)		0.655*** (0.0592)	0.914 (0.0758)
<i>Courts of law</i>	1.443*** (0.0634)	1.215** (0.102)	1.880*** (0.132)	0.776*** (0.0570)	2.408*** (0.202)	2.410*** (0.213)	N/A	1.678*** (0.132)	0.701*** (0.0498)
<i>Tax/customs</i>	1.231*** (0.0487)	1.676*** (0.113)	4.842*** (0.370)	0.773*** (0.0515)	1.551*** (0.127)	1.575*** (0.131)		1.088 (0.0865)	0.973 (0.0737)
<i>Police</i>	1.014 (0.0447)	0.855* (0.0698)	1.813*** (0.149)	0.665*** (0.0432)	1.493*** (0.130)	1.678*** (0.138)		1.170 (0.119)	1.186** (0.0900)
Perceived level of corruption:									
<i>President</i>	1.024 (0.0270)	0.742*** (0.0487)	3.794*** (0.214)	N/A	3.502*** (0.248)	0.226*** (0.0163)	0.706*** (0.0292)	1.856*** (0.100)	5.726*** (0.598)
<i>Government officials</i>	0.657*** (0.0182)	0.623*** (0.0416)	3.897*** (0.212)	0.152*** (0.0113)	2.788*** (0.267)	N/A	0.294*** (0.0127)	1.148** (0.0724)	1.617*** (0.177)
<i>MPs</i>	0.559*** (0.0140)	0.542*** (0.0330)	2.628*** (0.160)	0.181*** (0.0121)	1.912*** (0.162)	0.855** (0.0537)	0.266*** (0.0120)	0.720*** (0.0456)	1.045 (0.122)
<i>Local government</i>	0.739*** (0.0263)	0.573*** (0.0361)	5.458*** (0.378)	0.245*** (0.0157)	1.955*** (0.132)	0.226*** (0.0131)	N/A	N/A	1.798*** (0.171)
<i>Court of law officials</i>	0.527*** (0.0133)	0.529*** (0.0321)	1.286*** (0.0724)	0.197*** (0.0130)	0.818*** (0.0619)	2.911*** (0.211)	0.201*** (0.00759)	0.702*** (0.0469)	0.426*** (0.0441)
<i>Tax/customs officials</i>	0.440*** (0.0110)	0.484*** (0.0266)	1.167** (0.0763)	0.154*** (0.0112)	0.812*** (0.0498)	1.183** (0.0851)	0.205*** (0.00823)	0.566*** (0.0347)	0.768*** (0.0786)
<i>Police</i>	0.486*** (0.0133)	0.615*** (0.0377)	1.781*** (0.116)	0.129*** (0.00970)	0.538*** (0.0419)	3.179*** (0.196)	0.178*** (0.00734)	0.639*** (0.0429)	0.322*** (0.0296)

Note: See Table 1.10.

Sources: AB surveys, rounds 5 and 6 and GPS-SHaSA surveys; Authors' calculations.

Table 1.B7: Government perceived AB survey sponsor and GPS-SHaSA respondents

<i>Treatment:</i> GPS-SHaSA respondent	All countries (1)	Benin (2)	Burundi (3)	Cameroon (4)	Cote d'Ivoire (5)	Madagascar (6)	Malawi (7)	Mali (8)	Uganda (9)
Satisfaction with democracy	1.887*** (0.0797)	14.44*** (1.710)	1.215** (0.0969)	0.822 (0.106)	1.457*** (0.145)	5.771*** (0.824)	1.461*** (0.116)	1.566*** (0.174)	2.268*** (0.185)
Regime where power is in the hands of									
<i>One leader</i>	2.876*** (0.166)	16.61*** (1.717)	21.45*** (1.902)	0.855 (0.0915)	0.277*** (0.0269)	0.567*** (0.0609)	3.914*** (0.412)	0.527*** (0.0491)	N/A
<i>The army</i>	0.966 (0.0416)	0.823* (0.0828)	1.496*** (0.145)	0.463*** (0.0540)	0.283*** (0.0292)	0.793** (0.0907)	3.967*** (0.412)	0.590*** (0.0629)	N/A
Freedom is respected									
<i>Speech</i>	0.369*** (0.0167)	0.174*** (0.0297)	0.818* (0.0880)	0.235*** (0.0256)	0.477*** (0.0541)	0.428*** (0.0758)	0.196*** (0.0174)	0.674*** (0.0588)	0.460*** (0.0426)
<i>Political</i>	0.453*** (0.0232)	0.170*** (0.0355)	0.377*** (0.0527)	0.348*** (0.0437)	0.716*** (0.0703)	0.611*** (0.0932)	0.291*** (0.0346)	0.482*** (0.0506)	0.862 (0.0791)
<i>Vote</i>	0.221*** (0.0130)	0.0362*** (0.00808)	0.0686*** (0.0164)	0.116*** (0.0140)	0.334*** (0.0331)	0.0554*** (0.0190)	0.101*** (0.0173)	0.311*** (0.0323)	0.448*** (0.0391)
Listen to people									
<i>MPs</i>	2.715*** (0.116)	2.400*** (0.281)	4.064*** (0.481)	1.177 (0.133)	2.424*** (0.238)	5.934*** (0.934)	2.589*** (0.210)	2.011*** (0.201)	1.421*** (0.125)
<i>Local government</i>	2.841*** (0.197)	0.822 (0.118)	5.688*** (0.569)	1.342** (0.170)	2.820*** (0.288)	3.104*** (0.462)	N/A	N/A	4.231*** (0.375)
Trust in:									
<i>President</i>	0.917 (0.0690)	0.417*** (0.0699)	1.272 (0.268)	N/A	1.114 (0.154)	0.929 (0.124)		1.265* (0.160)	1.215** (0.115)
<i>Parliament</i>	0.851** (0.0557)	0.727** (0.104)	2.023*** (0.263)	0.744*** (0.0819)	1.042 (0.164)	1.168 (0.176)		0.880 (0.101)	0.914 (0.0784)
<i>Army</i>	0.746*** (0.0519)	0.770* (0.111)	2.015*** (0.275)	0.649*** (0.0678)	1.329** (0.166)	1.185 (0.158)		0.525*** (0.0552)	0.884 (0.0675)
<i>Courts of law</i>	1.222** (0.0967)	0.697** (0.0995)	1.385*** (0.157)	0.901 (0.109)	1.982*** (0.278)	1.982*** (0.290)	N/A	1.267* (0.168)	0.716*** (0.0563)
<i>Tax/customs</i>	1.088 (0.0669)	1.254* (0.149)	3.704*** (0.420)	0.892 (0.0866)	1.476*** (0.183)	1.766*** (0.259)		0.934 (0.0974)	0.916 (0.0784)
<i>Police</i>	0.914 (0.0618)	0.481*** (0.0682)	1.295** (0.146)	0.771** (0.0958)	1.329** (0.185)	1.756*** (0.266)		1.121 (0.149)	1.115 (0.0875)
Perceived level of corruption:									
<i>President</i>	1.088** (0.0413)	0.682*** (0.0683)	3.036*** (0.238)	N/A	2.855*** (0.290)	0.208*** (0.0220)	0.672*** (0.0360)	1.885*** (0.146)	4.105*** (0.456)
<i>Government officials</i>	0.674*** (0.0278)	0.590*** (0.0569)	3.299*** (0.293)	0.149*** (0.0143)	2.399*** (0.204)	N/A	0.311*** (0.0161)	1.246*** (0.106)	1.398*** (0.143)
<i>MPs</i>	0.531*** (0.0196)	0.558*** (0.0596)	2.110*** (0.214)	0.195*** (0.0193)	1.577*** (0.160)	0.626*** (0.0647)	0.262*** (0.0148)	0.799*** (0.0629)	1.021 (0.108)
<i>Local government officials</i>	0.818*** (0.0469)	0.533*** (0.0514)	4.603*** (0.394)	0.270*** (0.0259)	1.708*** (0.168)	0.149*** (0.0180)	N/A	N/A	1.511*** (0.142)
<i>Court of law officials</i>	0.449*** (0.0160)	0.452*** (0.0464)	1.133 (0.0956)	0.227*** (0.0252)	0.688*** (0.0602)	1.619*** (0.157)	0.210*** (0.0124)	0.711*** (0.0684)	0.450*** (0.0462)
<i>Tax/customs officials</i>	0.399*** (0.0153)	0.433*** (0.0437)	1.038 (0.0930)	0.151*** (0.0165)	0.703*** (0.0591)	0.867 (0.0943)	0.218*** (0.0129)	0.606*** (0.0509)	0.739*** (0.0724)
<i>Police</i>	0.412*** (0.0165)	0.577*** (0.0587)	1.559*** (0.146)	0.126*** (0.0128)	0.486*** (0.0477)	2.240*** (0.286)	0.201*** (0.0113)	0.676*** (0.0693)	0.306*** (0.0298)

Note: See Table 1.10.

Sources: AB surveys, rounds 5 and 6 and GPS-SHaSA surveys; Authors' calculations.

Table 1.B8: Responses by survey sponsor (AB vs. GPS-SHaSA – Same sample size)

<i>Treatment:</i> GPS-SHaSA	All countries	Benin	Burundi	Cameroon	Cote d'Ivoire	Madagascar	Malawi	Mali	Uganda
respondent	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Satisfaction with democracy	2.156*** (0.0660)	18.61*** (1.759)	1.772*** (0.153)	0.875 (0.0790)	1.640*** (0.143)	5.722*** (0.594)	1.542*** (0.108)	1.579*** (0.122)	2.637*** (0.243)
Regime where power is in the hands of <i>One leader</i>	2.314*** (0.0752)	23.99*** (2.789)	35.27*** (4.283)	0.527*** (0.0531)	0.336*** (0.0324)	0.457*** (0.0439)	3.767*** (0.328)	0.599*** (0.0546)	N/A
<i>The army</i>	1.014 (0.0349)	0.954 (0.0845)	1.597*** (0.169)	0.434*** (0.0365)	0.318*** (0.0364)	0.835** (0.0732)	4.285*** (0.344)	0.673*** (0.0597)	N/A
Freedom is respected <i>Speech</i>	0.378*** (0.0155)	0.170*** (0.0194)	0.992 (0.103)	0.336*** (0.0259)	0.544*** (0.0565)	0.374*** (0.0427)	0.202*** (0.0132)	0.644*** (0.0545)	0.546*** (0.0451)
<i>Political</i>	0.491*** (0.0224)	0.178*** (0.0190)	0.516** (0.0520)	0.511*** (0.0448)	0.628*** (0.0602)	0.485*** (0.0501)	0.379*** (0.0307)	0.435*** (0.0428)	0.975 (0.0842)
<i>Vote</i>	0.225*** (0.0106)	0.0481*** (0.00632)	0.126*** (0.0158)	0.171*** (0.0145)	0.303*** (0.0273)	0.0835*** (0.0127)	0.129*** (0.0170)	0.290*** (0.0257)	0.457*** (0.0430)
Listen to people <i>MPs</i>	2.457*** (0.0793)	1.412*** (0.129)	4.106*** (0.392)	1.292*** (0.113)	2.512*** (0.232)	7.216*** (0.703)	2.768*** (0.169)	1.898*** (0.186)	1.379*** (0.0921)
<i>Local government</i>	2.001*** (0.0805)	0.675*** (0.0664)	3.789*** (0.363)	1.360*** (0.122)	2.894*** (0.272)	3.373*** (0.314)	N/A	N/A	4.384*** (0.402)
Trust in: <i>President</i>	1.230*** (0.0641)	1.238** (0.110)	2.785*** (0.427)	N/A	1.250*** (0.102)	0.956 (0.0928)		1.273*** (0.111)	1.373*** (0.117)
<i>Parliament</i>	0.968 (0.0420)	1.284*** (0.111)	3.714*** (0.568)	0.602*** (0.0531)	1.262** (0.116)	1.073 (0.0973)		0.974 (0.0792)	0.867 (0.0796)
<i>Army</i>	0.879*** (0.0417)	1.115 (0.101)	2.443*** (0.387)	0.577*** (0.0445)	1.490*** (0.136)	1.249** (0.120)		0.667*** (0.0616)	0.915 (0.0880)
<i>Courts of law</i>	1.335*** (0.0603)	1.126 (0.103)	2.048*** (0.234)	0.847** (0.0718)	2.138*** (0.214)	2.192*** (0.210)	N/A	1.430*** (0.130)	0.701*** (0.0595)
<i>Tax/customs</i>	1.132*** (0.0443)	1.482*** (0.126)	4.901*** (0.492)	0.760*** (0.0664)	1.445*** (0.120)	1.517*** (0.154)		1.093 (0.0824)	0.991 (0.0765)
<i>Police</i>	0.996 (0.0419)	0.981 (0.0832)	2.307*** (0.219)	0.677*** (0.0514)	1.333*** (0.127)	1.629*** (0.142)		1.142* (0.0919)	1.149* (0.0887)
Perceived level of corruption: <i>President</i>	1.015 (0.0317)	0.815*** (0.0632)	4.403*** (0.460)	N/A	3.652*** (0.368)	0.209*** (0.0192)	0.597*** (0.0379)	1.710*** (0.134)	4.424*** (0.511)
<i>Government officials</i>	0.693*** (0.0229)	0.636*** (0.0458)	4.494*** (0.434)	0.121*** (0.0117)	2.977*** (0.288)	N/A	0.248*** (0.0181)	1.053 (0.0928)	1.472*** (0.149)
<i>MPs</i>	0.590*** (0.0177)	0.514*** (0.0405)	2.861*** (0.279)	0.158*** (0.0166)	2.112*** (0.223)	0.820** (0.0666)	0.224*** (0.0156)	0.676*** (0.0528)	1.051 (0.0868)
<i>Local government</i>	0.791*** (0.0323)	0.526*** (0.0474)	6.198*** (0.620)	0.216*** (0.0210)	2.387*** (0.278)	0.205*** (0.0195)		N/A	1.695*** (0.169)
<i>Court of law officials</i>	0.564*** (0.0167)	0.555*** (0.0506)	1.363*** (0.111)	0.202*** (0.0183)	0.884 (0.0785)	2.455*** (0.209)	0.160*** (0.0113)	0.678*** (0.0676)	0.455*** (0.0447)
<i>Tax/customs officials</i>	0.480*** (0.0147)	0.498*** (0.0414)	1.297*** (0.101)	0.145*** (0.0147)	0.909 (0.0797)	1.103 (0.0924)	0.176*** (0.0114)	0.601*** (0.0620)	0.759*** (0.0649)
<i>Police</i>	0.524*** (0.0157)	0.662*** (0.0694)	1.711*** (0.152)	0.118*** (0.0111)	0.592*** (0.0577)	2.755*** (0.250)	0.146*** (0.0112)	0.648*** (0.0526)	0.313*** (0.0318)

Note: See Table 1.10.

Sources: AB surveys, rounds 5 and 6 and GPS-SHaSA surveys; Authors' calculations.

Chapter 2

Fear Not For Man? Armed conflict and social capital in Mali

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2.1 Introduction

Terrorism and armed conflicts have become a major concern in recent years as they increasingly challenge individual, local and regional development around the globe. In addition to the destruction of physical capital and human losses, these events have adverse short- and long-term repercussions on economic outcomes (Abadie & Gardeazabal, 2003; Collier et al., 2003; Gaibulloev & Sandler, 2009). There is still an open question about the channels through which armed conflicts impact economic development. The role of social capital warrants particular attention in this respect.¹ Indeed, it can positively influence development outcomes, especially in areas with market failure, weak formal institutions and scarce public goods (Woolcock & Narayan, 2000). Social capital connects individuals, facilitates collective action and plays a substantial role in the provision of public goods in these areas (Putnam et al., 1993; Durlauf & Fafchamps, 2005). A number of studies have highlighted the pro-social effect of armed conflict (Bellows & Miguel, 2006, 2009; Voors et al., 2012; Gilligan et al., 2014) and some of them have explicitly suggested that the pro-social impact of war may explain the documented economic recovery of many post-war societies (Davis & Weinstein, 2002; Brakman et al., 2004; Miguel & Roland, 2011). However, these studies usually consider social capital as unidimensional or uniform, even though it is theoretically depicted as a multifaceted notion. Studies considering different facets of social capital question this optimism (Cassar et al., 2013; Rohner et al., 2013; Grosjean, 2014). These latter results echo theoretical and empirical evidence based on ethnographic and archaeological data. Indeed, inter-group conflict should favour both altruistic behaviours towards one's own group, and exclusionary behaviours against out-groups, also called parochialism (Choi & Bowles, 2007; Bowles, 2009). This paper contributes to this literature. It focuses on participation in associations according to their characteristics in an attempt to unravel the web of social capital and learn more about the repercussions of armed conflict on social cohesion.

Papers addressing the social legacy of conflicts generally use associational membership as a measure of social capital. However, associations are diverse and their functions and objectives highly heterogeneous. Not all associations have the same implications in terms of social interactions. Social capital can penalise non-members (Acemoglu & Robinson, 2008) and “reinforce polarisation between the ‘in’ group and

¹Social capital is defined by Bourdieu (1980) as “*the entire aggregate of current and potential resources associated with the possession of a durable network*”.

the ‘out’ group” (Durlauf & Fafchamps, 2005). “Social capital can be used by certain groups to overtake others, generating between-group inequality and political tension” (*ibid.*). The substantial role of association density (and networks) in the rise of the Nazi party in the 1930s (Satyanath et al., 2017) is illustrative of the potential negative effects of social capital. Knack & Keefer (1997) and Fidrmuc & Gërzhani (2008) contrast “Olsonian” and “Putnamesque” associations based on the divergent hypotheses of Olson (1982) and Putnam et al. (1993) regarding the relationship between associational activity and growth. Olsonian groups act as special interest groups at the expense of the rest of the society, whereas Putnamesque groups act more for the community at large without any negative externalities (Knack & Keefer, 1997). This Olsonian/Putnamesque distinction can be viewed in relation to the usual differentiation between strong/bonding and weak/bridging ties (Granovetter, 1973). The former are characterised by kinship-based relationships resulting from shared affinities, for instance, among relatives, neighbours or close friends, whereas the latter relate to a wider network. Bridging relationships are needed to prevent exclusion from social interactions (Jackson et al., 2012) and are considered as a “source of value-added” (Burt, 2001). If conflict spurs involvement in associations, then the kind of associations concerned matters to be able to interpret the effects on social interactions and cooperation. Some, far from bridging the gap between groups, actually widen it. To the best of our knowledge, the impact of conflict on membership of different types of associations has never been explored, at least not in a comprehensive empirical manner. Our paper contributes to the literature on the effects of social capital and questions its dominant assumption that social capital is a force of good.

The paper draws on the division between Olsonian and Putnamesque groups to develop a typology of associations to address this knowledge gap in the particularly relevant case of Mali. Mali has been at war since 2012. The conflict broke out when a number of armed groups challenged the government’s authority. The insurgents were mainly Tuareg rebel groups fighting for the independence of northern Mali and jihadist groups keen to impose Sharia law on the country. Although Mali has seen repeated Tuareg uprisings,² jihadist groups only started thriving in the late 2000s driven by growing insecurity and central government withdrawal from the Sahelian regions (Julien, 2011).³ In January 2012, the jihadists together with the Tuaregs launched their first attacks on military positions in the north. After three months

²Four major uprisings in 1963, 1991, 2007 and 2012 were all followed by peace agreements.

³Galy (2013) presents a full background analysis to understand the Malian war.

of intense fighting, the major cities of the north, including Timbuktu, Gao and Kidal, were under the insurgents' yoke. The National Movement for the Liberation of Azawad (MNLA), which was supported by Ansar Dine (supported by Al Qaeda in Islamic Maghreb and the Movement for Oneness and Jihad in West Africa), declared the north independent and imposed Islamic law.⁴ Meanwhile, a military coup toppled President Amadou Toumani Touré held responsible for the crisis. As jihadist groups started moving south, France launched Operation Serval under the UN flag and sent troops to stop their progress. By the end of January 2013, most cities had been taken back. Although two peace agreements were signed in 2014 and 2015 (in Ouagadougou and Algiers: [Government of Mali, 2015](#)), jihadist groups continue their attacks and political instability has spawned the emergence of new insurgent groups with ethnic and community demands. To date, the conflict has claimed thousands of lives and displaced hundreds of thousands. Although the conflict is essentially rooted in the northern and central part of Mali, it has spread throughout the country. Attacks have even taken place on the Ivoirian border on the southern edge of the country.

Civic engagement plays a key role in Mali. It is recognised as central to local governance, acting as a local intermediary and much-needed counterpart to weak public institutions. Civic engagement mainly takes the form of substantial involvement in community life, especially in local development associations ([Kuepie & Sougane, 2014](#); [Chauvet et al., 2015](#)). The most recent Afrobarometer data (2017) report that two-thirds of adults in Mali attend community meetings. The Indices of Social Development ([International Institute of Social Sciences, 2010](#)) show Malian civic engagement to be particularly high compared with other African countries. Indeed, the latest available data rank Mali among the top 15 to 30 countries consistently above the continental mean for “civic activism”, “clubs and associations participation” and “interpersonal safety and trust”. In addition to this quantitative evidence, Mali's recent history has shown civil society, and associations in particular, to be central to political transition to a democratic system ([Roy, 2005](#)). Mali has even been held up as a regional model ([Chauzal, 2007](#)) making the outbreak of violence even more unexpected to the international community. Ethnic groups moreover play a key role in the current crisis ([Chauzal & van Damme, 2015](#)). Therefore, studying what kind of association is fostered by conflict can shed new light on the current state of social interactions in Mali.

⁴The Tuaregs tried to distance themselves from the Islamist radicals (as seen from the MNLA's separation from Ansar Dine just days after their alliance was announced).

To the best of our knowledge, this is the first time a paper has empirically studied the conflict and social capital nexus in Mali and in a former French colony of Sub-Saharan Africa.⁵ Our study broadens the picture and analysis to take in a different context, where the set of institutional characteristics differs substantially from other previously studied countries (La Porta et al., 1999; Djankov et al., 2003). This case study is, unfortunately, still ongoing. The Malian conflict is in deadlock, and responses to date from national and international authorities have fallen short of the mark (Guichaoua & Pellerin, 2017). Furthermore, the Malian conflict presents a hybrid, albeit insufficiently studied form (mixing political grievances, separatism, criminal activity and terrorism), which appears to be spreading in West Africa and destabilising the region with potential unparalleled national and international demographic repercussions. This analysis can provide deeper insights into the conflict's current repercussions and potentially offer more targeted responses.

We use two sets of data to examine the repercussions of armed conflict on social capital in Mali. First, we compute a local index of armed conflict from the Armed Conflict Location and Event Database (ACLED) project developed by Raleigh et al. (2010). ACLED lists all available newspaper articles, press agency telegrams and non-governmental organisation briefs reporting on conflict-related events since 1997. We merge this local index of armed conflict with unique nationally and regionally representative household surveys conducted by the National Statistics Office (NSO) in 2006, 2014, 2015 and 2016. All these surveys include first-hand modules on governance and democracy issues. The 2014, 2015 and 2016 surveys at the core of our study are repeated harmonised add-on survey modules on governance, peace and security (GPS-SHaSA) and are included in the main household survey (*Continuous, Modular Household Survey*, hereafter EMOP). They provide perfectly comparable data on large samples of individuals.⁶ A highly similar 2006 module is used as a pre-conflict benchmark. We draw on these original governance datasets to analyse the repercussions of the Malian conflict on different types of social capital. The data is also rich enough to be able to address potential endogeneity issues which is another limitation of many analyses.

We find that the conflict has a causal impact on adult involvement in associ-

⁵Countries commonly studied in the conflict literature in Africa are Burundi, Kenya, Sierra Leone, Rwanda, Tanzania and Uganda. Some other analyses focus on European countries (e.g. Grosjean, 2014).

⁶Samples include up to 54,000 individuals. Data surveys with large samples representative at regional and even sub-regional level are required to ensure reliable results from an analysis of the impact of armed conflict in certain specific areas of the country. Many sub-national analyses are based on surveys with small samples representative at national level only.

ations, raising participation by 7 to 14 percentage points in exposed areas. The results are driven in particular by growth in participation in inward-looking groups (Olsonian groups), namely family and political associations. These results are robust to a number of robustness checks for reverse causation, omitted variables and selection issues. We rely on two alternative strategies to address reverse causation wherever possible: instrumental variables (IV) and difference-in-differences (DiD) estimations. We interpret these findings as evidence that an increase in associational membership, far from being pro-social, actually forms a veiled withdrawal behind inner group or community frontiers and can therefore spawn exclusion and local tensions. Our interpretation is supported by additional tests showing that interpersonal trust decreases significantly in exposed areas.

The paper is structured as follows. In section 2.2, we present the related literature and the conceptual framework. In section 2.3, we describe our data and introduce the empirical model. In section 2.4, we present our estimation results for associative engagement. Section 2.5 further investigates the effects of the armed conflict on the types of social capital cultivated. We summarise our findings and conclude in section 2.6.

2.2 Related literature and conceptual framework

2.2.1 Social capital, associational membership and types of groups

The notion of social capital can be defined in a number of ways. In this paper, social capital refers to resources generated by structural relations or networks gravitating around an individual. Unlike some analyses, we consider that trust is not a component of social capital per se. We make a clear distinction between trust and social capital. We are aware that trust and social capital are often studied as one. We argue that trust is an attitude that can be a factor (upstream) or a consequence (downstream) of social capital (Woolcock, 1998; Lin, 1999). Indeed, a number of studies posit that trust and social capital are mutually reinforcing (Sønderskov, 2011). Some show that trust builds up people’s networks and relations (Narayan & Pritchett, 1999; Haddad & Maluccio, 2003), whereas others find an opposite relationship (Paxton & Ressler, 2017).

We focus on one component of social capital: membership of associations, classified as a *formal* network as opposed to an individual network, which we define as *informal*.⁷ The associative sector is heterogeneous with a wide range of associa-

⁷A *formal* network refers to a network that is visible (groups or associations even though they

tions for which a typology needs to be developed. In keeping with Knack & Keefer (1997) and Fidrmuc & Gërkhani (2008), we make a distinction between Putnamesque groups and Olsonian groups. Olsonian groups act as special interest groups at the expense of the rest of the society, whereas Putnamesque groups act more for the community at large without any negative externalities. In line with Fidrmuc & Gërkhani (2008), educational, sport and art clubs, religious and charitable organisations, and youth groups are considered as Putnamesque groups. On the other side, political associations, trade unions and professional associations are classified as Olsonian groups. Our approach is somewhat different in that our classification focuses on the association's orientation, strategy and promoted values rather than on its sector of intervention. More specifically, we separate out inward-looking (hereafter Olsonian) groups and outward-looking (hereafter Putnamesque) groups. For example, we believe that human rights organisations, which can be classified as political associations, cannot be included in the Olsonian groups. Therefore, in our typology, Putnamesque organisations are open to individuals from different groups/categories. They hence enable individuals to develop their bridging social capital as they constitute an inclusive process. Activities benefit a broad community that extends beyond its members.⁸ Conversely, Olsonian groups are more often based on kinship ties, enabling the development of bonding social capital. Activities benefit solely their members even to the detriment of non-members.⁹ The principle of favouring only their members sets up a barrier and creates an isolation and exclusion process. An increase in participation in these inward-looking (bonding) associations indicates social withdrawal rather than pro-social behaviour. In our typology, we assume that political, family and professional associations are Olsonians. As already mentioned, the inclusion of political associations in this group is questionable. However, in the case of Mali, there is no question since sectarianism and cronyism prevail in political associations in the country (Roy, 2005). Local development associations are classified as Putnamesque organisations. Religious associations can also be considered as outward-looking, given the specific context of Mali. More than 95% of the population is Muslim. Malian Islam, which originated from the same Sunni tradition, is characterised by tolerance and syncretism. Over the last two decades, Mali has seen

are not necessarily formally declared), whereas individual networks are called *informal* since they are less visible.

⁸This description ties in with Sønderskov (2011) who points out the particularity of associations that produce public goods. See also Paxton & Ressler (2017) for a description of bridging and bonding associations.

⁹Alesina & Giuliano (2014) show that family ties, as the strongest ties, are negatively linked to growth drivers.

a general wave of re-Islamisation in the country. Islamic associations have been flourishing, but mainly as charitable organisations (Holder & Saint-Lary, 2013). Their main motive is to challenge the central state for its corruption, poor governance and lack of redistributive policies, rather than religion-based violent confrontation.

This distinction between Olsonian/inward-looking and Putnamesque/outward-looking associations sheds new light on what group membership really captures and the interpretation of the so-called pro-social effects of war.

2.2.2 Social capital and conflict: a literature review

Studying the impact of conflict on social capital is of the utmost importance, as it can influence countries' post-war economic, social and political paths. Some studies, as in Voors et al. (2012), explicitly suggest that the "pro-social" impact of war may explain the documented economic recovery of many post-war societies (Davis & Weinstein, 2002; Brakman et al., 2004; Miguel & Roland, 2011). The reasons why war might influence social capital are not well-established, but can be summarised as follows (see Bauer et al., 2016, for an overview). Investing in social capital is part of a household's war-coping strategy. Social capital, in the form of greater cooperation or participation in associations, can act as informal insurance to minimise the adverse repercussions of war and shocks in general (destruction of assets and crops, injury and death) on household welfare (Uphoff & Wijayaratna, 2000). In wartime, social cooperation helps people protect themselves. On this point, community responses such as neighbourhood watch schemes, local vigilante groups, and self-defence forces are documented in civil wars in Liberia and Afghanistan (Sawyer, 2005; Jones & Muñoz, 2010). In addition, studies in psychology suggest that exposure to war steadfastly steers behaviour (Dyregrov et al., 2002) and preferences towards greater participation in the community (Carmil & Breznitz, 1991).

The literature on the impact of armed conflicts on social capital turns up mixed findings. Jennings & Sanchez-Pages (2017) use a theoretical approach to show that, below certain intensity thresholds, conflicts increase social capital in the form of group creation. Yet above these levels, social capital decreases and can end up lower than its peacetime level. The empirical literature's conclusions are dependent on the context and the expression of social capital studied. On the subject of social participation, studies on Sierra Leone, Nepal and Burundi show that violence increases collective action and civic engagement (Bellows & Miguel, 2006, 2009; Voors et al., 2012; Gilligan et al., 2014). In a study on Uganda, Blattman (2009) finds that the impact of civil war is greater for direct participants, particularly abductees

and militia members. The former are more involved in local political activities at community level. In a meta-analysis of 16 studies in the areas of economics, anthropology, political science, and psychology, [Bauer et al. \(2016\)](#) use a synthetic index of cooperation to show that the effect of armed conflict on social capital is on average positive and statistically significant, but moderate in magnitude. Yet, this positive interpretation of increased participation is somewhat contradictory with theoretical and empirical evidence based on ethnographic and archaeological data. Indeed, inter-group conflict should favour pro-social behaviours towards one's own group but should simultaneously imply exclusionary behaviours towards out-groups ([Choi & Bowles, 2007](#); [Bowles, 2009](#)). The study of collective action in European countries during post-World War II period suggests this increased in-group bias ([Grosjean, 2014](#)). The increased participation rather evokes the increase of a 'negative social capital' also featured in the rise of the Nazi party ([Satyanath et al., 2017](#)).

On the subject of trust, countries affected by slave trading (characterised by violence between ethnic groups) currently form the most distrustful populations in Africa ([Nunn & Wantchekon, 2011](#)). A study on Uganda by [Rohner et al. \(2013\)](#), combining Afrobarometer data with ACLED event data, shows that generalised trust is lower for individuals in areas exposed to violent conflicts. Furthermore, a number of studies highlight that the impact of a conflict on trust can vary over time or according to local or individual characteristics. In Uganda, [De Luca & Verpoorten \(2011\)](#) and [De Luca & Verpoorten \(2015\)](#) take the same dataset as [Rohner et al. \(2013\)](#) to show that the conflict had a negative short-term impact on generalised trust and associational membership, but a positive impact on these factors in the longer run. In Tajikistan, [Cassar et al. \(2013\)](#) draw on behavioural experiments and individual surveys to demonstrate that interpersonal trust in ethnically diverse villages is lower in the most exposed areas ten years after the end of the civil war. In their meta-analysis, [Bauer et al. \(2016\)](#) show that the effects of armed conflict on trust are close to zero.

Few studies come to clear conclusions about social interactions, with the exception of [Colletta & Cullen \(2000\)](#) who show that the post-genocide period in Cambodia improved bridging relationships in the village with higher market penetration forces, thereby reducing bonding networks. However, some studies suggest the potential mechanisms through which conflicts increase inward-looking interactions. Some posit that armed conflict can strengthen kinship-based ties due to a stronger ethnic identity ([Rohner et al., 2013](#)), increase "kinship-based norms of

morality” (Cassar et al., 2013), and elevate egalitarian motivations towards in-group members among children exposed to the conflict (Bauer et al., 2014).

2.2.3 Differentiated effects of conflict on social capital

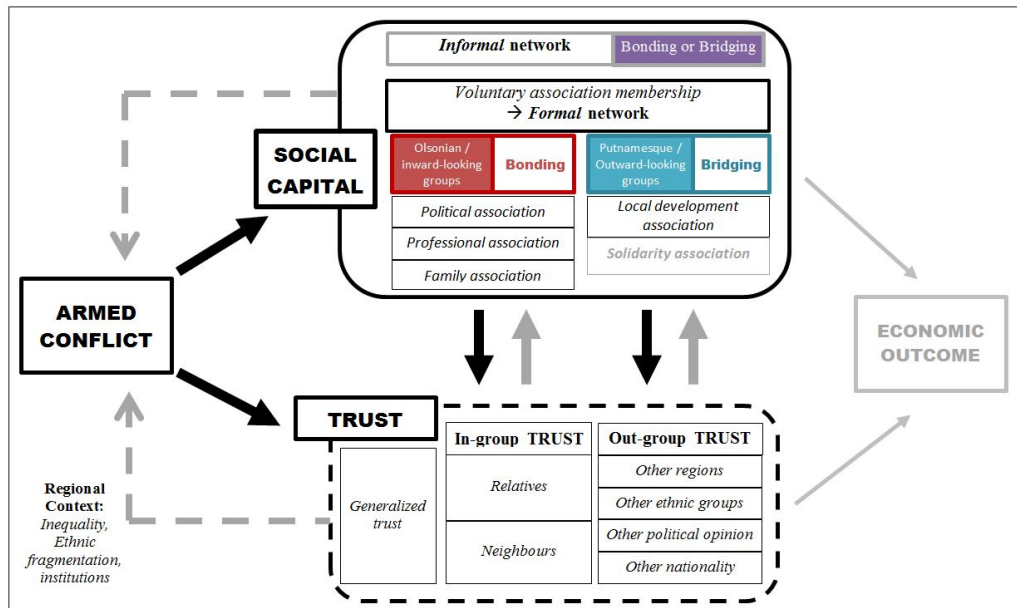
In some papers (see for instance: Bellows & Miguel, 2006, 2009; Voors et al., 2012), an increase in participation in associations in conflict-affected areas is positively interpreted as pro-social. Conversely, a decrease in participation in associations is presented negatively as social withdrawal. Yet these works say little about what participation in groups really captures. As illustrated in Figure 2.1, the meaning of these results can change dramatically when the type of association is considered. Exposure to violence might be more conducive to some associations than others. The increase in participation in groups in conflict-affected areas might correspond to an increase in participation in Putnamesque associations. If so, it would be considered as pro-social behaviour enabling increased interaction, cooperation and exchange across groups and would therefore be a driver for the documented post-war economic recovery in affected areas. Conversely, the conflict might be expected to be conducive to participation in Olsonian associations only. Increased participation in inward-looking associations widens the gap between groups as all groups give precedence to their own self-interests. This would lead to greater opposition between groups, and would eventually lock the conflict in a “conflict trap” (Collier et al., 2003).

To further understand the effects of conflict on social capital and participation in associations in particular, we also explore the impact of conflict on interpersonal trust. We consider different components of interpersonal trust: generalised trust, intra-group trust and inter-group trust. As presented in sub-section 2.2.1 and Figure 2.1, there is a link between participation in groups and interpersonal trust. Intra-group trust refers to an individual’s immediate circle. Here, intra-group trust is captured by trust in relatives and neighbours. Inter-group trust refers to the different out-groups that communities can form. These include other ethnic groups, other region or country groups, and other political affiliation groups. An increase in generalised trust in conflict-affected areas combined with an increase in participation in associations would point to an overall improvement in social cohesion. Conversely, a decline in inter-group trust in conflict-affected areas combined with a rise in associational membership would reflect the development of bonding rather than bridging social capital.

The following section presents our data and the empirical strategy we use to

unravel the web of social capital and learn more about the impacts of armed conflict on social cohesion.

Figure 2.1: The Violence - Social Capital - Trust nexus



Sources: Authors' elaboration.

2.3 Data and methodology

2.3.1 Data presentation

Survey data

In this study, we use a unique database: repeated cross-section data from the Governance, Peace and Security (GPS-SHaSA) survey modules. The GPS-SHaSA modules were developed by the African Union Commission as part of a continent-wide initiative named the Strategy for the Harmonization of Statistics in Africa (SHaSA). The methodology for these household survey add-on modules is based on previous experience in African and Latin American countries (Razafindrakoto & Roubaud, 2018).

In Mali, the modules were grafted on to two different household support surveys conducted by the Malian National Statistics Office (NSO) using the same sampling methodology.¹⁰ The main survey is the EMOP. It was conducted in 2014, 2015 and 2016 in all Malian regions, excepting Kidal for all three rounds and Timbuktu

¹⁰Households are drawn from a traditional two-stage stratified sample (at regional and urban/rural levels based on the Malian censuses).

and Gao in 2014 for obvious security reasons. The complementary survey is the 2006 *Short-Form, Integrated Household Survey* (ELIM). This latter survey provides a highly reliable point of comparison with the EMOP data and forms a conflict-free benchmark.¹¹ Both support surveys include the usual sociodemographic questionnaires and are representative at national and regional level, but the very large available samples also allow for inference at *cercle* (hereafter, called district), *arrondissement* (hereafter, called sub-district) and commune levels.¹²

These add-on modules interview people over 18 years old living in Mali. A maximum of three adults per household were interviewed in 2014, 2015 and 2016,¹³ whereas all adults were interviewed in 2006. For the comparability of estimation, three adults were drawn at random from each household comprising four or more adults in the 2006 sample. The pooled sample from the three post-2012 surveys (2014, 2015 and 2016) provides a main sample of over 43,000 observations, while the 2006 survey database includes 11,670 adults. These modules ask questions about perceptions and experience of governance and insecurity at national and local level, and interpersonal trust and participation in associations.¹⁴ The following questions are of particular interest here:

- Participation in an association: “*Are you an office-bearer or a member of an association?*” The binary answer is given for the five following types of association: local, family, religious, professional and political. An aggregated measure of participation in at least one of these five associations is created.
- Trust: “*To what extent can most people be trusted?*” and “*To what extent do you trust: ... - your relatives? - your neighbours? - people from a different ethnic group/race than yours? - people with a different language/dialect than yours? - people with a different political affiliation than yours? - people with a different nationality than yours?*”. The potential answers are gradient from 1 (not at all) to 4 (very). For the purposes of interpretation, we aggregate the answers into a binary outcome. Both “*not at all*” and “*not much*” answers take the value of 0, while “*fairly*” and “*very much*” take the value of 1. It is also important to note

¹¹The 2006 Tuareg uprising was a minor bout of unrest occurring only in the Kidal region.

¹²Mali counts eight regions plus the capital Bamako (three regions are in the northern part of the country). Each region is divided in *cercles*, which correspond to districts. Sub-districts and communes are lower administrative level areas, and both correspond to a group of villages. Administrative divisions are mapped in appendix Figure 2.A1.

¹³If there are more than three adults in the sampled household, then three of them are drawn at random to be interviewed.

¹⁴In the pre-conflict sample (2006), information on participation is observed at household level only. Interpersonal trust was not measured in 2006.

that the groups or category of individuals considered for interpersonal trust do not fit exactly within the association types. For instance, trust in relatives is a proxy measure of intra-group trust. Yet, relatives include, here, all members of the extended family who are not necessarily members of inward-looking group embodied by family associations.

Descriptive statistics confirm the importance of participation in groups in Mali (reported in appendix Table 2.A1). In total, 50% of adults take part in at least one association. This corresponds to 70% of households with one or more members engaged in at least one association. Bamako, the capital, has the smallest participation rate. Local associations represent the majority of the population, with 35% of adults belonging to a local association (50% of households report at least one adult member in a local association in 2014 and after). These associations play a substantial role in the local provision of public goods and small infrastructures (Kuepie & Sougane, 2014). A total of 20% of adults are members of a family, professional or political association. Family associations play a financial support role for a group of related individuals. Their members can also rely on it for particular events (births, deaths, marriages, etc.). Religious associations account for the fewest citizens. In addition, 70% of adults say they trust most people. No clear variation can be identified in participation and trust levels over time at first glance. The analysis of how the conflict disrupted the apparently highly pro-social society is thus extremely relevant in Mali.

Conflict data

The conflict location and event inventory is taken from the ACLED project developed by Raleigh et al. (2010). ACLED is based on a census of all newspaper articles, press agency telegrams and non-governmental organisation briefs reporting conflict-related events in Mali since 1997. In addition to the geolocation of each event, the database provides general information on the groups involved, the reported number of fatalities (undifferentiated by which side they are on), the information source, and a brief summary of the event. We limit the event study to precisely located violent events covering all types of “battles”, “remote violence” and “violence against civilians” detailed by the ACLED typology.¹⁵ “Battles” represent two opposing armed groups and are distinguished by their outcomes as to a change

¹⁵Twenty events from 2012 to 2015 were dropped for reasons of imprecise location. Also excluded from the sample are conflict-related non-violent events (strategic troop movements and establishment of headquarters), and riots and protests related to political demands (mainly in Bamako).

or not in control of a location (no change, or if the non-state actors or government wins). “Remote violence” corresponds to one sided-violence and concerns mainly the use of bombing devices; the physical presence of the perpetrator is not required for this type of event. “Violence against civilians” represents one-sided events that directly target unarmed civilians.

ACLED recorded 529 events prior to 2016, Kidal excluded (758 including Kidal); 464 of these events occurred in 2012 or later.¹⁶ Figure 2.2a shows that all eight regions and Bamako have been affected by conflict-induced violence included southern regions: attacks even took place at the Ivoirian border, which is in the southernmost part of the country. Figure 2.2b highlights that the majority of the violent events were led by jihadist groups (half of the recorded violent events outside of Kidal region involved jihadist groups from 2012 to 2015) rather than Tuareg armed groups (16% of all violent events recorded in Mali, Kidal excluded).¹⁷ Figure 2.2b illustrates the evolution of the conflict. Violent events skyrocketed in 2012 with the re-emergence of rebel and jihadist activity. Following the French military intervention in 2013, field battles, violence against civilians and remote violence intensified. In 2014, following the Ouagadougou peace agreements and the deployment of the UN Multidimensional Integrated Stabilization Mission in Mali (MINUSMA), violence temporarily abated. However, despite the Algiers peace agreements, there was a fresh upsurge in violence in 2015.

All violent events are aggregated yearly at sub-district level and are merged with the survey data based on the surveyed adults’ administrative areas of residence. We use the sub-district level of aggregation rather than the commune level for two reasons. First, communes correspond to very small entities in Mali and geolocation is rarely perfect. The location of violent events at sub-district level makes exposure identification errors marginal. Second, there is substantial variance in commune size between the north and south of the country. The aggregation of events at sub-district level therefore makes for a more reliable comparison between north and south.¹⁸ We compute a dummy variable that denotes exposure to conflict-related violence. It takes the value of 1 if individual i lives in a sub-district where violent events took place in the calendar year before the survey.¹⁹ The focus on violent

¹⁶In total, 40 events were recorded from 2006 to 2011.

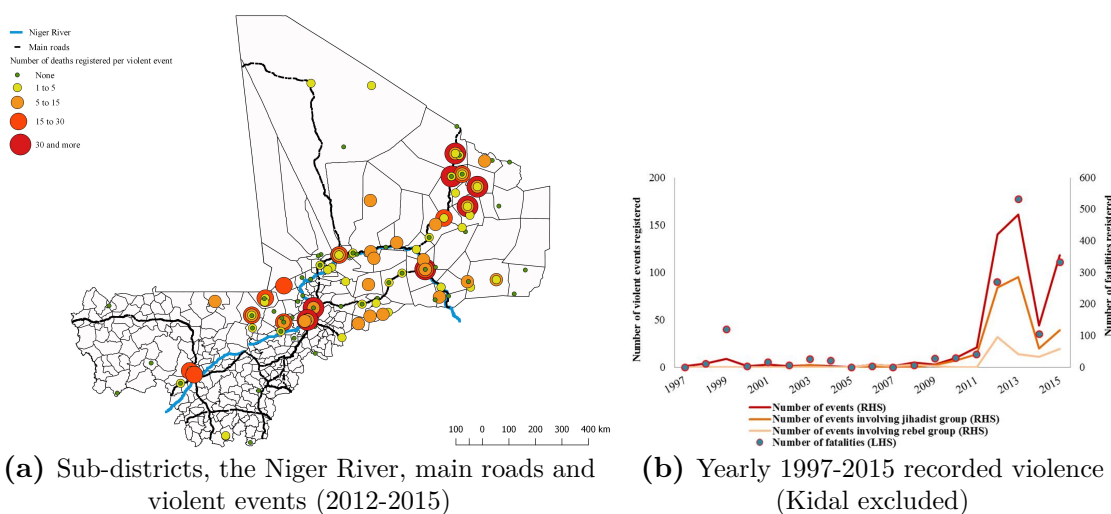
¹⁷The other events correspond mainly to other violent ethnic related militia rebellions.

¹⁸There are 49 districts, 302 sub-districts and 703 communes. Sub-district size is small enough to ensure analytical accuracy and reliability.

¹⁹GPS-SHaSA data are collected by the fourth round of EMOP from January to March or April of each year.

occurrences rather than on the number of events recorded or number of fatalities is driven by a number of considerations. As acknowledged by [Raleigh et al. \(2010\)](#), violent event intensity measured by the number of fatalities in each location is not reliable information. Where the media does not report a specific number of fatalities in a violent event, ACLED (like other event location databases) assigns default numbers. It is moreover easier to check the number of events than the number of deaths. Lastly, we intuitively assume that measurement errors are larger on the intensive margin than on the extensive margin.²⁰ Descriptive statistics presented in appendix Table 2.A1 show that, from 2014 to 2016, the population was exposed on average to less than one violent event per sub-district in the year prior to the survey (at least of the 200 sub-districts surveyed). The annual average number of violent events captured per sub-district between 2014 and 2016 did not exceed 1.7 events (in 2016 for 2006-2015 events). Depending on the survey round and the time window considered, from one-fifth to two-fifths of the sample are exposed to conflict-related violence.

Figure 2.2: Rebellion, terrorism and conflict-related events in Mali, 1997-2015



Note: Riots, demonstrations and imprecisely localized events are excluded from the figures.

Sources: ACLED, GADM, WorldMap. Authors' computations.

Obviously, the usual drawbacks associated with event location databases hold, but we are confident that they are mitigated here. Poor information source networks in the field could imply event under-reporting ([Pérouse de Montclos et al., 2016](#)). However, they do provide an unparalleled description of the occurrence and

²⁰We assume that violent events are more likely to escape the attention of information sources in already heavily exposed areas (where violent events become tragically mundane) than in more rarely exposed areas.

frequency of the main events.²¹ Furthermore, they apply at a much lower level in Mali than in other studied contexts. First, as the Malian conflict started recently, there are more information sources on the ground and they are of higher quality. The involvement of international forces (both from France and the international community) should enhance event reporting. Last but not least, Figures 2.B1 in the appendix shows that ACLED is globally consistent with the Malian conflict’s perceived reality, and vice versa. Citizens living in the most exposed districts are the most scared of the threat of armed conflict (districts shaded in black). Districts where individuals are the least frightened (vertical lines) are very marginally exposed areas.

2.3.2 Empirical strategy

To explore the impact of armed conflict on social capital, we estimate the following model:

$$Y_{i,sd,t} = \alpha + \beta EvOcc_{sd,(t-1)} + \gamma X_{i,sd,t} + \delta EthnFr_{sd,2009} + \eta D_d + \theta T_t + \epsilon_{i,sd,t} \quad (2.1)$$

where $Y_{i,sd,t}$, our dependent variable, denotes the social capital (or trust) of individual i in sub-district sd at time t . It is a dummy variable either denoting that individual i is a member of an association (or not) or that individual i is trustful (or not). $EvOcc_{sd,(t-1)}$ is our main variable of interest. It takes the value of 1 if one or more violent events were recorded in sub-district sd in year $t - 1$ and 0 otherwise. $X_{i,sd,t}$ is a vector of individual characteristics including gender, age group, level of education, link with the household head, marital status and area of residence (urban-rural). $EthnFr_{sd,2009}$ is a measure of ethnolinguistic fractionalisation at sub-district level. It tracks findings regarding the role of group homogeneity in participation Alesina & La Ferrara (2000). It corresponds to the conventional index of ethnolinguistic fractionalisation and is computed from the 2009 Malian census (RGPH). It measures the probability of two randomly selected people in a given area belonging to different ethnolinguistic groups.²² District dummies and year dummies, D_d and T_t respectively, are also included to control for local time-invariant and country time-variant unobservables. $\epsilon_{i,sd,t}$ is the error term. All estimations are robust and adjusted for clustering at year and sub-district levels. For ease of interpretation, we

²¹In Mali, the number of events recorded by ACLED from 2012 to 2015 is approximately five times higher than in the Uppsala Conflict Data Program due to more restrictive inclusion criteria (Croicu & Sundberg, 2015).

²²The ethnolinguistic fragmentation score is calculated as equal to 1 minus the Herfindahl index, based on the mother tongue.

estimate this model using a linear probability model (LPM).

One obvious concern is the possible endogeneity of our variable of interest: violent event occurrence. In our case, endogeneity has two potential origins: reverse causality and omitted variable bias. First, people could be targeted (or engage) in the conflict on the basis of their social preferences. Targeting the places where social cohesion is strongest might be an envisaged strategy, as a way for insurgents to both symbolically and quantitatively maximise the scope (via information) of their acts and disrupt the most tightly knit regions. The opposite could also hold true. Targeting the least cohesive places could be a way to fuel resentment between groups and conduct a “divide and rule” strategy. An examination of the Malian context and data leads us to argue that reverse causality is unlikely. The pre-conflict period sample shows that there are no significant differences in participation between the locations affected and unaffected ex-post by the conflict.²³ The pattern of violent events does not support a particular targeting strategy of populations, communities or ethnic groups.²⁴ Insurgents rather seem to follow the main routes crossing the country from north to south. By 2015, all the largest cities had suffered conflict-related violence, and all regions had experienced violent events (see Figure 2.2a).

Second, conflict may be determined by a third factor time-varying or not, which also influences social preferences and group membership. For instance, areas with easier access to markets or better economic performance could be more prone to conflict-related violence (Berman et al., 2017), as targeting is less costly, as well as it favours social interactions and group membership through impersonal exchange (Colletta & Cullen, 2000).

To deal with potential omitted variable biases we include district and year dummies in all estimations. We further alleviate this bias by including a large set of individual, district or sub-district-level controls in complementary estimations. Following Altonji et al. (2005) and Oster (2019) procedures, we also measure the minimum size of unobservables relative to observables required to explain away the effects of occurrence of violence on social capital.

To further mitigate potential endogeneity biases, we estimate instrumental variables (IV) and difference-in-differences (DiD). Both methods are complementary. IV addresses endogeneity biases but are subject to relative imprecision, especially

²³Estimates are reported in appendix Table 2.B2. Results hold for aggregated participation and participation in family, political, professional and local associations. Engagement in religious associations appears to be lower (at 10% significance level) in future exposed areas.

²⁴Event location and ethnolinguistic fragmentation is depicted in appendix Figure 2.B2.

when both endogenous and outcome variables are binary (Chiburis et al., 2012). We instrument the occurrence of violent events by an interaction between local historical tensions and precipitation. We discuss the IV identification strategy in sub-section 2.4.2. DiD addresses endogeneity biases with more accuracy. DiD controls for unobserved heterogeneity between the control group, inhabitants of never affected sub-districts, and the treatment group, individuals living in sub-districts exposed to conflict-related violence between 2006 and the year prior to the survey. It addresses the omitted variable biases, including potential spurious dynamic correlations as the specification includes time-varying region dummies. Nevertheless, different unit of observation of participation and absence of interpersonal trust measure in the 2006 sample limit its implementation.

Lastly, selection into migration is likely to bias the effects of violence if displaced individuals are systematically less or more pro-social. Constrained DiD estimations to non-migrants,²⁵ enable to rule out selection into migration.

2.4 Conflict and participation in associations

2.4.1 Baseline results

Table 2.1 reports the baseline results. To save space, the coefficients of the control variables are not reported. All control variables are intuitively signed and consistent with the existing literature on the determinants of participation in associations (Alesina & La Ferrara, 2000).²⁶ People living in rural areas and educated adults are more likely to be involved in associations. Ethnolinguistic fragmentation at sub-district level negatively, but non-significantly, influences membership in local associations. This result supports the findings reported by Alesina & La Ferrara (2000) regarding the role of group homogeneity in participation.

Results show a positive relationship between violent events and participation in Mali. Indeed, individuals exposed to violent events are 13 percentage points more likely to be a member of at least one association (column 1). These results are driven by participation in political associations (column 3). The likelihood of engaging in a political association increases by 10 percentage points in sub-districts exposed to violent events. In exposed areas, an individual’s probability of participating in a family association is almost 5 percentage points higher. Although the coefficient is not significant, it is close to the 10% threshold. Participation in professional (column 4) and local (column 5) associations increases non significantly. The coefficient

²⁵2015 is the only round of EMOP with available data on migration.

²⁶Benchmark results are presented in appendix Table 2.B1.

associated with exposure for participation in religious associations (column 6) is close to zero and is non-significant. This latter result is not surprising in a country where 95% of the population is Muslim (GPS-SHaSA). These results demonstrate a positive relationship of the conflict on participation in associations in Mali. However, they do not necessarily support the argument of a pro-social impact. In our typology, political and family associations are Olsonian, inward-looking organisations. Indeed, the most impacted associations, political associations, are depicted in the literature as driven by sectarianism and cronyism (Bouju, 2000; Roy, 2005). Family associations are also characterised by obvious kinship-based membership.

Table 2.1: Participation in associations and occurrence of violent events

	At least one association	Olsonian groups			Putnamesque groups	
		A family association	A political association	A professional association	A local association	A religious association
	(1)	(2)	(3)	(4)	(5)	(6)
Occurrence of violent events ($t - 1$)	0.129*** (0.0381)	0.0467 (0.0350)	0.101** (0.0391)	0.0264 (0.0319)	0.0324 (0.0335)	0.0109 (0.0238)
<i>Controls</i>	YES	YES	YES	YES	YES	YES
<i>District dummies</i>	YES	YES	YES	YES	YES	YES
<i>Year dummies</i>	YES	YES	YES	YES	YES	YES
Observations	42,967	42,967	42,992	42,995	42,993	42,993
Adjusted R^2	0.185	0.165	0.167	0.147	0.160	0.119

Note: Estimations are at individual level. Robust standard errors are in parentheses (adjusted for clustering at year and sub-district levels). All estimations include individual characteristics (gender, age group, level of education, relationship to household head and marital status), 2009 sub-district ethnolinguistic fragmentation and an urban-rural variable. Violent events are identified at sub-district level. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Sources: GPS-SHaSA modules, EMOP, RGPH, ACLED. INSTAT-Mali, DIAL-IRD, ACLED. Authors' calculations.

We test the sensitivity of our results in various ways. We use the number of events instead of the binary variable of occurrence. Estimations reported in appendix Table 2.B3 confirm the greater accuracy of using a binary variable. The right-skewed distribution of the number of events and outliers makes it hard to identify a scaled impact on participation. Replacing the count of events with a categorical variable confirms that outliers tend to drive downward the effects on participation at the intensive margin. The results of specifications including the number of violent events and their square are not robust to time window variations. Besides, the results remain robust to the use of alternative time windows for the occurrence of violence. The effects of violence on participation in associations appear to be marginally lower than the baseline estimates for the occurrence of violence measured since 2012 (column 5) and in the previous two years (column 6). Occurrence of violence increases the likelihood of association participation from 8 to 10 percentage points depending on the time window. This suggests that the effect of violence on

participation tends to decrease over time in rarely hit localities. The results are also robust to the exclusion of control variables. For further robustness checks, we use firstly participation in associations at household level as the dependent variable, and, secondly, aggregated violent events at commune level. Results remain very similar. Logit estimates remain very consistent (reported in appendix Table 2.B4). The results, reported in appendix Table 2.B5, are also consistent with the exclusion of northern Mali observations.

To test for an omitted variable bias, we add to the baseline estimations additional controls that might explain changes in participation. First, we introduce geo-climatic information starting with variables capturing climate variations. Indeed, climate shocks are among the most intuitive events that might directly affect participation and indirectly affect conflict through the channel of economic growth (Miguel et al., 2004; Hsiang et al., 2013). A standardised rainfall deviation from the past ten years of yearly-average precipitation (2005-2015 period) is calculated at district level using the Climate Research Unit dataset (version 3.24). A two-year lag is also included in the baseline estimation. We also include log-linear distance from sub-district centroids to primary roads as a proxy for market access. Second, we take advantage of the specific information contained in EMOP and particularly the GPS-SHaSA modules to include additional individual controls. We include per capita consumption quintiles, the individual level of fear due to the threat of terrorism and armed conflict, reported injury or illness in the past three months (available in the 2015 and 2016 questionnaires), stated local tensions in the previous year in the respondent's place of residence and stated access to the administration. Results are reported in appendix Table 2.A3. The results are highly consistent and robust regardless of the specification. Additional controls do not change the consistency of our previous estimations and confirm the rising effects of exposure to conflict-related violent events on participation in associations.

Following Altonji et al. (2005), we further mitigate the omitted variable bias by measuring the relative size of unobservables to observables necessary to explain away the effect of violence on participation. It consists in comparing coefficients of violence occurrence between baseline estimations with controls and baseline estimations without control (but with district dummies). The estimation with controls is limited to baseline specification.²⁷ Unobservables should be 3 times larger than observables

²⁷The ratio equals $\frac{\tilde{\beta}_{control}}{\hat{\beta}_{nocontrol} - \tilde{\beta}_{control}}$ where $\tilde{\beta}_{control}$ is the coefficient of violence occurrence in baseline estimation with controls and $\hat{\beta}_{nocontrol}$ is the same coefficient in the uncontrolled specification.

to explain away the effects of violence on participation in at least one association and in political associations. This result is confirmed by Oster (2019) improved procedure which takes into account the change of R-squared from estimations without control to estimations with controls.²⁸ Unobservables need to be 3 times larger than observables to explain away the effect of violence on participation in at least one association.²⁹ This ratio is estimated for a maximum R-squared corresponding to 1.3 times the baseline R-squared (as suggested in Oster, 2019). These results suggest that omitted variable bias is unlikely. Nevertheless, this result does not completely rule out endogeneity biases. The following sub-sections use two complementary estimation strategies (IV and DiD) to further address potential endogeneity biases. It also considers potential selection into migration.

2.4.2 Identifying a causal relationship

Instrumental variable estimations

Although we argue in sub-section 2.3.2 that there is no statistical evidence suggesting a problem of reverse causality, potential endogeneity issues cannot be ruled out definitively. To overcome such biases, we first conduct an instrumental variable estimation on participation in associations. We instrument the occurrence of violent events by an interaction between local historical tensions and precipitation. The reason behind the choice of this instrument is that climate variations are conducive to violence, especially in areas with structural tensions, revealed by past violence. In Mali, some areas are exposed to local tensions, mainly land disputes and ethnic opposition, which cause scattered violence (Leclerc-Olive, 2017). The use of an interacted instrument is inspired by Nunn & Qian (2014). To estimate the effect of United States (US) food aid on the incidence of conflict in recipient countries, they instrument US food aid by an interaction of lagged US wheat production with a country's propensity to receive US food aid. Similarly, our interacted instrument exploits both cross-sectional variation in historical tensions and time and cross-sectional variations in precipitation. The interacted instrument also strengthens the fit of our first stage.

To identify local historical tensions, we use ACLED data and compute a dummy variable denoting the occurrence of a violent event in the sub-district in a peaceful time (i.e. over the 1997-2005 period).³⁰ The precipitation variable is a standardised

²⁸We use Oster (2019) Stata command *psacalc* to estimate the ratio.

²⁹The size of unobservables needs to be the same as observables to explain away the effect of violence on participation in political associations.

³⁰1997-2005 events are mapped in appendix Figure 2.A2.

measure of the deviation of the previous year's rainfall from the past ten years (2005-2015) of annual average precipitation at district level. There is considerable evidence of the role of rainfall and weather variations in the onset of conflict (see, for instance, Couttenier & Soubeyran, 2015, for an overview; see also Miguel et al., 2004; Koubi et al., 2012; Harari & La Ferrara, 2018). The transmission channels of weather variations on violence can be twofold. First, through an opportunity cost mechanism, positive variations could deter from engaging in violent activities while living conditions improve, as suggested in Couttenier & Soubeyran (2014) and Harari & La Ferrara (2018). Second, on the contrary, through a rent-seeking behaviour, positive variations could also increase violence: the potential gains from winning violent confrontation increase, as it has been shown in the case of coca production in Columbia (Angrist & Kugler, 2008). This evidence does not relate exclusively to large rainfall deviations. It also concerns more marginal deviations, as reviewed in Hsiang et al. (2013).

There may be some concern that weather shocks and historical tensions might determine contemporary participation in groups. Should this be the case, the exclusion criterion would be violated. We argue that this is unlikely. Substantial weather shocks, including drought and floods, may have a direct effect on participation in associations, especially those playing an informal insurance role. However, such shocks are not observed over the 2012-2015 period, which presents between -2 and $+2$ standard deviations. For historical tensions, although occurrences of violence are found across all regions of Mali, they are rare and highly localised in time and space. These violent events are associated with neither jihadist nor Tuareg violence nor any potential ideological combat. They are due rather to criminal activity and local disputes. Moreover, not only is past violence rare, but it is not recurrent. Only two sub-districts were affected by violence more than once (twice in Bamako and three times in Gao) over eight years. It is therefore unlikely that past violence drove the creation of or participation in groups, including self-defence groups. The falsification tests reported in Table 2.2 confirm that neither past violent events (column 1 without district dummies, column 2 with district dummies) nor its interaction with 2005 standardised measure of rainfall deviation from 1995-2005 annual average precipitation at district level (column 2) do not significantly impact on participation in 2006. Lastly, we include district dummies to partly mitigate the risk that unobserved third factors may affect both past violence and current participation. For instance, villages exposed to violence in the past might be thought to have created

paramilitary groups, which the conflict is reforming today. This scenario is unlikely in the case of Mali. As explained previously, violence was rare and not recurrent from 1997 to 2005. Before the 2012 crisis, and especially prior to 2006, Mali was widely considered as a peaceful country and even presented as a regional model for its stability. The country presents no evidence of armed sleeper groups.

Table 2.2: Falsification tests and IV first-stage estimates

	Member of at least one association 2006 sample - Kidal excluded			Occurrence of violent events ($t - 1$)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Std. dev. of rainfall from the 2005-2015 average ($t - 1$)							
× No violent event recorded [1997;2005]				0.0210*	0.0210*	-0.170	
				(0.0121)	(0.0121)	(0.259)	
× Violent events recorded [1997;2005]				-0.322***	-0.322***	-1.849	-0.330***
				(0.102)	(0.102)	(1.316)	(0.105)
Occurrence of violent events [1997;2005]	-0.0244	0.0762					
	(0.0635)	(0.0553)					
Std. dev. of rainfall from the 1995-2005 average ($t - 1$)							
× No violent event recorded [1997;2005]							
× Violent events recorded [1997;2005]							
<i>Std. dev. of rainfall</i>	NO	NO	NO	NO	NO	NO	YES
<i>Occurrence of violent event</i> [1997;2005]	NO	NO	NO	NO	NO	NO	YES
<i>Controls</i>	YES	YES	YES	YES	YES	YES	YES
<i>Region dummies</i>	NO	NO	NO	NO	NO	YES	NO
<i>District dummies</i>	NO	YES	YES	YES	YES	NO	YES
<i>Year dummies</i>	NO	NO	NO	YES	YES	YES	YES
Method	OLS	OLS	OLS	2SLS	2SLS (LIML)	Biprobit (coefficients)	2SLS
Observations	11,444	11,444	11,444	42,967	42,967	42,967	42,967
Adjusted R^2	0.0211	0.0970	0.0961	0.805	0.805	N/A	0.805
Kleibergen-Paap F statistic	N/A	N/A	N/A	5.8	5.8	N/A	9.9
Hansen J p-value	N/A	N/A	N/A	0.54	0.54	N/A	N/A

Note: Estimations are at individual level. Robust standard errors are in parentheses (adjusted for clustering at year and sub-district levels). All estimations include individual characteristics (gender, age group, level of education, relationship to household head and marital status), 2009 sub-district ethnolinguistic fragmentation and an urban-rural variable. Violent events are identified at sub-district level. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Sources: GPS-SHaSA modules, EMOP, ELIM, RGP, ACLED. INSTAT-Mali, DIAL-IRD, ACLED. Authors' calculations.

The first-stage IV estimates are reported in Table 2.2. The relatively low F-statistic suggesting a weak instrument bias. Nevertheless, the implementation of just-identified IV estimation by additionally including the variables of rainfall deviation and occurrence of violent events during the 1997-2005 period in the first- and second-stage estimations also confirms the relative strength of the estimation. Indeed, as estimates remain highly consistent, the Kleibergen-Paap F-statistic reaches the traditional threshold of 10 (column 7). Furthermore, a comparison of the Kleibergen-Paap F-statistic with the usual thresholds (Stock & Yogo, 2005) does not apply here, as estimations are adjusted for clustering (Rohner et al., 2013).

Positive rainfall deviations are likely to decrease exposure to conflict-related violent events in areas historically tensed, and rather increase otherwise. The latter effect is small and significant only at 10%. These results can be interpreted in the

lights of the economic literature on the causes of civil war. The opportunity cost channel may prevail in areas affected by past violence in Mali. A rent-seeking behaviour could be at stake in Malian undisputed localities. Indeed, potentially higher rewards due to positive rainfall deviations may explain the greater likelihood of the occurrence of violence.

Table 2.3: Participation in associations and occurrence of violent events (Reduced form and IV second-stage)

	Member of at least one association				
	(1)	(2)	(3)	(4)	(5)
Occurrence of violent events ($t - 1$)		0.356** (0.168)	0.356** (0.168)	0.228*** (0.0690)	0.340* (0.178)
Std. dev. of rainfall from the 2005-2015 average ($t - 1$)					
× No violent event recorded [1997; 2005]	0.0150 (0.0131)				
× Violent events recorded [1997; 2005]	-0.107** (0.0430)				
Anderson-Rubin 95% confidence interval	N/A	[0.0113, 0.701]	[0.0110, 0.701]	N/A	[0.0312, 0.649]
<i>Std. dev. of rainfall</i>	NO	NO	NO	NO	YES
<i>Occurrence of violent events</i> [1997; 2005]	NO	NO	NO	NO	YES
<i>Controls</i>	YES	YES	YES	YES	YES
<i>District dummies</i>	YES	YES	YES	YES	YES
<i>Year dummies</i>	YES	YES	YES	YES	YES
Method	OLS	2SLS	2SLS (LIML)	Biprobit (marg. eff.)	2SLS
Observations	42,967	42,967	42,967	42,967	42,967
Adjusted R^2	0.183	0.177	0.177	N/A	0.178

Note: Estimations are at individual level. Robust standard errors are in parentheses (adjusted for clustering at year and sub-district levels). All estimations include individual characteristics (gender, age group, level of education, relationship to household head and marital status), 2009 sub-district ethnolinguistic fragmentation and an urban-rural variable. Violent events are identified at sub-district level. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Sources: GPS-SHaSA modules, EMOP, RGPH, ACLED. INSTAT-Mali, DIAL-IRD, ACLED. Authors' calculations.

The reduced form and second-stage IV estimates are reported in Table 2.3. The reduced form (column 1) confirms the expected effect of the instrument on participation. Increased rainfall negatively affects participation in areas previously exposed to violent events. The second-stage IV estimation consistently shows a positive effect of conflict on participation in associations. As expected, the precision of the impact of the occurrence-of-violence coefficient on association participation is weaker than in the baseline estimation. This difference of magnitude is due to the relatively lower precision of two-stage least squares (2SLS) when both outcome variable and endogenous variable are binary, as described in Chiburis et al. (2012). We use the limited information maximum likelihood (LIML) estimator (column 3) to further mitigate the estimation biases due to potentially weak instruments (Angrist & Pischke, 2009). The results remain highly consistent with the previous estimates. In addition, corrected confidence intervals for weak-instrument robust inference based on Anderson & Rubin (1949) test confirm the direction and the significance of the

effect of occurrence of violent events. Bivariate probit estimates, relatively more precise alternative to the 2SLS estimation method (Chiburis et al., 2012), remain very robust (column 4). As the latter estimation method is based on more restrictive hypotheses, district dummies need to be substituted by region dummies in the first-stage estimation.³¹ As reported in appendix Table 2.A4, IV estimates confirm that participation is mainly, if not exclusively, driven by participation in inward-looking groups.

Difference-in-differences estimations

We round out the IV estimation methods with a DiD estimation method applied to repeated cross-section data (Wooldridge, 2009). IV estimates provide unbiased estimates under certain restrictions. Aside from the difficulty of finding a satisfactory instrumental variable, IV estimates in our case are less precise due to the fact that our outcome and endogenous variables are both binary (Chiburis et al., 2012). DiD estimates are usually more accurate and able to rule out potential reverse causality bias and mitigates the risk of unobserved heterogeneity between the control group and treatment group for all association types. The pooled ELIM 2006 sample is identified as the pre-treatment period, while the GPS-SHaSA samples are used as the post-treatment period. As mentioned above, participation data is measured at household level in 2006. To ensure that harmonised, consistent scales are used for the analysis, we assume that all adult household members in the post-2012 samples were asked about their involvement in associations.³² Hereafter, we use a binary dependent variable taking the value of 1 if an adult belongs to a household in which at least one member is part of an association and 0 otherwise.³³ The treatment is the occurrence of violent events at sub-district level from 2006 to 2015.³⁴ Treated adults are those who live in a sub-district affected by one or more violent events since 2006, while the control group includes adults living in sub-districts that were never affected by violent events in the same time period. Formally, the DiD estimation

³¹The results remain consistent with the district dummies, but the first-stage equation is likely to be misspecified.

³²This could be problematic for households comprising four or more adults. However, this is a minor approximation, as it affects less than 5% of the adults in our post-conflict pooled sample. Sensitivity checks and the correlation between household and individual measures (from 0.7 to 0.8) confirm the absence of bias due to such measurement errors.

³³Group membership of one household member impacts the rest of the household members (Jackson et al., 2012).

³⁴Since 92% of the violent events recorded from 2006 to 2015 took place and were the most intense in 2012 and after, the effects of being exposed to violent events are attributed to the 2012 conflict.

method can be modelled as follows:

$$\begin{aligned}
Y_{i,sd,t} = & \alpha + \beta EvOcc_{sd,[2006;(t-1)]} + \lambda Post2012_t \\
& + \mu(EvOcc_{sd,[2006;(t-1)]} \times Post2012_t) \\
& + \gamma X_{i,sd,t} + \delta EthnFr_{sd,2009} + \eta D_d + \theta T_t + \pi R_{r,2006} + \rho R_{r,Post2012} + \epsilon_{i,sd,t}
\end{aligned} \tag{2.2}$$

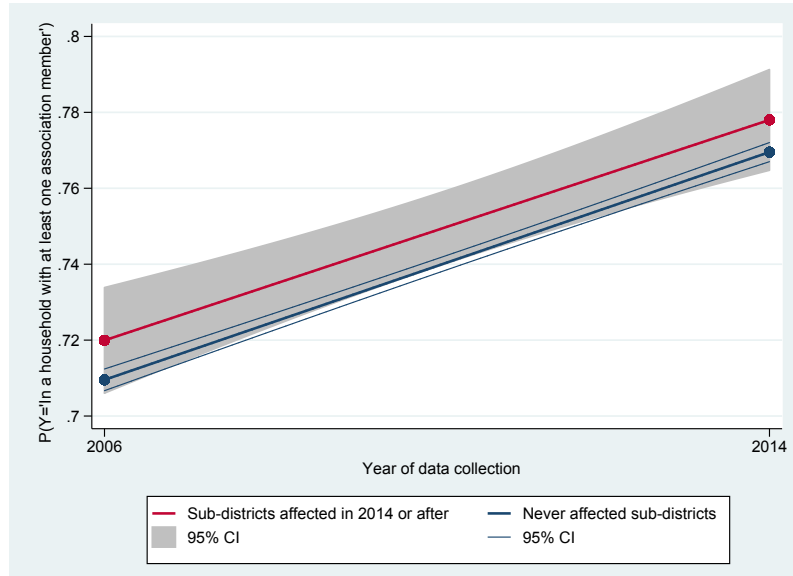
where $EvOcc_{sd,[2006;(t-1)]}$ is a binary variable taking the value of 1 if one or more violent events were recorded in sub-district sd from 2006 to the year before the survey and 0 otherwise. This variable corresponds to the difference in participation between the control and treatment groups during the pre-treatment period (2006). $Post2012_t$ differentiates between pre-treatment and post-treatment observations. The variable of interest is the interaction between these latter two variables, as it captures the actual impact of exposure to conflict-related violence on participation in groups. In addition to the same controls as those used in the baseline estimations, we include pre- and post-treatment regional dummies to capture for regional structural changes between the two periods. This interaction addresses the potential dynamic omitted variable bias by capturing the most radical changes in infrastructures across regions over time. Robust standard errors are adjusted for clustering at sub-district level.

The DiD estimation rests upon a strict common trend assumption. Under this assumption, the likelihood of living in a household with an association member in exposed (treatment group) or non-exposed (control group) sub-districts would follow a parallel trend if the conflict were not observed, which is a very strong assumption that cannot be tested. Nonetheless, as presented in Figure 2.2a, the very great extent to which the conflict affects the Malian territory reduces the concerns of local heterogeneity in participation between control and treatment groups and supports the parallel trend assumption. To further check the relevance of this assumption, the best available option is to reconsider the treatment period from 2014 onwards, as if violent events had only been observed since 2014. We thus use a sub-sample to compare participation for the 2006-2014 period in sub-districts not affected since 2006 with sub-districts affected solely from 2014 onwards. Figure 2.3 reports the estimated fitted values of the likelihood of an individual living in a household with at least one association member (regardless of type) between unaffected and affected sub-districts in 2014 and after. The results argue strongly in favour of the existence of a parallel trend.³⁵ Placebo tests with randomly assigned treatment

³⁵See the estimates reported in appendix Table 2.A5. The trend estimates support the assumption of a common trend for all types of association. The inclusion of individuals exposed to violence

status and randomly assigned outcome variables further support the parallel trend assumption.³⁶

Figure 2.3: Participation trends



Sources: GPS-SHaSA modules, EMOP 2014, ELIM 2006, ACLED. INSTAT-Mali, DIAL-IRD, ACLED. Authors' computations.

The results of the DiD estimations are presented in Table 2.4. Overall, participation increased by 8 percentage points from 2006 to the conflict period regardless of treatment status (coefficients of the post-2012 dummy variable). The general trend in participation from 2006 to the post-conflict period highlights a shift in participation from family and religious associations (columns 2 and 6) to local and professional associations (columns 3 and 5). Participation does not differ significantly in 2006 between the control and treatment groups (coefficients of the occurrence variable), further mitigating reverse causation. The sub-districts exposed to violence since 2006 do not present higher participation. As for the effects of conflict-related violent events (coefficient of interaction), the results remain very robust to the previous estimation methods. Being exposed to conflict-related violence increases the likelihood of participation in associations even if the coefficients are not significant (column 1). This upward trend in participation in exposed areas is driven by the significant positive impact on membership in family and political associations, which is consistent with our previous estimates. Indeed, being exposed to conflict increases participation by respectively 14 and 11 percentage points. Participation in local,

since 1997 does not change the estimation results.

³⁶A summary of the results are reported in appendix Table 2.B6.

professional and religious associations is not significantly affected by the occurrence of violent events in Mali.

DiD estimates confirm our main findings: conflict-related violent events increase participation in associations, but these results are driven by increased participation in inward-looking associations (family and political groups).

Table 2.4: Participation in associations and occurrence of violent events (DiD)

	<i>Olsonian groups</i>				<i>Putnamesque groups</i>	
	At least one association	A family association	A political association	A professional association	A local association	A religious association
	(1)	(2)	(3)	(4)	(5)	(6)
Post-2012 dummy	0.0795* (0.0437)	-0.106*** (0.0398)	-0.00885 (0.0358)	0.105*** (0.0339)	0.203*** (0.0605)	-0.169*** (0.0385)
Occurrence of violent events [2006; $t - 1$]	-0.00848 (0.0503)	-0.0875 (0.0596)	-0.0203 (0.0396)	0.0292 (0.0401)	-0.0242 (0.0451)	-0.0218 (0.0296)
Post-2012 \times Occurrence	0.0770 (0.0583)	0.140* (0.0742)	0.116*** (0.0424)	0.0352 (0.0410)	0.0535 (0.0555)	0.0309 (0.0337)
<i>Controls</i>	YES	YES	YES	YES	YES	YES
<i>District dummies</i>	YES	YES	YES	YES	YES	YES
<i>Year dummies</i>	YES	YES	YES	YES	YES	YES
<i>Region \times Post-2012 dummies</i>	YES	YES	YES	YES	YES	YES
Observations	54,878	54,860	54,883	54,888	54,891	54,892
Adjusted R^2	0.129	0.120	0.138	0.140	0.169	0.0852

Note: Estimations are at individual level. Robust standard errors are in parentheses (adjusted for clustering at sub-district level). All estimations include individual characteristics (gender, age group, level of education, relationship to household head and marital status), 2009 sub-district ethnolinguistic fragmentation and an urban-rural variable. Violent events are identified at sub-district level. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Sources: GPS-SHaSA modules, EMOP, ELIM, RGP, ACLED. INSTAT-Mali, DIAL-IRD, ACLED. Authors' calculations.

Selection into migration

Selection into migration is a source of concern in studies on the micro-effects of conflicts. In Mali, the crisis forced almost 400,000 people to flee from their hometowns, particularly from the Timbuktu and Gao regions, to neighbouring regions or countries in 2012 and 2013 (IOM, 2014b). The majority of those who fled violence and lived in refugee camps abroad (Burkina Faso, Mauritania and Niger) did not come back and so cannot be taken into account by the available data, which is a source of limitation for the present findings. Nonetheless, the majority of the displaced population (61%) moved to neighbouring Malian areas, mainly to Bamako and the Mopti and Segou regions. Internally displaced persons (IDPs) also moved within the north (representing more than 30% of IDPs). A substantial share of IDPs spontaneously returned to their place of origin before the 2013 presidential elections (UNHCR, 2014). By the end of 2014, approximately 80% of IDPs had returned to their hometowns (IOM, 2014a). Still, more than 50,000 IDPs were recorded in 2016 (UNHCR, 2016). Those displaced individuals could bias our results if their social

characteristics were found to differ from the rest of the population. If displaced adults are less pro-social, as documented by Gilligan et al. (2014) in the case of the Nepalese civil war, our results would be overestimated. Less pro-social individuals would then lower the actual levels of participation in groups in non-exposed areas. Conversely, IDPs could conceivably be more pro-social, resulting in the underestimation of impacts, or as social as others.

We have data on migration for 2015. They show that migrants are younger and more educated. These two characteristics have opposite effects on the probability of participating in an association. It is thus unclear how migrants would bias our results. To control for selection into migration, we exclude from the 2015 sample all adults who migrated in the past ten years (almost 2,000 observations) and recalibrate the participation measure. The characteristics of the adults interviewed in 2006 should not differ from those interviewed in 2015. The results of the unconstrained (panel A) and constrained (migrants excluded, panel B) DiD estimations are presented in appendix Table 2.A6. The results are consistent with the baseline estimation and rule out selection into migration.

2.5 Going further: Are strong ties favoured?

2.5.1 Participation in fragmented areas

If being exposed to violent events robustly implies an increase in participation in associations, this concerns primarily family and political associations. Family associations concern only kinship-based related adults, while political associations are described in the literature as a necessary tool for satisfying particular groups' interests in Mali (Roy, 2005). The latter's cronyism practices in favouring in-groups are documented, as in Roy (2010). Other types of associational membership seem to be affected more heterogeneously by the conflict. Participation in more heterogeneously-composed associations is impacted at much lower levels and non-significantly, compared with participation in family or political associations. This is particularly the case with local development associations, which account for the highest number of members in Mali. Local associations are central to local development, replacing weak or absent institutions to provide public goods such as health and education infrastructures. Their intrinsic role implies a certain representativeness of the different groups' interests. These results hence suggest that kinship-based interactions are favoured in the case of exposure to violent events, perhaps at the expense of bridging ties via an exclusion process. Therefore, our results tend to indicate that only bonding social capital, via inward-looking organisations, has increased.

The available data do not enable us to directly identify adults' withdrawal within their own groups in conflict-affected areas. For instance, we are not able to observe the associations' compositions. However, we are able to further investigate this hypothesis by studying associational membership in highly heterogeneous localities versus more homogeneous localities. In Mali, some associations, particularly local associations, have to take into account the concerns of all groups living in the same area to serve the general interest. As they need to achieve some local representativeness, local associations ought to be somewhat heterogeneously composed in fragmented areas. If bridging ties are actually deteriorating in Mali, participation in local associations would be negatively affected by violence in the most fragmented areas. Simultaneously, participation would increase in associations based on kinship ties. To differentiate homogeneous and heterogeneous areas, we use an ethnolinguistic fractionalisation index at sub-district level as mentioned in sub-section 2.3.1.³⁷ DiD is implemented separately for the homogeneous and heterogeneous sub-samples using a threshold of 0.4 (ethnolinguistic fragmentation mean and median in Mali).

Table 2.5: Participation and occurrence of violent events in fragmented areas

	<i>Olsonian groups</i>				<i>Putnamesque groups</i>	
	At least one association	A family association	A political association	A professional association	A local association	A religious association
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Panel A: Homogeneous sub-districts (EthnFrag ≤ 0.4)</i>						
Post-2012 × Occurrence	0.0354 (0.0649)	0.0139 (0.0835)	0.0954* (0.0532)	0.0663 (0.0675)	0.173** (0.0737)	0.0595 (0.0478)
Observations	22,442	22,439	22,440	22,440	22,440	22,440
Adjusted R^2	0.140	0.122	0.129	0.130	0.146	0.103
<i>Panel B: Fragmented sub-districts (EthnFrag > 0.4)</i>						
Post-2012 × Occurrence	0.00739 (0.0561)	0.0962 (0.0590)	0.120* (0.0605)	-0.0201 (0.0487)	-0.0771 (0.0585)	0.0300 (0.0488)
Observations	32,436	32,421	32,443	32,448	32,451	32,452
Adjusted R^2	0.143	0.152	0.155	0.172	0.195	0.0851

Note: See Table 2.4.

Sources: GPS-SHaSA modules, EMOP, ELIM, RGPH, ACLED. INSTAT-Mali, DIAL-IRD, ACLED. Authors' calculations.

The results are presented in Table 2.5. Although both sub-samples confirm the increase in participation in political associations due to exposure to violent events (column 3), they also highlight a heterogeneous impact on participation in family

³⁷We assume that migration after 2012 did not affect overall fragmentation per area, at least up to the end of our study period. The Malian conflict does not at all present an ethnic cleansing dimension, at least in the period of interest, and should not have impacted on ethnic composition.

and local associations (columns 2 and 5). In relatively homogeneous areas (panel A), participation choices are not influenced by the types of interactions they imply, as associations are homogeneously-composed. Violence impacts mostly participation in local and political associations, whereas the effect for family associations is very close to zero and not significant. When exposed to violent events, the likelihood of participation in a local association increases by 17 percentage points in homogeneous areas. Estimates for participation in professional and religious associations (columns 4 and 6) are positive, but not significant. In more fragmented areas (panel B), the results corroborate the “strengthening of bonding ties” interpretation. Indeed, participation in inward-looking and outward looking associations is impacted oppositely by the occurrence of violent events. Even though the results are insufficiently significant (but close to the 10% threshold), violent events positively affect participation in family associations and negatively affect participation in local associations. In accordance with the conceptual framework, impacts are differentiated by type of association (inward-looking or outward-looking associations). Associations based on weak ties appear to suffer from the occurrence of violent events, while the opposite holds true for those based on kinship or shared affinities, particularly family and political associations. In exposed areas, participation to the latter associations increase by 12 percentage points. The results of the sub-sample estimations thus confirm the strengthening of bonding ties through the empowerment of same-group interest associations. Associations that include individuals from out-groups appear to attract progressively fewer individuals. The impact of conflict on social engagement appears to foster withdrawal into one’s own group rather than increased solidarity between Malians. The study of the impact of conflict-related violence on interpersonal trust is discussed in the next section and supports this interpretation.

2.5.2 Effects of conflict on interpersonal trust

Further interpretation of the impacts of conflict on participation calls for the mechanisms at stake to be understood. Given the assumed link between participation in groups and interpersonal trust (Sønderskov, 2011; Paxton & Ressler, 2017), we look into the effects of violent events on interpersonal trust. Consistently, based on the available data, individual participation in associations is positively correlated with trust in out-groups. Thus, if trust increased in affected areas, the parallel increase in participation could represent an actual improvement in social capital, which would facilitate post-war convergence with unaffected areas. Conversely, a decline in out-group trust might indicate the development of self-centred exclusive

groups. The increased participation due to exposure to violent events in Mali could be then identified as a form of withdrawal rather than pro-social behaviour. Information on interpersonal trust is only available in the post-2012 samples. We keep as the dependent variable the probability of an adult trusting in a specified group. This variable takes the value of 1 when an adult trusts (“*Somewhat*” or “*Completely*”) and 0 when the adult does not (“*Not at all*” or “*Not really*”).

Table 2.6 presents the LPM baseline estimations.³⁸ The occurrence of violence tends to significantly lower generalised trust by 11 percentage points (column 1). The results are particularly significant for trust in those with a different political opinion or a different nationality. Being affected by conflict increases distrust in the latter out-groups by 6 to 7 percentage points. Although the results for trust in other groups are not significant, they still make for interesting trends. While the coefficients for trust in out-groups, namely other ethnic groups and other linguistic groups, are negative (columns 4 and 5), the coefficient related to neighbours is positive and close to zero. Trust in relatives (column 2) is marginally, but negatively related to violence. This latter negative result could cast doubt on the hypothesis of the strengthening of kinship-based ties. However, considering the Malian reality, this result has to be qualified. First, trust in relatives is a measure which refers globally to members of the extended family. Some of them can be excluded from family associations, which gather a narrow circle of persons (the close relatives) to whom individuals fall back in their withdrawal strategy. Second, the level of trust in relatives is very high in Mali, as 95% of Malians trust their family members: a marginal decrease leaves trust in family members quite high.

Table 2.6: Interpersonal trust and occurrence of violent events

	Generalised trust	Trust in:					
		Relatives	Neighbours	Other ethnic group	Other linguistic group	Different pol. opinion	Other nationality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Occurrence of violent events ($t - 1$)	-0.111*** (0.0360)	-0.0227** (0.00982)	0.0190 (0.0235)	-0.0396 (0.0305)	-0.0333 (0.0306)	-0.0720** (0.0326)	-0.0625* (0.0339)
<i>Controls</i>	YES	YES	YES	YES	YES	YES	YES
<i>District dummies</i>	YES	YES	YES	YES	YES	YES	YES
<i>Year dummies</i>	YES	YES	YES	YES	YES	YES	YES
Observations	42,936	42,814	42,987	42,996	42,995	42,995	42,966
Adjusted R^2	0.105	0.0744	0.0741	0.116	0.117	0.120	0.132

Note: Estimations are at individual level. Robust standard errors are in parentheses (adjusted for clustering at year and sub-district levels). All estimations include individual characteristics (gender, age group, level of education, relationship to household head and marital status), 2009 sub-district ethnolinguistic fragmentation and an urban-rural variable. Violent events are identified at sub-district level. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Sources: GPS-SHaSA modules, EMOP, RGPH, ACLED. INSTAT-Mali, DIAL-IRD, ACLED. Authors’ calculations.

³⁸Alternative specifications were estimated. The results, reported in appendix Table 2.B7, remain very consistent.

We take advantage of the ordered response options offered by the interpersonal trust questions to delve deeper into the potential effects of the occurrence of violence on trust levels. Instead of using a simple positive/negative dependent binary variable, we use each response option against the other options as the dependent binary variable. For each type of trust question, we use four different dependent variables, which take the value of 1 if corresponding to the option of interest and 0 for any other response option. The estimates reported in Table 2.7 confirm the signs of the effects of violent events on interpersonal trust in Mali. The low significance levels of the previous estimates can be explained by the almost null impact of conflict on extreme answers. Adults are not significantly more likely to be “*not at all*” or “*very*” trusting (line 1 and 4) in exposed sub-districts. By contrast, those who are more balanced display greater sensitivity to the occurrence of violence. The detailed estimations confirm the lower generalised trust as well as trust in persons with different political opinions and trust in foreigners (respectively columns 1, 6 and 7). Trust in family members (column 2) seems not as negatively affected as in baseline estimates when looking at the details. Although citizens trust less “*somewhat*” in their own family members, they trust more “*very*” much. The impact on negative levels of trust remains very close to zero when it comes to family members. Trust in neighbours (column 3) seems also to be very marginally affected by violence, as none of the options are affected significantly. In addition, the results support the negative effect of the Malian conflict on trust in other ethnic groups (column 4) and to a lesser extent trust in other linguistic groups (column 5). Indeed, although the least and most trustful individuals do not appear to be affected by violence occurrence, exposed adults are more likely to “*not really*” trust other ethnic groups by 5 percentage points, significantly at 10%. At the same time, the likelihood of trusting “*somewhat*” also decreases. Distrust in those with a different political opinion is particularly and negatively affected by the occurrence of violence confirming the impact on association membership. These results support the weakening of bridging ties and withdrawal into one’s own group. Trust in closely-related people is affected to a very marginal extent by conflict occurrence, which differs from trust in out-groups.

As with the regressions on participation in associations, there is a risk of endogeneity bias from omitted variables and reverse causality. First, omitted variable bias is partly addressed by the implementation of the baseline estimation with additional controls. The results are presented in appendix Table 2.B8. The decline in generalised trust remains consistent across the estimations. In addition, we follow

Table 2.7: Detailed level of interpersonal trust and occurrence of violent events

Dependent variable: Level of trust	Generalised trust	Trust in:					
		Relatives	Neighbours	Other ethnic group	Other linguistic group	Different pol. opinion	Other nationality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Variable of interest: Occurrence of violent events ($t - 1$)</i>							
Not at all	0.0272* (0.0143)	0.00351* (0.00180)	-0.00288 (0.00785)	-0.0111 (0.0112)	-0.00232 (0.0118)	-0.00597 (0.0149)	0.0242 (0.0249)
Not really	0.0843*** (0.0281)	0.0192** (0.00956)	-0.0161 (0.0218)	0.0508* (0.0273)	0.0357 (0.0280)	0.0779** (0.0325)	0.0384 (0.0304)
Somewhat	-0.122*** (0.0339)	-0.0655 (0.0404)	0.0342 (0.0311)	-0.0305 (0.0285)	-0.0251 (0.0304)	-0.0594** (0.0287)	-0.0497* (0.0268)
Very	0.0107 (0.0315)	0.0428 (0.0409)	-0.0152 (0.0391)	-0.00910 (0.0265)	-0.00826 (0.0247)	-0.0126 (0.0251)	-0.0128 (0.0215)

Note: See Table 2.6.

Sources: GPS-SHaSA modules, EMOP, RGPB, ACLED. INSTAT-Mali, DIAL-IRD, ACLED. Authors' calculations.

Altonji et al. (2005) procedure to measure the relative size of unobservables to observables to explain away the effect of occurrence of violent events on interpersonal trust. According to the different measures of trust, unobservables should be from 1 to 13 times larger than observables to null the effect of violence.³⁹ These results suggest that omitted variable bias is unlikely. Second, as argued in sub-section 2.3.2, we cast doubt on reverse causality bias when it comes to interpersonal trust. Comparing trust between areas never affected and those only affected from 2014 (or 2015) onwards mitigates the risk of reverse causation, as no differences can be significantly identified ex-ante. To further address the issue, we apply the IV estimation method using the same instrument as in regressions on participation. The results for bivariate probit second-stage estimations are reported in appendix Table 2.A7. They are consistent with baseline estimates: generalised trust and trust in out-groups decrease in areas exposed to violent events. The results are highly significant for generalised trust and significant at 10% for trust in persons with different political opinions and trust in foreigners. Trust in neighbours is positively but non-significantly affected by violence occurrence while trust in relatives decreases but the effect is now significant at 10%. Overall, these results should be considered with caution, they remain relatively imprecise for the same reasons as for the IV estimations for participation in associations.

The argument of withdrawal into one's own group is additionally documented by the differentiation of fragmented areas from homogeneous areas. The results reported in Table 2.8 are, again, compelling. Generalised trust (column 1) in ho-

³⁹Following Oster (2019) procedure, unobservables should represent twice the size of observables for generalized trust and trust in relatives, at least the same size as observables for trust in persons with different political opinions, and half the size of observables for trust in foreigners to explain away the effect of violence.

Table 2.8: Interpersonal trust and occurrence of violent events in fragmented areas

	Generalised trust	Trust in:					
		Relatives	Neighbours	Other ethnic group	Other linguistic group	Different pol. opinion	Other nationality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Panel A: Homogeneous sub-districts (EthnFrag ≤ 0.4)</i>							
Occurrence of violent events ($t - 1$)	-0.0191 (0.0631)	0.0239 (0.0228)	0.0271 (0.0389)	-0.00799 (0.0594)	-0.0414 (0.0586)	0.0471 (0.0642)	-0.00504 (0.0698)
Observations	17,078	17,037	17,094	17,097	17,095	17,096	17,094
Adjusted R^2	0.109	0.131	0.0851	0.127	0.130	0.131	0.133
<i>Panel B: Fragmented sub-districts (EthnFrag > 0.4)</i>							
Occurrence of violent events($t - 1$)	-0.111*** (0.0396)	-0.00670 (0.00761)	0.0304 (0.0279)	-0.0413 (0.0364)	-0.0330 (0.0362)	-0.0928** (0.0370)	-0.0604 (0.0403)
Observations	25,858	25,777	25,893	25,899	25,900	25,899	25,872
Adjusted R^2	0.111	0.0253	0.0716	0.119	0.120	0.125	0.139

Note: See Table 2.6.

Sources: GPS-SHaSA modules, EMOP, RGPH, ACLED. INSTAT-Mali, DIAL-IRD, ACLED. Authors' calculations.

mogeneous areas (panel A) is not affected by the occurrence of violent events. The coefficient is very close to zero. The same holds for trust in closely- and weakly-related individuals. Trust in people with a different political opinion (column 6) even suggests a positive effect. However, in relatively fragmented areas (panel B), the likelihood of trusting most people decreases significantly by 11 percentage points when the adult has been exposed to violent events. In these heterogeneous areas, trust in relatives (column 2) remains constant, while people are more trusting of their neighbours (column 3). The negative impact of conflict-induced violence on trust in out-groups is confirmed, particularly for trust in people with a different political opinion (column 6). These latter results robustly support the exclusion process interpretation. They feed into the intuition suggested by an increase in participation mainly in family associations and political associations. Trust in distant people with whom individuals more probably share weak ties declines, while trust in close individuals remains at a very high level and potentially increases. This evidence suggests withdrawal into one's own group at the expense of out-groups in Mali. The decline in trust in those with different political opinions in exposed areas further supports the large increase in participation in political associations. Politically-related issues logically appear as an additional substantial breaking point in a crisis that is primarily based on competing political agendas. In conflict-affected areas, increased participation in associations not only reflects coping strategies, but is also the expression of a broader divide between groups. This latter phenomenon is likely to foster sectarianism.

2.6 Conclusion

Long-lasting resentment among northern Malian citizens and relative government withdrawal from the north triggered the 2012 outbreak of an armed conflict that spread throughout the entire country. This paper analyses the conflict's repercussions on social capital using first-hand, original and high-quality survey data merged with event location data. Participation increased by 7 to 14 percentage points in conflict-affected areas, overall. This result is robust to supplementary estimation methods: IV and DiD estimates. Selection into migration bias is also mitigated. A *prima facie* analysis of these results appears to yield a positive interpretation of the conflict's effects on social capital in the case of Mali. Social capital would thus appear to be a logical driver (at least partly) of the post-war long-term recovery of the most affected areas, as documented in the empirical literature.

Further analyses suggest rather the opposite interpretation in Mali. This increased participation is driven by a substantially higher involvement of adults in family and political associations. Family association membership is based on deepened kinship-based ties and Malian political associations are largely characterised by cronyism and simply serve as a springboard to reach the political sphere itself. Furthermore, the positive effect of violence on participation in ethnically heterogeneous areas is observed only for associations where membership is based on kinship. In contrast, participation in heterogeneously-composed associations decreases in fragmented areas affected by violent events. This is the case for the most popular associations, namely, local development associations. The latter are a necessary means to improve individual and local living conditions via better access to information and more efficient collective action. Hence, where associations tend to be more heterogeneous, conflict has the opposite effect: violence implies disengagement. The negative effect of the occurrence of violence on participation in heterogeneous associations makes even more sense in the light of the developments in interpersonal trust in affected areas. We find that trust in people from out-groups declines in the case of exposure to violence, while trust in close individuals remains at very high levels and even tends to increase.

Our paper provides new empirical evidence on how conflict impacts social capital. We find differentiated effects depending on the type of association and the level of ethnic fragmentation in the local area. We show that the distinction between bonding-type (inward-looking) and bridging-type (outward-looking) social capital is necessary to fully capture the effects of conflict. We provide evidence of an increased

in-group bias in conflict-affected areas, whose existence has been deemed speculative to date (Bauer et al., 2016). Even though the study is context-specific, these findings cast doubt on the role attributed to social capital as a driver of post-war and post-conflict recovery.

Our analysis is not only a step forward for the literature, but more importantly, makes for a better understanding of the ongoing conflict in a country destabilised by jihadist activities presenting a real risk for the entire Sahelian region. The results shed light on a rather worrying impact of conflict on social capital in Mali. The weakening of bridging associations implying the corrosion of bridging ties could be socioeconomically detrimental. At the same time, the development of inward-looking, Olsonian associations is even more worrying since the shift in interactions from out-groups to in-groups suggests a deepening of the conflict into entrenched opposition between groups. This opposition is shaped by greater political opposition and kinship within communities and ethnic groups. Incentives to engage with others diminish as distrust and exclusion increase because of the conflict. Interpersonal exchanges between Malians and between groups could therefore be negatively impacted to an even greater extent. This would be a harbinger of the conflict having negative indirect impacts on economic and political development in the longer run. Our analysis aligns and agrees with some experts' views as to the need for suitable solutions to avoid the entrenchment of violent opposition in Mali (Guichaoua & Pellerin, 2017). Some solutions may be found in more inclusive governance policies, including better representativeness and incentives for ethnic mixing. Our study also suggests that particular attention should be paid to local associations representing "bridging-type" social capital in Mali. They could play a role in preventing a conflict trap whereby armed conflict aggravates social divisions which escalate the conflict.

Appendix A

Table 2.A1: Main variables of interest - Descriptive statistics

	2006		2014		2015		2016	
	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev
<i>Variables from survey data</i>								
Association participation (2006: participation at household level, individual level otherwise)								
In at least one association	0.66	0.47	0.58	0.49	0.52	0.50	0.54	0.50
In a family association	0.31	0.46	0.20	0.40	0.18	0.38	0.20	0.40
In a political association	0.24	0.43	0.17	0.38	0.13	0.33	0.24	0.43
In a professional association	0.20	0.40	0.19	0.39	0.17	0.38	0.19	0.39
In a local association	0.35	0.48	0.38	0.48	0.35	0.48	0.35	0.48
In a religious association	0.26	0.44	0.14	0.35	0.12	0.33	0.12	0.32
Interpersonal trust								
Generalised trust	N/A		0.66	0.47	0.69	0.46	0.70	0.46
Trust in relatives	N/A		0.96	0.20	0.90	0.30	0.95	0.21
Trust in neighbours	N/A		0.79	0.41	0.75	0.43	0.81	0.39
Trust in person from a different ethnic group	N/A		0.63	0.48	0.61	0.49	0.64	0.48
Trust in person speaking a different language	N/A		0.60	0.49	0.59	0.49	0.62	0.48
Trust in person with a different political opinion	N/A		0.57	0.49	0.58	0.49	0.62	0.49
Trust in person with a different nationality	N/A		0.48	0.50	0.52	0.50	0.52	0.50
Scared of terrorist threat								
	N/A		0.53	0.50	0.63	0.48	0.70	0.46
Scared of armed conflict/war threat								
	N/A		0.54	0.50	0.59	0.49	0.59	0.49
Number of observations								
Treated ($t - 1$)	11,670		13,835		15,135		14,335	
Treated [2012; ($t - 1$)]			0.22		0.20		0.31	
Treated [2012; ($t - 1$)]			0.25		0.31		0.35	
Treated [2006; ($t - 1$)]			0.28		0.33		0.38	
Number of households								
	4,494		5,214		6,074		5,881	
<i>Event data variables (within Malian regions surveyed)</i>								
Violent events ($t - 1$) ^(a)	0.00	0.00	0.24	1.50	0.12	0.90	0.31	1.37
[<i>Min</i> ; <i>Max</i>]	[0;0]		[0;17]		[0;10]		[0;13]	
Violent events [2012; ($t - 1$)] ^(a)			0.38	2.19	1.20	7.78	1.58	9.28
[<i>Min</i> ; <i>Max</i>]			[0;23]		[0;98]		[0;111]	
Violent events [2006; ($t - 1$)] ^(a)			0.43	2.37	1.32	8.42	1.70	9.95
[<i>Min</i> ; <i>Max</i>]			[0;26]		[0;101]		[0;114]	
Fatalities ($t - 1$) ^(a)	0.00	0.00	1.03	9.90	0.24	2.08	0.79	3.70
[<i>Min</i> ; <i>Max</i>]	[0;0]		[0;140]		[0;28]		[0;32]	
Fatalities [2012; ($t - 1$)] ^(a)			1.17	10.24	3.07	21.33	4.09	24.84
[<i>Min</i> ; <i>Max</i>]			[0;140]		[0;263]		[0;295]	
Fatalities [2006; ($t - 1$)] ^(a)			1.29	10.32	3.26	22.28	4.05	25.83
[<i>Min</i> ; <i>Max</i>]			[0;140]		[0;266]		[0;298]	

Note: ^(a)per sub-district. Weighted survey data.

Sources: GPS-SHaSA modules, EMOP, ELIM, RGPH, ACLED. INSTAT-Mali, DIAL-IRD, ACLED. Authors' calculations.

Figure 2.A1: Malian administrative divisions

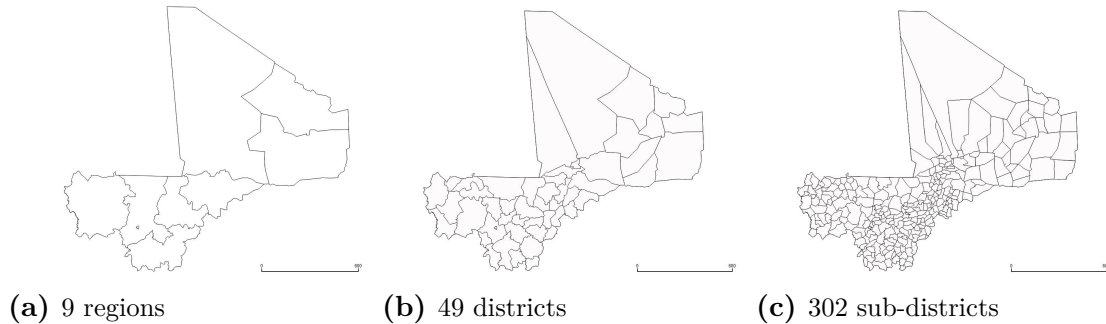


Table 2.A2: Other control variables - Descriptive statistics

	2006		2014		2015		2016	
	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev
<i>Variables from survey data</i>								
Female	0.54	0.50	0.53	0.50	0.54	0.50	0.52	0.50
Rural	0.64	0.48	0.68	0.47	0.73	0.44	0.74	0.44
Level of education reached								
<i>No education</i>	0.78	0.41	0.68	0.46	0.74	0.44	0.72	0.45
<i>Fondamental I</i>	0.09	0.29	0.16	0.37	0.12	0.32	0.13	0.33
<i>Fondamental II</i>	0.06	0.24	0.07	0.25	0.08	0.28	0.09	0.28
<i>Secondary</i>	0.05	0.21	0.07	0.25	0.04	0.20	0.05	0.21
<i>Post-Secondary</i>	0.02	0.13	0.02	0.15	0.02	0.14	0.02	0.13
Age	37.72	14.83	38.06	15.85	38.76	15.53	38.77	15.13
Age group								
<i>18 - 24 y.o.</i>	0.20	0.40	0.22	0.41	0.20	0.40	0.19	0.39
<i>25 - 30 y.o.</i>	0.19	0.40	0.20	0.40	0.19	0.39	0.20	0.40
<i>31 - 40 y.o.</i>	0.25	0.43	0.22	0.41	0.23	0.42	0.23	0.42
<i>41 - 50 y.o.</i>	0.17	0.38	0.15	0.35	0.15	0.36	0.17	0.37
<i>51 - 60 y.o.</i>	0.08	0.28	0.09	0.28	0.10	0.30	0.10	0.30
<i>61 y.o. and more</i>	0.10	0.30	0.13	0.33	0.13	0.33	0.12	0.32
Relationship to household head								
<i>Head</i>	0.32	0.47	0.22	0.41	0.26	0.44	0.30	0.46
<i>Spouse</i>	0.33	0.47	0.26	0.44	0.30	0.46	0.33	0.47
<i>Child</i>	0.14	0.35	0.16	0.36	0.17	0.37	0.17	0.37
<i>Other relatives</i>	0.19	0.39	0.34	0.48	0.25	0.44	0.20	0.40
<i>Other unrelated members</i>	0.01	0.12	0.02	0.14	0.01	0.10	0.01	0.10
Marital status								
<i>Married (monogamous)</i>	0.54	0.50	0.47	0.50	0.47	0.50	0.51	0.50
<i>Married (polygamous)</i>	0.23	0.42	0.29	0.45	0.31	0.46	0.30	0.46
<i>Common law couple</i>	0.00	0.02	0.01	0.08	0.01	0.09	0.01	0.08
<i>Single</i>	0.16	0.36	0.17	0.38	0.15	0.35	0.13	0.34
<i>Divorced/Separated</i>	0.01	0.11	0.01	0.08	0.01	0.10	0.00	0.06
<i>Widow</i>	0.06	0.25	0.06	0.23	0.05	0.23	0.05	0.21
<i>2009 census data</i>				Mean	Std. Dev.			
Ethnolinguistic fragmentation (per <i>commune</i>)				0.39	0.20			
Ethnolinguistic fragmentation (per <i>sub-district</i>)				0.41	0.19			

Note: Weighted survey data.

Sources: GPS-SHaSA modules, EMOP, ELIM, RGPH. INSTAT-Mali, DIAL-IRD. Authors' calculations.

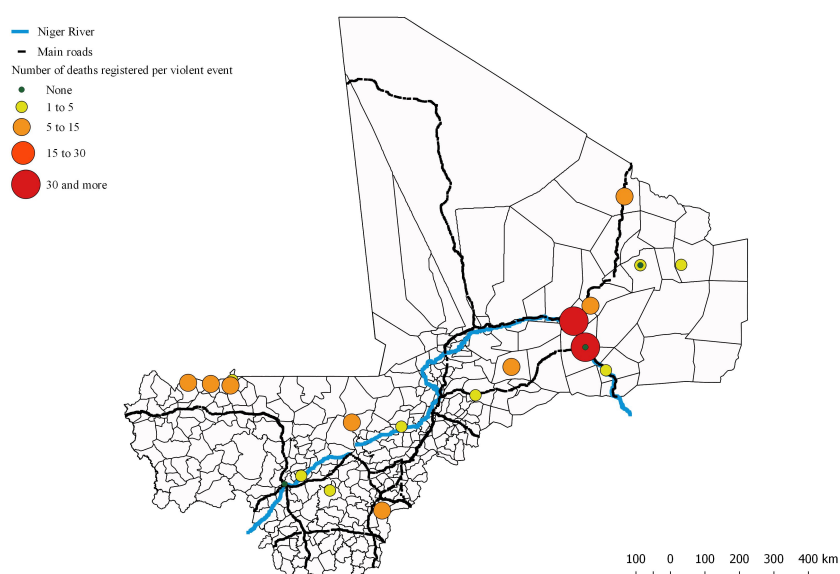
Table 2.A3: Participation in associations, occurrence of violent events and additional controls

	Member of at least one association						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Occurrence of violent events ($t - 1$)	0.129*** (0.0379)	0.128*** (0.0389)	0.127*** (0.0370)	0.0957*** (0.0265)	0.129*** (0.0376)	0.131*** (0.0371)	0.127*** (0.0362)
Std. dev. of rainfall from the 2005-2015 average ($t - 1$)	0.00243 (0.0150)						0.00222 (0.0148)
Std. dev. of rainfall from the 2005-2015 average ($t - 2$)	-0.00932 (0.0177)						-0.00869 (0.0173)
Distance to main roads (log)	0.00562 (0.00631)						0.00659 (0.00619)
Per capita consumption quintiles (ref. : <i>First quintile</i>)							
<i>Second</i>		-0.00625 (0.0109)					-0.00446 (0.0108)
<i>Third</i>		-0.0305** (0.0126)					-0.0320*** (0.0124)
<i>Fourth</i>		-0.0452*** (0.0143)					-0.0494*** (0.0139)
<i>Fifth</i>		-0.0490*** (0.0158)					-0.0571*** (0.0153)
Scared of terrorist threat			0.0433** (0.0175)				0.0450*** (0.0173)
Scared of armed conflict threat			0.0333* (0.0177)				0.0307* (0.0172)
Sick/hurt the past 3 months [2015; 2016]				0.0145 (0.00942)			
Local tensions ($t - 1$)					0.0201 (0.0174)		0.0142 (0.0174)
Access to the administration in general						0.119*** (0.0135)	0.119*** (0.0132)
<i>Controls</i>	YES	YES	YES	YES	YES	YES	YES
<i>District dummies</i>	YES	YES	YES	YES	YES	YES	YES
<i>Year dummies</i>	YES	YES	YES	YES	YES	YES	YES
Observations	42,967	42,908	42,943	29,469	42,925	42,939	42,825
Adjusted R^2	0.185	0.186	0.188	0.203	0.185	0.191	0.196

Note: See Table 2.1.

Sources: GPS-SHaSA modules, EMOP, RGPH, ACLED, INSTAT-Mali, DIAL-IRD, ACLED. Authors' calculations.

Figure 2.A2: 1997-2005 violent events and intensity



Sources: ACLED, GADM, authors' computation.

Table 2.A4: Olsonian and Putnamesque participation and occurrence of violent events

	Olsonian associations			Putnamesque associations		
	(1)	(2)	(3)	(4)	(5)	(6)
Occurrence of violent events ($t - 1$)	0.132*** (0.0425)	0.471* (0.240)		0.0367 (0.0344)	-0.0666 (0.165)	
Post-2012 dummy \times Occurrence [2006; ($t - 1$)]			0.125** (0.0632)			0.0504 (0.0574)
<i>Std. dev. of rainfall</i> ($t - 1$)	NO	YES	NO	NO	YES	NO
<i>Occurrence of violent events</i> [1997; 2005]	NO	YES	NO	NO	YES	NO
<i>Controls</i>	YES	YES	YES	YES	YES	YES
<i>District dummies</i>	YES	YES	YES	YES	YES	YES
<i>Year dummies</i>	YES	YES	YES	YES	YES	YES
<i>Region \times Post-2012 dummies</i>	NO	NO	YES	NO	NO	YES
Method	OLS	2SLS	DiD	OLS	2SLS	DiD
Observations	42,967	42,967	54,878	42,967	42,967	54,878
Adjusted R^2	0.181	0.163	0.130	0.158	0.156	0.156

Note: Estimations are at individual level. Robust standard errors are in parentheses (adjusted for clustering at sub-district and year levels, and only for sub-district level for DiD estimations). Olsonian associations comprise family, political and professional associations. Putnamesque associations comprise local and religious associations. All estimations include individual characteristics (gender, age group, level of education, relationship to household head and marital status), 2009 sub-district ethnolinguistic fragmentation, an urban-rural variable, district dummies, year dummies and pre and post-treatment regional dummies. Violent events are identified at sub-district level. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Sources: GPS-SHaSA modules, EMOP, ELIM, RGPH, ACLED. INSTAT-Mali, DIAL-IRD, ACLED. Authors' calculations.

Table 2.A5: Trends in membership and occurrence of violent events since 2014 or 2015

	At least one association	<i>Olsonian groups</i>			<i>Putnamesque groups</i>	
		A family association	A political association	A professional association	A local association	A religious association
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Panel A: Only 2006 and 2014 samples</i>						
2014 dummy	0.228*** (0.0618)	0.0935 (0.0755)	0.0791 (0.0625)	0.00862 (0.0600)	0.316*** (0.0472)	-0.0778 (0.0526)
Exposed only in 2014 or after	0.0335 (0.0546)	-0.0163 (0.0561)	0.0117 (0.0617)	0.0162 (0.0509)	-0.0899* (0.0528)	-0.112** (0.0487)
2014 × Exposed only in 2014 or after	-0.0852 (0.0792)	-0.0601 (0.0909)	-0.133 (0.0931)	-0.0761 (0.0800)	0.140* (0.0793)	0.0976 (0.0768)
<i>Controls</i>	YES	YES	YES	YES	YES	YES
<i>District dummies</i>	YES	YES	YES	YES	YES	YES
<i>Year dummies</i>	YES	YES	YES	YES	YES	YES
<i>Region × Post-2012 dummies</i>	YES	YES	YES	YES	YES	YES
Observations	17,667	17,660	17,673	17,673	17,673	17,676
Adjusted R^2	0.0859	0.124	0.0988	0.120	0.110	0.0840
<i>Panel B: 2006-2014-2015 samples</i>						
Post-2012 dummy	0.0831* (0.0484)	-0.0332 (0.0409)	-0.133*** (0.0375)	0.0776** (0.0377)	0.215*** (0.0770)	-0.186*** (0.0465)
Exposed only in 2015 or after	0.0771 (0.0621)	0.0560 (0.0834)	0.0493 (0.0655)	0.0811 (0.0594)	-0.0197 (0.0631)	-0.0425 (0.0601)
Post-2012 × Exposed only in 2015 or after	-0.0643 (0.0780)	-0.109 (0.108)	-0.0821 (0.0812)	-0.0441 (0.0681)	0.0636 (0.0851)	0.0127 (0.0806)
<i>Controls</i>	YES	YES	YES	YES	YES	YES
<i>District dummies</i>	YES	YES	YES	YES	YES	YES
<i>Year dummies</i>	YES	YES	YES	YES	YES	YES
<i>Region × Post-2012 dummies</i>	YES	YES	YES	YES	YES	YES
Observations	27,582	27,575	27,588	27,588	27,588	27,591
Adjusted R^2	0.0922	0.118	0.101	0.123	0.0992	0.0827

Note: See Table 2.4.

Sources: GPS-SHaSA modules, EMOP, ELIM, RGPH, ACLED. INSTAT-Mali, DIAL-IRD, ACLED. Authors' calculations.

Table 2.A6: Participation in associations of non-migrants and occurrence of violent events

	At least one association	Olsonian groups			Putnamesque groups	
		A family association	A political association	A professional association	A local association	A religious association
(1)	(2)	(3)	(4)	(5)	(6)	
<i>Panel A: 2006 - 2015 unconstrained samples</i>						
2015 dummy	-0.135** (0.0671)	-0.199** (0.0859)	-0.177*** (0.0486)	-0.149*** (0.0573)	-0.0310 (0.0690)	-0.0949* (0.0501)
Occurrence of violent events [2006;2014]	0.0172 (0.0451)	-0.0691 (0.0510)	-0.0452 (0.0397)	-0.0479 (0.0388)	-0.0278 (0.0448)	-0.0261 (0.0351)
2015 × Occurrence	0.0246 (0.0671)	0.127 (0.0857)	0.0821* (0.0484)	0.103* (0.0577)	0.0775 (0.0693)	0.0405 (0.0499)
Observations	26,740	26,726	26,725	26,730	26,733	26,734
Adjusted R^2	0.109	0.135	0.103	0.145	0.161	0.0915
<i>Panel B: Adults who migrated in the past 10 years excluded from 2015 sample</i>						
2015 dummy	-0.140** (0.0667)	-0.225*** (0.0867)	-0.170*** (0.0452)	-0.139** (0.0582)	-0.0231 (0.0691)	-0.0947* (0.0511)
Occurrence of violent events [2006;2014]	0.0146 (0.0443)	-0.0660 (0.0481)	-0.0460 (0.0380)	-0.0498 (0.0380)	-0.0318 (0.0440)	-0.0251 (0.0342)
2015 × Occurrence	0.0204 (0.0666)	0.127 (0.0864)	0.0823* (0.0449)	0.0958 (0.0589)	0.0850 (0.0697)	0.0474 (0.0507)
Observations	24,744	24,730	24,729	24,734	24,737	24,738
Adjusted R^2	0.105	0.140	0.0928	0.146	0.151	0.0919

Note: See Table 2.4.

Sources: GPS-SHaSA modules, EMOP, ELIM, RGPH, ACLED. INSTAT-Mali, DIAL-IRD, ACLED. Authors' calculations.

Table 2.A7: Interpersonal trust and occurrence of violent events (IV second stage - Bivariate probit)

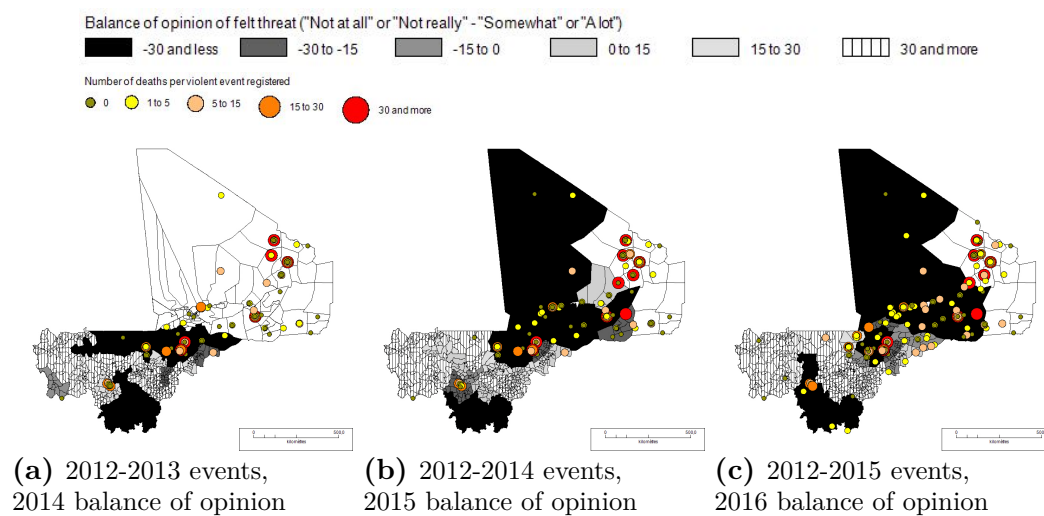
	Trust in:						
	Generalised trust	Relatives		Other		Different pol. opinion	Other nationality
		Neighbours	ethnic group	linguistic group			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	
Occurrence of violent events ($t - 1$)	-0.255*** (0.0674)	-0.0473* (0.0262)	0.0575 (0.0589)	-0.0918 (0.0752)	-0.0855 (0.0758)	-0.155* (0.0803)	-0.183* (0.0952)
<i>Std. dev. of rainfall</i>	YES	YES	YES	YES	YES	YES	YES
<i>Occurrence of violent events [1997;2005]</i>	YES	YES	YES	YES	YES	YES	YES
<i>Controls</i>	YES	YES	YES	YES	YES	YES	YES
<i>District dummies</i>	YES	YES	YES	YES	YES	YES	YES
<i>Year dummies</i>	YES	YES	YES	YES	YES	YES	YES
Observations	42,936	42,814	42,987	42,996	42,995	42,995	42,966

Note: Marginal effects estimated at individual level. Robust standard errors are in parentheses (adjusted for clustering at sub-district and year levels). All estimations include individual characteristics (gender, age group, level of education, relationship to household head and marital status), 2009 sub-district ethnolinguistic fragmentation, urban-rural variable, district dummies and pre and post-treatment regional dummies. Violent events are identified at sub-district level. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Sources: GPS-SHaSA modules, EMOP, ELIM, RGPH, ACLED. INSTAT-Mali, DIAL-IRD, ACLED. Authors' calculations.

Appendix B

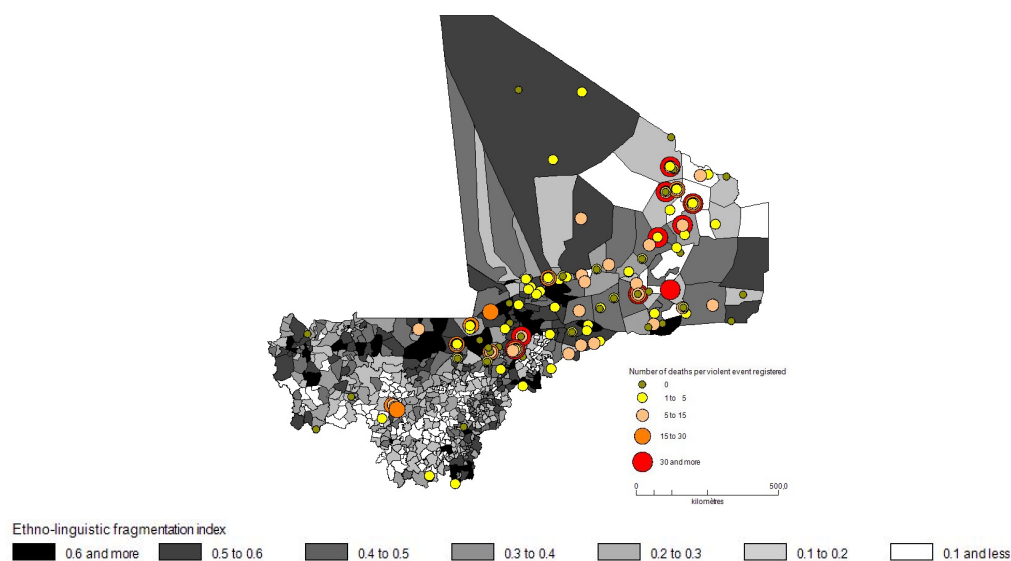
Figure 2.B1: Fear of armed conflict threat per district and recorded violent events



Note: White backdrop corresponds to non-surveyed districts.

Sources: GPS-SHaSA modules, EMOP, ACLED. INSTAT-Mali, DIAL-IRD, ACLED. Authors' computation.

Figure 2.B2: Communes ethno-linguistic fragmentation and 2012-2015 violent events



Sources: ACLED, GPS-SHaSA modules, EMOP. INSTAT-Mali, DIAL-IRD, ACLED. Authors' computation.

Table 2.B1: Benchmark results: determinants of participation in associations

	At least one association	<i>Olsonian groups</i>			<i>Putnamesque groups</i>	
		A family association	A political association	A professional association	A local association	A religious association
	(1)	(2)	(3)	(4)	(5)	(6)
Female	-0.0521*** (0.00860)	0.0329*** (0.00666)	-0.0662*** (0.00653)	-0.0755*** (0.00635)	-0.0360*** (0.00785)	-0.0111** (0.00523)
Rural	0.0937*** (0.0106)	0.00145 (0.00929)	-0.00593 (0.00852)	0.0535*** (0.00872)	0.146*** (0.0108)	-0.00599 (0.00721)
Age group - Reference: 31 - 40						
18 - 24	-0.0817*** (0.00809)	-0.0230*** (0.00664)	-0.0424*** (0.00623)	-0.0403*** (0.00633)	-0.0519*** (0.00764)	-0.0140*** (0.00475)
25 - 30	-0.0256*** (0.00674)	-0.00646 (0.00574)	-0.0105** (0.00535)	-0.0188*** (0.00554)	-0.0125* (0.00655)	-0.00336 (0.00431)
41 - 50	0.00116 (0.00681)	-0.00315 (0.00579)	0.00515 (0.00557)	0.00430 (0.00600)	-0.000129 (0.00666)	0.0201*** (0.00488)
51 - 60	1.76e-05 (0.00880)	-0.00807 (0.00719)	0.00337 (0.00716)	-0.0161** (0.00774)	0.0143 (0.00876)	0.0419*** (0.00658)
61 and older	-0.0715*** (0.00951)	-0.0237*** (0.00740)	-0.0557*** (0.00699)	-0.0930*** (0.00751)	-0.0429*** (0.00921)	0.0858*** (0.00749)
Level of education reached - Ref.: None						
Fondamental I	0.0354*** (0.00725)	0.0165*** (0.00615)	0.0310*** (0.00587)	0.0317*** (0.00606)	0.0153** (0.00705)	0.0101** (0.00485)
Fondamental II	0.0312*** (0.00915)	0.0159** (0.00760)	0.0582*** (0.00750)	0.0178** (0.00712)	-0.0277*** (0.00825)	0.00432 (0.00601)
Secondary	0.0581*** (0.0118)	0.0239** (0.00933)	0.105*** (0.00956)	0.0736*** (0.00937)	-0.0188* (0.00966)	-0.00659 (0.00717)
Post-secondary	0.109*** (0.0176)	0.0362** (0.0147)	0.106*** (0.0143)	0.0922*** (0.0151)	-0.00735 (0.0143)	-0.00613 (0.0109)
Marital status - Ref.: Married - monogamous						
Married - polygamous	0.0429*** (0.00678)	0.00517 (0.00605)	0.0127** (0.00565)	0.0234*** (0.00543)	0.0414*** (0.00693)	0.0107** (0.00487)
Common law couple	0.278*** (0.0426)	0.157*** (0.0370)	-0.0173 (0.0168)	0.0442* (0.0241)	0.225*** (0.0385)	0.114*** (0.0354)
Single	-0.0688*** (0.0101)	-0.0300*** (0.00793)	-0.0372*** (0.00788)	-0.0744*** (0.00788)	-0.0481*** (0.00928)	-0.0220*** (0.00606)
Divorced/Separated	-0.0770*** (0.0278)	-0.0198 (0.0213)	-0.0239 (0.0206)	-0.0428** (0.0199)	-0.0656*** (0.0216)	-0.0649*** (0.0125)
Widow	-0.0659*** (0.0129)	-0.0161 (0.0102)	-0.0289*** (0.00880)	-0.0317*** (0.00917)	-0.0656*** (0.0117)	-0.0324*** (0.00892)
Relationship to household head - Ref.: Head						
Spouse	-0.0560*** (0.00917)	-0.0255*** (0.00703)	-0.0272*** (0.00696)	-0.0865*** (0.00698)	-0.0112 (0.00832)	-0.0392*** (0.00582)
Child	0.00171 (0.00996)	-0.0260*** (0.00801)	0.0214** (0.00843)	-0.0405*** (0.00849)	0.0672*** (0.00979)	-0.0162** (0.00652)
Other relatives	-0.0190** (0.00897)	-0.0250*** (0.00707)	-0.00331 (0.00698)	-0.0431*** (0.00720)	0.0313*** (0.00855)	-0.0253*** (0.00602)
Unrelated	-0.116*** (0.0267)	-0.0843*** (0.0144)	-0.0474*** (0.0173)	-0.0683*** (0.0218)	-0.0269 (0.0249)	-0.0357** (0.0144)
Ethnolinguistic fragmentation	0.0121 (0.0299)	-0.0310 (0.0257)	-0.0146 (0.0235)	0.0366 (0.0245)	-0.0598 (0.0297)	0.0299 (0.0172)
District dummies	YES	YES	YES	YES	YES	YES
Year dummies	YES	YES	YES	YES	YES	YES
Observations	42,967	42,967	42,992	42,995	42,993	42,993
Adjusted R ²	0.182	0.165	0.164	0.147	0.160	0.119

Note: Estimations are at individual level. Robust standard errors in parentheses (adjusted for clustering at year and EA levels). Significance levels: *** p<0.01, ** p<0.05, * p<0.1

Sources: GPS-SHaSA modules, EMOP, RGPH, ACLED. INSTAT-Mali, DIAL-IRD, ACLED. Authors' calculations.

Table 2.B2: 2006 participation and ex-post occurrence of violent events

	<i>Olsonian groups</i>				<i>Putnamesque groups</i>	
	At least one association	A family association	A political association	A professional association	A local association	A religious association
	(1)	(2)	(3)	(4)	(5)	(6)
Occurrence of violent events [2006;2015]	0.00685 (0.0379)	-0.0165 (0.0286)	-0.0411 (0.0395)	-0.0336 (0.0342)	-0.0393 (0.0373)	-0.0595* (0.0340)
<i>Controls</i>	YES	YES	YES	YES	YES	YES
<i>District dummies</i>	YES	YES	YES	YES	YES	YES
Observations	11,444	11,430	11,429	11,434	11,437	11,438
Adjusted R^2	0.0959	0.174	0.0747	0.106	0.164	0.0946

Note: See Table 2.1.

Sources: ELIM, RGPH, ACLED. INSTAT-Mali, DIAL-IRD, ACLED. Authors' calculations.

Table 2.B3: Participation and number, intensity and occurrence of violent events

	Member of at least one association					
	(1)	(2)	(3)	(4)	(5)	(6)
Number of violent events [2012; $(t - 1)$]	0.000365 (0.000463)					
Number of violent events [$(t - 2)$; $(t - 1)$]		-0.000983 (0.00134)				
Number of violent events $(t - 1)$			0.00420 (0.00769)	0.0559** (0.0222)		
(Number of violent events) ² $(t - 1)$				-0.00440*** (0.00159)		
Occurrence of violent events [2012; $(t - 1)$]					0.0792*** (0.0267)	
Occurrence of violent events [$(t - 2)$; $(t - 1)$]						0.0972** (0.0392)
<i>Controls</i>	YES	YES	YES	YES	YES	YES
<i>District dummies</i>	YES	YES	YES	YES	YES	YES
<i>Year dummies</i>	YES	YES	YES	YES	YES	YES
Observations	42,967	42,967	42,967	42,967	42,967	42,967
Adjusted R^2	0.182	0.182	0.182	0.185	0.183	0.184

Note: See Table 2.1.

Sources: GPS-SHaSA modules, EMOP, RGPH, ACLED. INSTAT-Mali, DIAL-IRD, ACLED. Authors' calculations.

Table 2.B4: Participation and occurrence of violent events (alternative specifications)

	Member of at least one association				
	(1)	(2)	(3)	hh. measure	Comm. geoloc.
				(4)	(5)
Occurrence of violent events ($t - 1$)	0.0836** (0.0373)	0.129*** (0.0381)	0.135*** (0.0383)	0.129*** (0.0338)	0.150*** (0.0401)
<i>Controls</i>	NO	YES	YES	YES	YES
<i>District dummies</i>	YES	YES	YES	YES	YES
<i>Year dummies</i>	YES	YES	YES	YES	YES
Method	OLS	OLS	Logit (marg. eff.)	OLS	OLS
Observations	42,970	42,967	42,967	43,273	42,967
Adjusted R^2	0.154	0.185	N/A	0.171	0.185
Pseudo R^2	N/A	N/A	0.147	N/A	N/A

Note: See Table 2.1.

Sources: GPS-SHaSA modules, EMOP, RGPH, ACLED. INSTAT-Mali, DIAL-IRD, ACLED. Authors' calculations.

Table 2.B5: Participation and occurrence of violent events excluding the North

	At least one association	<i>Olsonian groups</i>			<i>Putnamesque groups</i>	
		A family association	A political association	A professional association	A local association	A religious association
		(1)	(2)	(3)	(4)	(5)
Occurrence of violent events ($t - 1$)	0.153*** (0.0478)	0.0553 (0.0439)	0.128*** (0.0485)	0.0351 (0.0402)	0.0322 (0.0404)	0.0281 (0.0285)
<i>Controls</i>	YES	YES	YES	YES	YES	YES
<i>District dummies</i>	YES	YES	YES	YES	YES	YES
<i>Year dummies</i>	YES	YES	YES	YES	YES	YES
Observations	39,427	39,427	39,452	39,455	39,453	39,453
Adjusted R^2	0.172	0.0931	0.138	0.124	0.146	0.0819

Note: See Table 2.1.

Sources: GPS-SHaSA modules, EMOP, RGPH, ACLED. INSTAT-Mali, DIAL-IRD, ACLED. Authors' calculations.

Table 2.B6: Summary of placebo tests of difference-in-differences estimations

	At least one association	<i>Olsonian groups</i>			<i>Putnamesque groups</i>	
		A family association	A political association	A professional association	A local association	A religious association
		(1)	(2)	(3)	(4)	(5)
Placebo treatment (500 iterations) - actual outcomes						
Share of positive results significant at 10%	4.6%	6.0%	4.4%	5.0%	8.8%	4.8%
Actual treatment - placebo outcomes (500 iterations)						
Share of positive results significant at 10%	7.0%	6.8%	6.0%	7.8%	8.2%	5.8%

Note: Placebo outcomes or treatment are iterated 500 times. Estimations are at the individual level. Robust standard errors are in parentheses (adjusted for clustering at the year and sub-district levels). All estimations include individual characteristics (gender, age group, level of education, relationship to household head and marital status), 2009 sub-district ethno-linguistic fragmentation and an urban-rural variable. Events are identified at the sub-district level (except column 5 - which is identified at the commune level). Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Sources: GPS-SHaSA modules, EMOP, ELIM, RGPH, ACLED. INSTAT-Mali, DIAL-IRD, ACLED. Authors' calculations.

Table 2.B7: Interpersonal trust and occurrence of violent events (alternative specifications)

	Generalized trust					
	(1)	(2)	(3)	(4)	Comm. geoloc.	North excluded
					(5)	(6)
Occurrence of violent events ($t - 1$)	-0.0572** (0.0273)	-0.136*** (0.0363)	-0.111*** (0.0360)	-0.116*** (0.0348)	-0.115*** (0.0386)	-0.134*** (0.0407)
<i>Controls</i>	NO	NO	YES	YES	YES	YES
<i>District dummies</i>	NO	YES	YES	YES	YES	YES
<i>Year dummies</i>	NO	YES	YES	YES	YES	YES
Method	OLS	OLS	OLS	Logit (marg. eff.)	OLS	OLS
Observations	42,939	42,939	42,936	42,936	42,936	39,396
Adjusted R^2	0.00280	0.101	0.105	N/A	0.105	0.103
Pseudo R^2	N/A	N/A	N/A	0.0914	N/A	N/A

Note: See Table 2.6.

Sources: GPS-SHaSA modules, EMOP, RGPH, ACLED. INSTAT-Mali, DIAL-IRD, ACLED. Authors' calculations.

Table 2.B8: Interpersonal trust, occurrence of violent events and additional controls

	Generalized trust						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Occurrence of violent events ($t - 1$)	-0.115*** (0.0377)	-0.113*** (0.0357)	-0.112*** (0.0361)	-0.110*** (0.0347)	-0.0751*** (0.0258)	-0.111*** (0.0360)	-0.115*** (0.0361)
Std. dev. of rainfall from the 2005-2015 average ($t - 1$)	0.0641*** (0.0142)						0.0645*** (0.0140)
Std. dev. of rainfall from the 2005-2015 average ($t - 2$)	0.0485*** (0.0168)						0.0466*** (0.0165)
Distance to main roads (log)	0.0180** (0.00836)						0.0179** (0.00829)
Per capita consumption quintile (ref. : <i>First quintile</i>)							
<i>Second</i>		-0.0101 (0.0113)					-0.00703 (0.0111)
<i>Third</i>		-0.0248* (0.0147)					-0.0214 (0.0146)
<i>Fourth</i>		-0.0518*** (0.0163)					-0.0478*** (0.0161)
<i>Fifth</i>		-0.0517*** (0.0179)					-0.0477*** (0.0179)
Scared of terrorist threat			0.0124 (0.0249)				0.0158 (0.0248)
Scared of armed conflict threat			0.00938 (0.0208)				0.0163 (0.0206)
Local tensions ($t - 1$)				-0.0806*** (0.0221)			-0.0843*** (0.0228)
Sick/hurt the past 3 months [2015; 2016]					-0.0285 (0.0234)		
Access to the administration in general						0.00111 (0.0145)	0.00103 (0.0142)
<i>Controls</i>	YES	YES	YES	YES	YES	YES	YES
<i>District dummies</i>	YES	YES	YES	YES	YES	YES	YES
<i>Year dummies</i>	YES	YES	YES	YES	YES	YES	YES
Observations	42,936	42,881	42,915	42,905	29,463	42,904	42,801
Adjusted R^2	0.109	0.106	0.105	0.107	0.136	0.105	0.113

Note: See Table 2.6.

Sources: GPS-SHaSA modules, EMOP, ELIM, RGPH, ACLED. INSTAT-Mali, DIAL-IRD, ACLED. Authors' calculations.

Chapter 3

Crime in Madagascar: Coping with victimisation and fear on the labour market

3.1 Introduction

In addition to its permanent presence on the foreground of the political debate across the world, criminal violence raises renewed interests in the economic literature. Criminal violence is the result of illegal action by a individual or a group of individuals that is harmful to other individuals. Its costs are well documented. For instance, [Jaitman et al. \(2017\)](#) estimate the welfare costs of crime at about 3% of 17 Latin American countries' GDP in 2014. Costs for victims and their entourage represent on average USD 65,000 in the case of Australia ([Johnston et al., 2018](#)). Financial losses related to victimisation represent one of the principal entry of these costs. However, research falls short to provide evidence on its impacts on individuals' behaviours and on economic development at both individual and local levels. It is even more scarce when it comes to the study of the fear of crime. Yet, the fear of crime is much more widespread than actual criminality and should be on aggregates even more costly.

It remains unclear how individuals cope with crime-related insecurity in their everyday life particularly in developing countries. Indeed, the study of criminal violence is usually spatially concentrated in upper middle income countries where the intensity of violence is closer to the one of armed conflicts.¹ Yet, crime thrives in the least productive and poorest areas up to potentially inducing poverty trap ([Mehlum et al., 2005](#)). The poor bear a higher cost from victimisation ([Barslund et al., 2007](#)). The study of the impacts of criminal violence in developing countries is of particular interest regarding its consequences on the informal labour market. The informal sector is the prime contributor to the livelihood of the poor ([De Vreyer & Roubaud, 2013](#); [ILO, 2018](#)) and its workers are the most vulnerable labour force. They are particularly exposed to shocks and uncertainty as they suffer from hard working conditions and having almost no safety net.

This work narrows the existing knowledge gap by studying the relationship between criminal violence and working habits on the informal labour market in Madagascar. Following the existing literature ([Becker, 1968](#); [Ehrlich, 1973](#); [Gould et al., 2002](#)) Madagascar economic characteristics should make it a crime-prone area. Madagascar ranks among the world's poorest countries, and yet it appears very rarely at the forefront of the violence literature in development economics. The

¹Studies focus mainly on the emblematic cases of Colombia (see for instance [Bourguignon et al., 2003](#); [Fernández et al., 2014](#)) and Mexico (see for instance [Benyishay & Pearlman, 2014](#); [Cabral et al., 2016](#)) and to some limited extent on South Africa ([Demombynes & Özler, 2005](#); [Grabrucker & Grimm, 2018](#)).

Malagasy economy has been suffering from a continuous recession for the past five decades (Razafindrakoto et al., 2020) and is characterised by a poverty rate at international threshold of over 90% (INSTAT, 2013a). 93% of the total workforce is found in the informal sector (INSTAT, 2013b).

Madagascar has never been the ground of intense violent confrontation since its independence and is rather depicted as a peaceful island (Razafindrakoto et al., 2017). International records rather confirm this picture: levels of criminality are relatively low compared to other studied countries. The fragile estimates of intentional homicide rates reach 7.7 per 100,000 inhabitants in 2015 according to UNODC compiled data.² Still, Madagascar's levels of violence are comparable to other African countries. Indeed, the country ranks at the median of homicide rates in Sub-Saharan Africa.

This study furthers the understanding of the relationship between crime-related insecurity and working practices and earnings by disentangling the roles of victimisation, on the one hand, and the fear of crime, on the other hand. Workers need to adapt not only to victimisation itself but also to the perceived risk of victimisation expressed through the fear of crime. One should expect different coping strategies between victims and those who are *only* worried about criminal violence. While the former already integrates the costs associated with crime, the latter tries to reduce the probability of such event occurring and smooths the costs associated with its potential occurrence. In the case of fear, we can distinguish avoidance and protection strategies (Doran & Burgess, 2012). Avoidance strategies imply reduction of workers' presence on the labour market that can even lead to an exit from the labour force (Chakraborty et al., 2018). Protection strategies correspond to investing in the surveillance of assets and belongings. It can take the shape of fence construction or increasing human presence at work (Lemanski, 2006).

In addition, I distinguish the effects of crime-related insecurity on agricultural and nonagricultural workers. I assume that strategies should differ between farmers and nonfarmers as the market structures differ a lot between the two sectors. Contrary to nonfarm activities, exit strategies from fearful workers of the agricultural sector are unlikely as agrarian production is primarily oriented towards households' own-subsistence. Market orientation is secondary and rather concerns surpluses. Diversification of earnings sources is not an alternative easy to implement either as entry costs to other nonfarm activities are high (see for instance Dercon & Krishnan,

²The homicide rates for South Africa, Colombia and Mexico are respectively 34, 25 and 19 per 100,000 people. The mean of Sub-Saharan countries homicide rate is about 9 per 100,000 people.

1996; Reardon, 1997). Avoidance strategies appear too costly to be implemented and we should expect workers of the agricultural sector to establish protection strategies. We could rather expect avoidance strategies from nonagricultural workers as shown in the existing literature (Chakraborty et al., 2018).

I analyse the effects of insecurity using data from the Malagasy national survey on employment (hereafter, ENE15) conducted in 2015 by the National Statistics Office (NSO) of Madagascar (INSTAT). Nationally representative with possible sub-national inference, the survey collects very precise information on the labour force as well as overall time allocation of age 5 and older respondents. In addition, harmonised add-on survey modules on governance, peace and security (GPS-SHaSA) are included in the ENE15. They provide a very large set of information on all adults' perceptions and experiences of the national and local security (Razafindrakoto & Roubaud, 2018). The module provides information on crime victimisation and insecurity feeling. In weak institutional settings, the use of representative survey data is a plus compared to official data that usually underestimate existing violence (MacDonald, 2002). I also take advantage of the panel dimension of the survey.³ Conducted in 2012, the employment and informal sector national survey (hereafter, ENEMPSI12) provides the same information on labour force participation and time allocation. Information on victimisation and fear is also available but only for one household member.

Several empirical challenges need to be addressed. First, frightened adults and victims of crime are likely to be selected based on their participation in the informal sector. Characteristics of adults out of the labour force or in the formal sector could cause over- or under-estimation of estimators. I implement Heckman (1979) selection procedure to address potential selection bias. Second, labour market outcomes and criminality might be simultaneously determined. For instance, workers who spend more time at work or earn more could be more likely to be victims of crime outside their homes. Third, the relationship would be spurious if a third factor determines both insecurity and labour market outcomes. Higher insecurity in areas with a larger share of low-skilled (high-skilled) job opportunities (structurally or dynamically) could underestimate (overestimate) the effects of crime-related insecurity on labour market outcomes. The inclusion of a very large set of controls, including geo-climatic characteristics at household level should mitigate potential omitted variable biases.

Results show that the fear of crime and victimisation affect very differently in-

³Calvo et al. (2019) have shown the reliability of GPS-SHaSA data compared to other similar surveys independently collected.

dividuals in the informal sector. On the one hand, crime appears to affect victims negatively; their time spent at work and earnings seem to robustly decrease. On the other hand, adults fearful of criminal violence work two hours more in their main activity than secure workers. Paid workers' earnings in the main activity also increase. However, earnings diversification is less likely when workers are worried about the criminal violence threat.

The effects of fear are entirely driven by workers of the agricultural sector. Agricultural workers seem to adopt protection strategies when they are worried about the criminal violence threat. They stay longer at work in the seemingly hope of deterring thefts or destruction of crops and livestock. This exposes workers to higher risks as earning sources are less likely to be diversified. While time spent at work increases and earning diversification diminishes, fearful farmers' total earnings do not significantly change.

In the nonagricultural sector, heterogeneities further complicate the results' interpretations. In rural areas, similarly to agricultural workers, the fear of crime is positively related to time spent at work while it seems to correlate negatively to hours worked in urban areas. In urban areas, nonfarm workers rather avoid their workplace. This result could find its origins in the fact that individuals' belongings are found in their households in urban areas. Through avoidance strategy, urban dwellers could establish a protection strategy at home.

Overall, the fear of crime implies lower productivity and higher vulnerability, particularly in the agricultural sector. These changes in working behaviour of insecure adults have also a negative impact on time allocated to domestic chores. For farmers, the fear is further channelled to other household members and particularly under-age members. Under 15 are more likely to work and to work more when adults in the agricultural sector are fearful. This last result further supports a protection strategy in the agricultural sector. However, this does not seem to affect school attendance. The fear of crime could reinforce labour misallocation and unproductivity in the agricultural sector (documented for instance in [Gollin et al., 2014](#)).

This work contributes to the literature on violence. It first differentiates from the existing works by focusing on the impacts of criminal violence rather than on its determinants. Second, it studies a case rarely on the forefront of the literature on violence and to a broader extent of development economics: Madagascar.

Furthermore, this paper reconciles two strands of the violence literature which studies its effects on agricultural and nonagricultural activities independently. The

literature on the impacts of crime is primarily oriented towards urban areas and nonagricultural activities (Chakraborty et al., 2018; Velásquez, 2019) while the armed conflict literature generally focuses on coping strategies of agricultural households particularly in terms of crops choices (Bozzoli & Brück, 2009; Arias et al., 2014). Their simultaneous analysis seems necessary as they are highly interdependent (Adam et al., 2018).

Lastly, this paper also contributes to an even more scarce literature on the impacts of the fear of crime in economics. It works on the assumption that insecurity affects individuals without necessarily taking the shape of an actual violent event. Recent work rather considers the fear of crime as a transmission channel (Velásquez, 2019). Yet, crime and the fear of crime are poorly correlated and their causes have to be found in different factors (for an overview on the fear of crime, see Doran & Burgess, 2012). Rare works directly examine the feeling of fear of criminal violence exception made of Chakraborty et al. (2018). It appears of greater interest in the conflict literature (Arias et al., 2014; Tapsoba, 2020).

The remainder of the paper is organised as follows. Section 3.2 presents the Malagasy context and the related literature. In section 3.3, I describe the data and introduce the empirical strategy. In section 3.4, I present the estimation results, robustness checks and the mechanisms at stake mainly looking into out-of-work time allocation. I summarise the findings and conclude in section 3.5.

3.2 Related Literature

3.2.1 The determinants of crime and fear in Madagascar

Determining the causes of crime has been of particular interest in Madagascar in the early 2000s when cattle theft started to be a prominent phenomenon (Rasamoelina, 2000). Crime is primarily observed in remote areas rather than in urban areas (Fafchamps & Moser, 2003). This latter result should not be correlated with lower probability of apprehension as the presence of law enforcement is higher in crime-prone areas (*ibid*). Despite a successful crime tracking, law enforcement remains highly inefficient to reduce criminality. Fafchamps & Minten (2006), using commune level data (from group interviews) and taking advantage of a natural experiment (the 2002 political crisis), show that poverty is another driver of crime in the red island. Transitory poverty does not affect homicides and cattle theft but increases crops theft as well as burglaries.

The relatively low but significant levels of crime in Madagascar need to be put in perspective with a widespread feeling of insecurity (Razafindrakoto et al., 2017).

Indeed, half of Malagasy adults fear being victim of crime. This corresponds to the second highest ratio of fearful individual per victim (of 5) among a set of seven African countries where the same Governance, Peace and Security (GPS-SHaSA) household survey data were collected (see Figure 0.3). This paradox further justifies the analysis of both victimisation and the fear of crime.

This low correlation between victimisation and the level of fear is not unique to Madagascar (see for instance Miceli et al., 2004). Determinants of the fear of crime are multiple: among them we count the intensity of interpersonal communication and media coverage (Jackson, 2004; Ambrey et al., 2014), physical and social vulnerabilities from risk sensitive populations and more rooted concerns, such as the general state of the economy.⁴ Individuals bearing responsibilities of other individuals (like parents) are likely to be more frightened as analysed in the Nepalese conflict framework (Williams et al., 2018). General isolation, low social capital characterised with remoteness from economic market and the other could explain the fear of crime in Madagascar (Fafchamps & Moser, 2003; Razafindrakoto et al., 2017). Specific to the Red Island, the taboo of violence also explains the fear of crime and its very poor correlation with crime. The untranslatable notion of *fhavanana* is very often raised as an ideal of social harmony between groups and individuals to avoid conflict. This social contract (even invoked in the Malagasy Constitution) would prevent getting used to confrontation and violence. This cultural characteristic would maintain the fear at constantly high levels.

3.2.2 Impacts of insecurity

Pooling from different experiences in emerging and developing countries, Goldberg et al. (2014) summarize firms' coping-strategies with crime to increased self-defence capacities, reduced investment and relocation or even exit. However, some empirical studies do not appear to confirm the exit effect (see for instance Camacho & Rodriguez, 2013). In South Africa, crime does not significantly affect informal business ownership nor business performance (Grabrucker & Grimm, 2018). However, it might increase entry costs of businesses (Mahofa et al., 2016). The conclusions are relatively similar in developed countries where small business survival is not a function of crime rates (Bates & Robb, 2008) whereas the location is (Rosenthal & Ross, 2010).⁵

The fear of crime induces protective and/or avoidance coping strategies (Doran

⁴Doran & Burgess (2012) review theories and results about the determinants of fear of crime.

⁵Crime tends to increase urban flight (Cullen & Levitt, 1999) and to have a negative impact on real estate prices (Linden & Rockoff, 2008) which should come also at play on location decisions.

& Burgess, 2012). Protective strategies can take the shape of investment in physical protection, for example new gated community or upgraded neighbourhood in the case of Cape Town suburbs (Lemanski, 2006).

The decrease of labour productivity due to increased criminality at local level may be explained by avoidance strategies at individual level. Measured through GDP per capita at Mexican state level, labour productivity diminishes (Cabral et al., 2016) in areas with intense crime-related violence. Investment plans to expand firms are curbed with higher crime rates as entrepreneurs face higher ‘expropriation risks’ (Benyishay & Pearlman, 2014). Using panel data, Brown et al. (2019) show that a rise in local crime increases risk aversion (measured by choices in different pay-off gambles) in Mexico. More sensitive to crime, earnings and productivity of self-employed men decrease with increased local crime (Velásquez, 2019). Women, presented as more vulnerable individuals, reduce their working hours or even more radically exit the labour market (*ibid.*).

These works might be misleading to the extent that they do not disentangle the effects of fear of crime from crime itself. Indeed, crime is captured at aggregated local level and does not identify a victimisation effect. At best, the fear of crime is considered as a transmission channel (Velásquez, 2019). Nevertheless, as the fear is generally more widespread, its aggregated associated costs should be higher than violence itself, as estimated in Uganda by Rockmore (2016).

To the best of my knowledge, only Chakraborty et al. (2018) directly analyse the fear of crime through the effects of locally perceived rates of sexual crimes on nonagricultural female workers in India. Women establish clear avoidance strategies. Their participation in the labour force decreases as perceived sexual crime rates are higher. At actual criminal rates held equal, higher fear of being assaulted would further reduce women labour force participation and increase time allocation to domestic activities.

In the case of Madagascar, only one paper studies the consequence of insecurity, to the best of my knowledge. Fafchamps & Minten (2009) estimate that a perceived increase in insecurity levels (from commune focus group) has a negative effect on welfare, perceived change in local average income and health status (not on school enrolment or infant mortality). Potential channels comprise lower probability of land expansion as fear of crop or cattle theft are higher and lower probability of establishment of a new public service.

3.3 Data and empirical strategy

3.3.1 The data

This study relies on an augmented labour force survey, the Malagasy employment survey (ENE15) conducted by the National Statistics Office (INSTAT) between October and December 2015. Households are drawn from a traditional two-stage stratified sample at region and urban-rural levels with a probability of selection proportional to the population size. Enumeration areas are drawn from the enumeration areas already surveyed for the 2012 employment and informal sector survey (ENEMPSI12). Two-fifth of 2012 enumeration areas were surveyed. ENE15 data are nationally representative and allow for sub-national inference.⁶ The employment module corresponds to phase 1 of 1-2-3 surveys (Razafindrakoto et al., 2009). Collected data inform very thoroughly on current working or unemployment conditions, past activities and time allocation of individuals of age 5 or older. The inclusion of individuals under 15 is particularly relevant in Madagascar where almost 30% of under-age are economically active (INSTAT, 2013c). The survey identifies workers of the informal sector. Following the standard definition, the informal sector is captured as unregistered units with at least part of their production sold and without complete sets of accounts (ILO, 1993).

A unique dataset of first-hand Governance, Peace and Security (GPS-SHaSA) survey modules was grafted to ENE15. GPS-SHaSA add-on modules are part of the African Union Commission continent-wide Strategy for the Harmonization of Statistics in Africa (SHaSA). The methodology for these household survey modules is based on previous experiences in African and Latin American countries (Razafindrakoto & Roubaud, 2018). Collected by NSOs, Calvo et al. (2019) provide evidence of their reliability.

The GPS-SHaSA add-on modules interview all inhabitants of age 18 or older. They provide information about perceptions and experiences of national and local governance. Perceptions and experiences of violence and how they are dealt with in surveyed localities are also reported. I use the declared victimisation in the twelve months prior to the survey and self-reported feeling of insecurity in this chapter. The victimisation questions cover different types of crime: theft, inside or outside the property, vandalism and physical assault.⁷ One question directly refers to the fear of

⁶Madagascar counts 6 provinces, 22 regions and 114 districts. Administrative divisions are mapped in appendix Figure 3.A1a.

⁷The questions are worded as follows: “*Over the past 12 months, did the following happen to you? - You were physically assaulted (injured, slapped, punched or kicked...); - Someone got into*

crime in day-to-day life in the questionnaire. It is formulated as follows: “*How much do you worry about the following potential threats to your security, in your day-to-day life? - Crime-related violence*”. The feeling of insecurity is also covered by a full range of complementary questions including the perceived likelihood of being victim of a crime, fear in everyday situations (in the neighbourhood, at home, in public transportation or at work) and general feeling of insecurity. Response options are always ranked from 1 (not at all worried) to 4 (very worried).

Households coordinates in ENE15 (as shown in appendix Figure 3.A1) allow for the inclusion of precise geo-climatic data measured for 0.25 degree buffer zones (radius of about 30 kilometres around households coordinates). I include data on remoteness using distance to main roads and elevation as proxies, climatic data from the Climate Hazards Center InfraRed Precipitation with Station data (CHIRPS; Funk et al., 2015), gemstone mine presence (Lujala, 2009) and average night lights radiance (Earth Observation Group, NOAA National Centers for Environmental Information).

Descriptive statistics are reported in Table 3.1. They confirm the major role of the informal sector in the Malagasy economy: it employs 90% of working adults particularly in the agricultural sector. Madagascar remains very rural as 80% of the population live in rural areas. Paid workers, who represent only three out of five workers of the informal sector, earn on average 16% less than the legal minimum wage (of Ariary 133,000 in 2015). The median paid worker earns Ar 77,000 in the informal sector.⁸

Descriptive statistics also confirm the relative low correlation between the fear of crime and previous victimisation (coefficient of correlation: 0.11). Figure 3.1 illustrates the weak spatial correlation between crime rates and rates of fearful adults at region level. Regions with high crime rates are rarely corresponding to those where the fear of crime is the most widespread and reciprocally for areas with low-crime prevalence. Furthermore, differences of the means in Table 3.1 show that victims of crime and fearful adults present substantial different characteristics on average. For instance, while men appear more often victims of crime, women feel more often worried by crime-related violence. Similarly, married adults are more often victims but less likely to be fearful. In the informal sector, fearful adults work on average

your residence without permission and stole or tried to steal something; - Someone deliberately destroyed or damaged your home, shop or any other property that you or your household owns; - Something was stolen from you outside your home”.

⁸1 Euro = 3590 Ariary on 1 October 2015.

more. Yet, their earnings are not significantly different from those who are not worried about the crime threat.

Table 3.1: Descriptive statistics and test of the equality of means

	Mean	Std. Dev.	Obs.	Diff. of means (0 – 1)	
				Victim	Fear
Status of activity: Inactive	0.10	0.31	8788	-0.01	-0.00
Unemployed	0.02	0.14	8788	-0.01**	-0.01**
Employed	0.88	0.33	8788	0.02*	0.01
In the informal sector	0.90	0.30	7701	0.02	0.02***
Sector of activity: Agr., forest. and fish.	0.77	0.42	6940	0.01	0.04***
Manufacturing and other industry	0.08	0.27	6940	0.01	-0.02**
Construction	0.02	0.13	6940	0.00	0.00
Trade, transport and hotels	0.09	0.29	6940	-0.01	-0.01
Information, finance, etc.	0.01	0.07	6940	-0.01**	-0.01***
Public administration, education, health, social work	0.00	0.05	6940	-0.00	-0.00
Other	0.03	0.18	6940	-0.01	-0.00
Worked in the last 7 days	0.97	0.18	6943	-0.01	0.01
Number of hours worked in the last 7 days	35.15	13.84	6705	-0.16	-1.76***
Paid	0.63	0.48	6897	-0.03	-0.01
Monthly earnings (Ar 1000)	111.54	153.45	4328	1.94	2.68
Have a secondary activity	0.36	0.48	6943	-0.05**	0.02
Victim of at least one crime	0.09	0.29	5844		-0.06***
Victim of at least one property crime	0.08	0.27	5845		-0.05***
Victim of at least one physical crime	0.03	0.16	5844		-0.03***
Worried by the crime-related violence	0.47	0.50	5845	-0.19***	
Perceived likelihood of being victim	0.42	0.49	5845	-0.12***	
Female	0.50	0.50	6943	0.06***	-0.03**
Age	38.44	14.27	6943	0.18	0.18
Education level: None	0.21	0.41	6943	0.05**	-0.00
Primary	0.45	0.50	6943	-0.01	0.01
Secondary	0.32	0.47	6943	-0.02	-0.01
Post-secondary	0.02	0.15	6943	-0.01	0.00
Relationship to the hh head: Head	0.48	0.50	6943	-0.03	0.01
Spouse	0.33	0.47	6943	0.03	-0.01
Children	0.14	0.34	6943	-0.01	0.01
Other relatives	0.04	0.21	6943	0.01	-0.01***
Other	0.01	0.08	6943	-0.00	0.00
Marital status: Married	0.66	0.47	6943	-0.06***	0.06***
Common law	0.05	0.22	6943	0.04***	-0.06***
Single	0.15	0.35	6943	-0.02	-0.00
Divorced	0.08	0.27	6943	0.03**	0.01*
Widow	0.06	0.23	6943	0.01	-0.01
Rural area	0.81	0.39	6943	0.03	0.02
Number of under 15 in the household	2.15	1.67	6943	0.05	0.07*

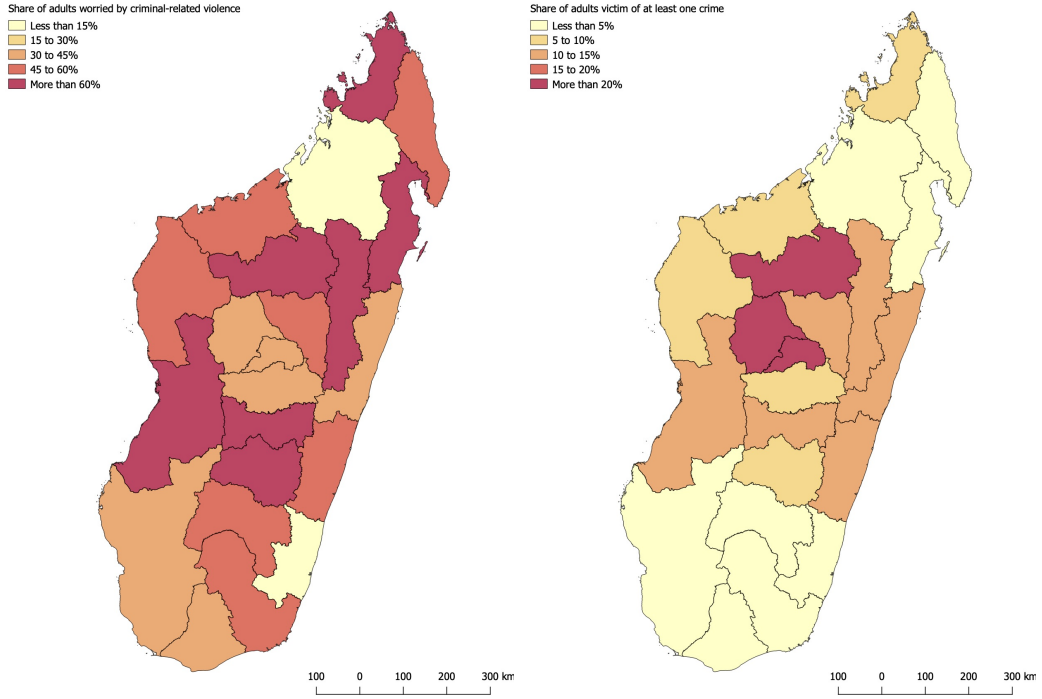
Note: 1 Euro = 3590 Ariary on 1 October 2015.

Sources: GPS-SHaSA modules, ENE15. INSTAT-Madagascar, DIAL-IRD. Author's calculations..

3.3.2 Empirical strategy

Based on the results of the existing literature, crime-related insecurity can affect workers through avoidance or protection strategies but it remains unclear how and to what extent victimisation, on the one hand, and the fear of crime, on the other

Figure 3.1: Fear and victimisation rates in Madagascar in 2015



(a) The fear of crime

(b) Victims of at least one crime

Sources: GPS-SHaSA modules, ENE15. INSTAT-Madagascar, DIAL-IRD. Author's computation.

hand, affect workers.

The baseline model is constrained to the 2015 sample of working adults. It is modelled as follows:

$$LM_{i,hh,r} = \alpha_1 + \beta_1 Fear_{i,hh,r} + \delta_1 Victim_{i,hh,r} + \gamma_1 Ind_{i,hh,r} + \eta_1 HH_{hh,r} + \rho_1 R_r + v_{i,hh,r} \quad (3.1)$$

where $LM_{i,hh,r}$ corresponds to the labour market outcome of individual i of household hh in region r . I alternatively test the following outcome variables: dummy variables for having worked at least one hour in the last seven days in the main activity, being paid in the main activity, having a secondary activity, and continuous variables: the number of hours worked during the last seven days and the log of monthly earnings in the main activity. Workers can declare their monthly earnings or their earnings bracket. For the latter, I impute earnings based on the estimation of an income equation.⁹ The variables of interest $Fear_{i,hh,r}$ and $Victim_{i,hh,r}$ distinguish

⁹Predicted values plus a randomised residual are attributed to each missing observation until it falls within the declared income bracket.

respectively fearful from non-fearful adults and victims from non-victims. They take the value 1 if i is worried about criminal violence in her day-to-day life/has been a victim of at least one crime in the past 12 months and 0 otherwise. $Indiv_{i,hh,r}$ is a set of individual controls including gender, age group, level of education and relationship to the household head. $HH_{hh,r}$ corresponds to an extensive set of household characteristics including the number of individuals under 15 living in the household, area of residence and a set of geo-climatic variables.¹⁰ It also includes month of interview dummies to account for seasonality in labour outcomes. In addition, I include region dummies to control for local unobserved heterogeneity including sub-national labour market particularities. All estimations are robust and adjusted for clustering at enumeration area level.

In lights of the substantial differences in labour market characteristics between the agricultural and nonagricultural sectors, the effects of insecurity on these outcomes are analysed by sector of activity. First, activities of the agricultural and non-agricultural sectors take place in different areas of the territory, where the market is shaped differently. Agricultural activities are concentrated in rural and remote areas where market integration is more difficult as infrastructures (and public services) are usually lacking (Gollin & Rogerson, 2014). Second, part of the production is destined to own-consumption in the agricultural sector contrary to the non-agricultural activities. Third, working habits differ a lot between the agricultural and nonagricultural sectors. For instance, agricultural workers spend on average less time at work than nonagricultural workers and a large part of the agricultural labour force consists of unpaid family workers. The wage and productivity gap is substantial between workers of the two branches (Gollin et al., 2014).

I assume that strategies should then differ between farmers and nonfarmers. Indeed, avoidance strategies are unlikely in the agricultural sector as agrarian production is primarily oriented towards households' own-consumption. Market orientation is secondary and rather concerns surpluses. Diversification of earnings sources is not an evident alternative either as entry costs to other nonfarm activities are high (see for instance Dercon & Krishnan, 1996; Reardon, 1997). For agricultural workers, we should expect the establishment of protection strategies. We could rather expect

¹⁰I include a proxy of remoteness interacting the distance to the main road with elevation, and a set of measures calculated for 0.25 degrees (about 28 km) household buffer zone: the number of gemstone mines (Lujala, 2009) to control for local factors of insecurity (see Berman et al., 2017), a standardised measure of rainfall deviation from the previous twenty years average during rice growing season (CHIRPS data) and the mean of night lights radiance during the past 6 months (EOG, NOAA NCEI).

avoidance strategies from nonagricultural workers. These avoidance strategies could also enlighten the willingness to protect the assets individuals have at home.

This analysis constrains the study of crime-related insecurity to a sub-sample of the Malagasy population, and of its labour force. Selection into participation in the informal labour market could bias the baseline estimators if unobserved characteristics affect both participation in the informal sector and labour market outcomes. Estimates would be overestimated if adults out of the labour force were ready to work less or for a lower wage. On the contrary, if inactive adults (or workers of the formal sector) have higher reservation wages than workers of the informal sector, results would be underestimated all other things being held constant. This selection bias is addressed using Heckman (1979) two-step procedure. In the first-step, I estimate a probit of the selection equation from which the inverse Mills ratio is drawn. In the second-step, baseline estimation differs only by the inclusion of the latter ratio. The procedure rests on the assumption that covariates of the structural model are a strict subset of first-step independent variables to avoid inconsistency due to multicollinearity of covariates. The probit first-stage estimation can be modelled as follows:

$$\begin{aligned}
 Select_{i,hh,r} = 1 &\iff Select_{i,hh,r}^* \geq 0 \\
 \text{where } Select_{i,hh,r}^* &= \alpha_2 + \beta_2 Fear_{i,hh,r} + \delta_2 Victim_{i,hh,r} + \gamma_2 Ind_{i,hh,r} \\
 &+ \eta_2 HH_{hh,r} + \mu ID_{i,hh,r} + \rho_2 R_r + v_{i,hh,r}
 \end{aligned} \tag{3.2}$$

where $Select_{i,hh,d}$ and $Select_{i,hh,r}^*$ respectively correspond to the selection variable and the unobservable latent variable. The selection variable takes the value 1 if individual i of household hh in region r is working in the informal sector (worked a non-null amount of time in the past seven days or is paid) and 0 otherwise. It includes the same covariates and region dummies as in baseline. $ID_{i,hh,r}$ corresponds to the identifying variables: father's employment status at interviewee age of 15 and the share of other household members working. They are assumed to be correlated with participation in the informal labour market but should not explain the time spent at work during the last seven days or monthly earnings.

The identification of a causal relationship rests on addressing several other challenges starting with endogeneity biases. On the one hand, a third factor could impact both working practices and insecurity levels over time, at local or individual level. For instance, poor local economic performance could determine both higher insecurity and lack of skilled-job opportunities, underestimating the estimated effects.

The inclusion of region dummies and covariates at buffer zone level would capture part of differences between such labour markets. The very large set of individual and household level controls should also mitigate the omitted variable bias. Furthermore, I implement [Altonji et al. \(2005\)](#) and updated [Oster \(2019\)](#) procedures to measure the necessary relative size of unobservables to observables to explain away the captured effects.

Reverse causality could also bias estimates. Criminals could principally target workers with higher earnings who in turn would feel more insecure. On the contrary, one could consider that poorer workers are less able to protect themselves from criminality and therefore could be more likely to be exposed to perceived or experienced insecurity. Similarly, workers with longer days could probably be more exposed to insecurity.

I further address endogeneity biases taking advantage of the panel dimension of 2015 data. 2015 is collected in the same enumeration areas where 2012 survey was conducted. The two waves correspond to a balanced longitudinal data of enumeration areas.¹¹ The 2012 survey, also conducted by the INSTAT between the months of October and November, includes the same augmented labour force survey as the one implemented in 2015. In 2012, two questions also allow to identify victimisation (at individual, household and neighbourhood levels) and feeling of insecurity similarly worded to 2015 questions.¹² However, the questions were only asked to one adult in the household, generally the household head or her spouse.¹³

The inclusion of enumeration areas and year dummies allows to control for time-invariant characteristics of small localities (the enumeration areas) including local economic performance and level of insecurity and for time-varying heterogeneity. The estimation can be modelled as follows:

$$LM_{i,hh,ea,t} = \alpha_3 + \beta_3 Fear_{i,hh,ea,t} + \delta_3 Victim_{i,hh,ea,t} + \gamma_3 Ind_{i,hh,ea,t} + \eta_3 HH_{hh,ea,t} + \phi EA_{ea,t} + \theta T_t + w_{i,hh,ea,t} \quad (3.3)$$

where the difference with baseline estimates stems from the introduction of a time-varying dimension t , the inclusion of enumeration areas ($EA_{ea,t}$) and time dummies (T_t) and the exclusion of urban/rural control and region dummies.

¹¹I am still in the process of cleaning the panel to make the most of longitudinal data at individual level.

¹²The victimisation questions do not allow differentiating for the type of crimes.

¹³If this estimation method further addresses endogeneity biases, it also has some drawbacks which should be addressed. As most 2012 respondents to insecurity questions are the household head or her spouse, it mainly implies some imbalances in the sample representativeness. Still, results remain robust to a sub-sample of only household head and head's spouse. Panel individual fixed effects estimation should fully address this issue.

Selection into migration is also likely to bias estimators if migrants are more or less likely to work and to be targets of criminal violence. The inclusion of interaction terms for insecurity variables with status of migration mitigates such bias.

3.4 Results

3.4.1 Baseline

I first estimate baseline estimations on the full labour force, regardless of firms' registration status. Results are reported in appendix Table 3.A1. Adults work on average almost two hours more per week when they are worried about criminal violence in their day-to-day life. They tend to have 6% higher income. This wealth improvement is somehow proportional to the longer days individuals spend at work. As time spent in their main activity is longer, fearful adults are less likely to hold a secondary activity. Labour market outcomes are not significantly correlated with victimisation.

Limited to the formal sector, these results do not hold, as shown in appendix Table 3.A2. The lower sample size might explain the absence of significant results.

The results are largely driven by workers of the informal sector. Baseline estimates are reported in Table 3.2 for the full sample of 2015 adult workers of the informal sector.¹⁴ Fearful workers of the informal sector do not seem to exit the labour market as the effect is close to zero and non-significant (column 1). They even tend to spend on average an additional hour and fifty minutes at work compared to those who do not feel worried (column 2). This increase in the time spent working seems beneficial as earnings of paid workers are 7% higher when they fear criminal violence (column 4). On the other hand, the increased time spent working in the main activity reduces the likelihood of cumulating earning sources (column 5). Regarding victims of crime, the relationship to labour market outcomes is not statistically significant but seems reversed to those of fearful workers. Victims seem to work and earn less.

Estimations by sector of activity are reported in Table 3.3. The effect of the fear of crime on labour market outcomes are fully driven by fearful workers of the agricultural sector. Their time spent at work during the last seven days is significantly higher by more than two hours (column 2) and monthly earnings of paid agricultural workers are 10% higher than workers feeling secure (column 4). Yet, again, this

¹⁴Full estimations are reported in appendix Table 3.A3. As one could expect, age has an inverse u-shaped impact on time spent at work and on earnings. All other adult workers are less likely to have a paid activity than the household head. Better lit areas increase the time spent at work too.

Table 3.2: Fear, victimisation and labour market outcomes in the informal sector

	Main activity in the informal sector				
	Worked last week	Number of hours worked	Have a paid work	Log of monthly earnings	Have a secondary activity
	(1)	(2)	(3)	(4)	(5)
Fear of crime	-0.000115 (0.00500)	1.838*** (0.475)	0.0142 (0.0100)	0.0792** (0.0313)	-0.0554*** (0.0168)
Victim of at least one crime	0.00705 (0.00703)	-0.668 (0.741)	-0.00239 (0.0157)	-0.0433 (0.0506)	0.0290 (0.0221)
<i>Controls</i>	YES	YES	YES	YES	YES
<i>Region dummies</i>	YES	YES	YES	YES	YES
Observations	5,844	5,683	5,807	3,770	5,844
Adjusted R-squared	0.0350	0.160	0.562	0.225	0.180

Note: Estimations are at individual level. Robust standard errors are in parentheses (adjusted for clustering at enumeration area level). All estimations include individual characteristics (gender, age group, level of education, relationship to household head and marital status) and household characteristics (area of residence, number of individuals under 15, month of interview and geo-climatic covariates: remoteness, number of gemstone mines, standardised rainfall deviation from the previous twenty years average during last rice growing season and mean of night lights radiance during the past 6 months). Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Sources: GPS-SHaSA modules, ENE 2105. INSTAT-Madagascar, DIAL-IRD. Author's calculations.

positive relationship between working time (and earnings) from one's main activity and the fear of crime is detrimental to earnings diversification as worried workers are less likely to have a secondary activity (column 5). These latter results rather emphasize a greater vulnerability from fearful workers as actual shocks would not be compensated by earnings from other activities. Farmers adopt costly working behaviours. These results might suggest that agricultural workers cope with the fear of crime through protection strategies. They stay longer at work to protect their crops and livestock from uninsured losses. Workers could also feel safer on their workplace thanks to reciprocal protection other workers could offer.

Working habits of nonagricultural workers do not significantly differ according to their perceived level of safety. Similarly, labour market outcomes remain non significantly different between victims and non-victims. The relationships between victimisation and time spent at work and monthly earnings remain robustly negative. It suggests that victims somewhat tend to limit their presence at work.

3.4.2 Robustness checks

The results are challenged addressing first potential measurement errors (and omitted variable) bias. Baseline estimation are specified using alternative measures of insecurity and victimisation. Especially, other measures of the feeling of fear allows to mitigate the risk of mismeasurement of perceptions of violence. The inclusion of measures of general feeling of insecurity also rules out potential omitted variable

Table 3.3: Fear, victimisation and labour market outcomes by sector of activity

	Agricultural sector					Non-agricultural sector				
	Worked last week	Nb. of hrs worked	Paid work	Log of earnings	Secondary activity	Worked last week	Nb. of hrs worked	Paid work	Log of earnings	Secondary activity
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Fear of crime	-0.00149 (0.00590)	2.263*** (0.462)	0.01000 (0.00912)	0.100** (0.0404)	-0.0663*** (0.0194)	0.00765 (0.00978)	0.0356 (1.284)	0.0269 (0.0182)	0.0603 (0.0417)	-0.0206 (0.0280)
Victim of crime	0.00838 (0.00820)	-0.342 (0.774)	-0.0135 (0.0140)	-0.0459 (0.0633)	0.0282 (0.0259)	0.0119 (0.0118)	-2.087 (1.735)	-0.00559 (0.0319)	-0.0650 (0.0808)	0.0389 (0.0425)
<i>Controls</i>	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
<i>Region dummies</i>	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	4,555	4,435	4,522	2,630	4,555	1,289	1,248	1,285	1,140	1,289
Adjusted R^2	0.0387	0.192	0.713	0.203	0.175	0.0462	0.0546	0.167	0.254	0.185

Note: See Table 3.2. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

Sources: GPS-SHaSA modules, ENE 2105. INSTAT-Madagascar, DIAL-IRD. Author's calculations.

bias due to individuals' general state of fearfulness that would correlate with both crime-related feeling of insecurity and labour market outcomes. Second, I overcome selection bias into participation in the informal labour market and into migration. Third, I take advantage of the panel dimension of 2015 survey to mitigate further estimation biases.

Measurement errors and unobservables

I first estimate baseline model replacing the binary variable of fear of criminal violence by a variable that accounts for the different levels of fear of criminal violence. It takes the values from 1 to 4, 1 being not worried at all about criminal violence and 4 being very worried.¹⁵ Results are reported in Panel A of appendix Table 3.A4. Taking 'not really' worried individuals as the reference, results remain very robust for 'somewhat' fearful workers of the agricultural sector. They are likely to work two hours and a half more, earn almost 16% more and are also less likely to have a secondary activity by 5 percentage points. The effects remain not significant in general in the nonagricultural sector. Results also remain very robust to the inclusion of the perceived likelihood of being victim of crime captured through a binary variable, as shown in Panel B.

On the contrary, variables regarding the feeling of insecurity in one's neighbourhood during daytime (Panel C) or general feeling of insecurity (Panel D) do not robustly affect labour market outcomes. Apart from the likelihood to have a secondary activity in the agricultural sector (significant at 10%, column 5), the results are not consistent with baseline estimates. Although the general feeling of insecurity

¹⁵I privileged the binary option to the categorical variable as extreme response categories gather few observations in the sub-samples of interest. Interpretations for extreme response modalities need to be cautious.

rity is positively correlated with the fear of crime, it does not affect labour market outcomes in a comparable manner. Unobserved characteristics explaining individuals' risk aversion cannot explain the effects of the fear of crime on labour market outcomes. These results suggest that the captured effect of fear is driven by its crime-related component.

Differentiating victimisation by type of crime does not allow for capturing significant effects on labour market outcomes. Nevertheless, results reported in appendix Table 3.A5 confirm the negative relationship between victimisation and the time allocated to work and earnings. In both sectors of activity, the number of work hours per week in the main activity seem more impacted by assaults than property crimes (burglary, theft and vandalism). In the nonagricultural sector, the effect is closely significant at usual thresholds (at 12%): assaulted adults tend to work less than non-victims. Conversely, victims of property crime appear more likely to work during the last seven days but the effect on the number of hours worked is non-significant.

Despite the consistency of the results across specifications, estimations remain potentially biased. First, a third factor explaining both insecurity and labour market outcomes could make the relationship between victimisation and the fear of crime and labour market outcomes spurious. This is rather unlikely given the very large set of individual and household (including geo-climatic characteristics) controls included in baseline estimation in addition to region dummies. Following Altonji et al. (2005), I further mitigate the omitted variable bias by measuring the relative size of unobservables to observables necessary to explain away the effect of insecurity on labour market outcomes.¹⁶ It consists of comparing the significant coefficients of insecurity between baseline estimations with controls and baseline estimations without any control.¹⁷

Unobservables should be 8 to 11 times larger than observables to explain away the effects of the fear on the number of hours worked and earnings in the agricultural sector. They should be twice as large as observables to balance the effect on having at least one secondary activity. This result is confirmed by Oster (2019) improved procedure which takes into account the change of R-squared from estimations without control to estimations with controls.¹⁸ Unobservables need to be 9 to 14 times larger than observables to explain away the effects of the fear on the number of

¹⁶Of course, it makes sense to implement such procedure only for robustly significant coefficients.

¹⁷The ratio equals $\frac{\tilde{\beta}_{control}}{\hat{\beta}_{nocontrol} - \tilde{\beta}_{control}}$ where $\tilde{\beta}_{control}$ is the coefficient of fear in baseline estimation with controls and $\hat{\beta}_{nocontrol}$ is the same coefficient in the uncontrolled specification.

¹⁸I use Oster (2019) Stata command *psacalc* to estimate the ratio.

hours worked and earnings in the agricultural sector. This ratio is estimated for a maximum R-squared corresponding to 2.5 times the baseline R-squared.¹⁹ These results suggest that omitted variable bias is thus unlikely for those estimations. Nevertheless, these results does not rule out endogeneity biases.

Selection bias

In addition to the robustness to alternative measures of insecurity, selection into participation in the informal labour market does not seem to drive upward or downward the observed effects. Indeed, results from Heckman (1979) selection procedure, reported in appendix Table 3.A6, show that results remain consistent with baseline estimations. Adults out of the informal sector do not differ significantly from those working of the informal sector to the extent that their participation in the labour market should not affect the results significantly.

Besides, it is possible that migrants (both international or internal) are better- or worth-off than natives. They may also find more difficulties to integrate the hosting locality which could affect their feeling of fear and the likelihood to be victims. To test if migrants bias baseline results, I interact crime-related insecurity variables with individuals' status of migration. The latter variable takes the value 1 if she has migrated in the last fifteen years and 0 otherwise. Results are reported in appendix Table 3.A7. The effects of fear and victimisation remain very consistent with baseline estimates. Still, migrants appear to adjust strongly when they are victim of criminality in the nonagricultural sector. Their earnings in their main activity lower significantly as their time spent working seem to decrease.

Pooled sample estimations

I further mitigate endogeneity biases estimating model 3.3. It integrates a time dimension to the sample allowing for the control of time-varying heterogeneity and most importantly for local time-invariant heterogeneity. The inclusion of enumeration area dummies allows to control for structural local economic performance and insecurity. Results are reported in Table 3.4. They confirm the negative impacts of victimisation on hours worked and earnings, particularly in the nonagricultural sector. Results also confirm the protection strategy interpretation for fearful workers of the agricultural sector. Indeed, farmers spend almost an additional hour per week when they are worried about the criminal violence threat. This increased time

¹⁹Oster 2019 suggests a maximum R-squared corresponding to 1.3 times the baseline R-squared. Doing so, unobservables need to be 6 times larger than observables to explain away the effects of the fear on having a secondary activity in the agricultural sector.

allocated to their main activity is somehow remunerated as earnings of paid agricultural workers are also higher by 8%. Nevertheless, the relationship with cumulating different activities is now not significant.

Nonfarm activities are not significantly related to the fear of crime, overall. Yet, fearful workers earn significantly more than non fearful workers. This contradicts the avoidance strategy hypothesis. Results suggest that baseline model for the fear of crime were overestimated in the agricultural sector and underestimated in the nonagricultural sector. However, these results should be interpreted with caution. These differences should be explained by the selection into respondents' relationship to household head in the 2012 survey. Almost only household heads and spouses were interviewed for insecurity-related questions in 2012. Household heads and spouses tend to declare higher earnings in the nonagricultural sector while their time spent at work is similar to other household members. On the contrary, farm activities are less time demanding for household spouses which should drive downwards the estimates. This selection bias should be addressed with panel individual fixed effects.

Table 3.4: Fear, victimisation and labour market outcomes in 2012 and 2015

	Agricultural sector					Non-agricultural sector				
	Worked last week	Nb. of hrs worked	Paid work	Log of earnings	Secondary activity	Worked last week	Nb. of hrs worked	Paid work	Log of earnings	Secondary activity
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Fear of crime	0.0106* (0.00616)	0.856** (0.409)	-0.00148 (0.00698)	0.0768** (0.0362)	0.00455 (0.0164)	-0.00414 (0.00841)	1.501 (1.118)	0.0126 (0.0136)	0.116*** (0.0413)	0.0223 (0.0234)
Victim of crime	0.00587 (0.00820)	-0.280 (0.682)	-0.00255 (0.0107)	-0.0205 (0.0484)	9.67e-06 (0.0234)	0.0127 (0.0116)	-1.900 (1.830)	0.0231 (0.0223)	-0.153* (0.0864)	0.0465 (0.0371)
<i>Controls</i>	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
<i>EA dummies</i>	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
<i>Year dummy</i>	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	6,980	6,709	6,948	4,879	6,981	2,204	2,137	2,202	2,023	2,207
Adjusted R^2	0.0866	0.176	0.724	0.191	0.179	0.0281	0.0821	0.179	0.287	0.259

Note: Estimations are at individual level. Robust standard errors are in parentheses (adjusted for clustering at enumeration area level). All estimations include individual characteristics (gender, age group, level of education, relationship to household head and marital status) and household characteristics (number of individuals under 15, month of interview and geo-climatic covariates: remoteness, number of gemstone mines, standardised rainfall deviation from the previous twenty years average during last rice growing season and mean of night lights radiance during the past 6 months). Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

Sources: ENEMPSI 2012, ENE 2015, GPS-SHaSA modules. INSTAT-Madagascar, DIAL-IRD. Author's calculations.

3.4.3 Further heterogeneity in the nonagricultural sector

While the fear of crime is tightly linked to the increased time allocated to the main activity in the agricultural sector, it is non-significant in the nonagricultural sector. Workers could cope with insecurity through other outcomes. Non-significant effects could also find their origins in other underlying heterogeneities. In addition to distinguishing the effects by sector of activity, living in rural or urban areas could also affect differently labour market outcomes (Young, 2013) and feeling of insecurity

as access to public services and institutions differs between urban and rural areas. I interact area of residence with the insecurity measure in baseline estimates to account for potential urban/rural heterogeneities. Results are reported in Table 3.5.

The effects of perceived insecurity remain robust in the agricultural sector. The effects are similar for urban and rural dwellers: both increase their time spent working in their main activity.

In the nonagricultural sector, results are more heterogeneous between urban and rural dwellers. The latter seem to adopt very similar strategies to workers of the agricultural sector. They allocate more time to their main activity and in very similar proportions to agricultural workers. They work two hours more per week, for 10% higher earnings and are less likely to have a secondary activity. The high interdependence of activities in rural areas (Sen, 1981, Fafchamps et al., 1998) could explain similar effects to the ones measured for agrarian activities. Indeed in Madagascar, the large majority of nonagricultural workers in rural areas are food retailers. These results could also stem from the reciprocal protection workers provide each other in rural areas during the day. On the contrary, workers of urban areas tend to spend less time working. If results are not significant, they are close to usual thresholds. It supports the establishment of avoidance strategies already documented in the existing literature on crime (Chakraborty et al., 2018; Velásquez, 2019).

Victims remain marginally affected in the agricultural sector. Despite marked differences between farmers of urban and rural areas, the effects are balanced overall. The estimates for victimisation in urban areas should be interpreted with caution as the number of victims with an agrarian activity in urban areas is very limited. In the nonagricultural sector, if the results remain non-significant they still suggest that victims establish avoidance strategies. Indeed, time and earnings seem negatively correlated with victimisation.

3.4.4 Overall time allocation analyses

In the agricultural sector, workers remain longer on their fields to deter potential criminals from stealing or destroying their production. At individual level, the fear of crime exposes peasants to higher risks as earnings sources are less diverse. If peasants are exposed to a shock including crops or cattle theft, farmers are then left with less options to smooth their income losses. At local level, the increase in time spent working in the agricultural sector when farmers fear crime-related violence seems to be balanced out by an increase in the workers' earnings and by a decrease in the likelihood of having a secondary activity. Hence, the shift towards workers'

Table 3.5: Fear, victimisation per area of residence and labour market outcomes

	Agricultural sector					Non-agricultural sector				
	Worked last week	Nb. of hrs worked	Paid work	Log of earnings	Secondary activity	Worked last week	Nb. of hrs worked	Paid work	Log of earnings	Secondary activity
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Rural	-0.00425 (0.00909)	0.937 (1.453)	-0.0186 (0.0366)	-0.152** (0.0752)	0.0378 (0.0543)	0.00778 (0.0158)	-2.718 (1.925)	0.00964 (0.0295)	-0.156* (0.0925)	0.0990** (0.0470)
Fear of crime	-0.0393* (0.0212)	2.961* (1.512)	0.0152 (0.0267)	0.0620 (0.0913)	-0.0289 (0.0590)	-0.00684 (0.0126)	-2.560 (1.810)	0.0451* (0.0270)	0.0122 (0.0627)	0.0177 (0.0385)
Rural × Fear	0.0423* (0.0222)	-0.800 (1.616)	-0.00576 (0.0293)	0.0419 (0.0992)	-0.0420 (0.0623)	0.0283 (0.0194)	5.124** (2.409)	-0.0370 (0.0344)	0.0947 (0.0869)	-0.0788 (0.0514)
Victim of crime	0.0526*** (0.0156)	3.978** (1.721)	-0.0250 (0.0494)	0.134 (0.184)	0.0517 (0.0831)	0.0196 (0.0169)	-2.193 (2.400)	0.0226 (0.0385)	-0.0265 (0.123)	0.119** (0.0582)
Rural × Victim	-0.0492*** (0.0181)	-4.859** (2.031)	0.0128 (0.0519)	-0.200 (0.192)	-0.0267 (0.0861)	-0.0139 (0.0273)	0.885 (3.716)	-0.0693 (0.0653)	-0.0743 (0.172)	-0.192** (0.0807)
<i>Controls</i>	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
<i>Region dummies</i>	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	4,555	4,435	4,522	2,630	4,555	1,289	1,248	1,285	1,140	1,289
Adjusted R^2	0.0403	0.193	0.713	0.203	0.174	0.0463	0.0582	0.168	0.254	0.190

Note: See Table 3.2. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Sources: GPS-SHaSA modules, ENE 2105. INSTAT-Madagascar, DIAL-IRD. Author's calculations.

main activity could have a zero net effect on overall local productivity.

Table 3.6 presents estimation results for principal and secondary activity cumulated. These estimations test whether insecurity has a local impact on individual and local productivity. Neither the fear nor victimisation affects significantly the likelihood to work. However, fearful workers of the agricultural sector spend more time working than non fearful workers. Significant at 10%, being worried about criminal violence increases the total number of hours worked by over an hour per week. This effect is non-significantly balanced out by an increase in total earnings of agricultural workers. Thus, the fear of crime not only implies higher risk exposition of workers but also reduces agricultural workers' overall productivity.

In the nonagricultural sector, results remain non significant. Nevertheless, both worried and victimised adults present negative coefficients for the time allocated to work.

The increase of time allocated to work in the agricultural sector is confirmed through the analysis of time allocation to other day-to-day tasks, particularly domestic chores. Results, reported in Table 3.7, show that the likelihood of farmers to dedicate at least one hour to domestic chores diminishes by 6 percentage points (column 2) when they are worried about the criminal violence threat. This reduction of time allocated to domestic chores, including taking care of other household members, is observed less precisely but in similar magnitude for nonagricultural workers. Fearful workers rather stop doing these chores than reduce the amount of time ded-

Table 3.6: Fear, victimisation and labour market outcomes, all activities cumulated

	Main activity in the agric. sector				Main activity in the non-agric. sector			
	Worked last week	Nb. of hrs worked	Paid work	Log of earnings	Worked last week	Nb. of hrs worked	Paid work	Log of earnings
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Fear of crime	-0.00503 (0.00438)	1.131* (0.579)	0.00752 (0.00865)	0.0533 (0.0432)	0.0120 (0.00893)	-0.463 (1.324)	0.0310* (0.0185)	0.0611 (0.0449)
Victim of crime	0.00278 (0.00721)	0.669 (0.890)	-0.000313 (0.0155)	-0.00560 (0.0703)	0.00472 (0.0109)	-0.975 (1.850)	-0.00356 (0.0331)	-0.0337 (0.0897)
<i>Controls</i>	YES	YES	YES	YES	YES	YES	YES	YES
<i>Region dummies</i>	YES	YES	YES	YES	YES	YES	YES	YES
Observations	4,553	4,461	3,946	2,480	1,288	1,253	1,175	1,039
Adjusted R^2	0.0288	0.164	0.756	0.167	0.0487	0.0410	0.195	0.208

Note: See Table 3.2. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Sources: GPS-SHaSA modules, ENE 2105. INSTAT-Madagascar, DIAL-IRD. Author's calculations.

icated to them. Estimates for the number of hours allocated to such chores in the last seven days (columns 3 and 8) are not significant. Other types of chores such as getting wood or water are not significantly affected by adults' feeling of insecurity. Victims of at least one crime reduce the time allocated to chores in both sectors but results are not significant. Only the time allocated to domestic chores diminishes significantly by 14% in the agricultural sector.

Table 3.7: Fear, victimisation and time allocation by sector of activity

	Agricultural sector					Non-agricultural sector				
	Studies	Domestic chores		Get water/wood		Studies	Domestic chores		Get water/wood	
	Some	Some	Nb of hrs (log)	Some	Nb of hrs (log)	Some	Some	Nb of hrs (log)	Some	Nb of hrs (log)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Fear of crime	-0.00374 (0.00442)	-0.0670*** (0.0251)	0.0609 (0.0419)	0.0148 (0.0117)	-0.0242 (0.0408)	0.00234 (0.0126)	-0.0622* (0.0360)	-0.0861 (0.0655)	0.00273 (0.0230)	0.0219 (0.0547)
Victim of crime	0.00243 (0.00638)	0.0531 (0.0378)	-0.141** (0.0555)	-0.0286 (0.0173)	-0.0646 (0.0437)	-0.0216** (0.0102)	0.0455 (0.0544)	-0.0787 (0.0827)	0.0392 (0.0483)	-0.0122 (0.0812)
<i>Controls</i>	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
<i>Region dummies</i>	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	3,814	3,921	2,100	4,012	3,620	997	1,023	568	1,025	850
Adjusted R^2	0.0616	0.285	0.354	0.0594	0.224	0.0549	0.256	0.356	0.0945	0.196

Note: See Table 3.2. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Sources: GPS-SHaSA modules, ENE 2105. INSTAT-Madagascar, DIAL-IRD. Author's calculations.

3.4.5 Effects of adults' fear on under-age time allocation

Adults' perceived and experienced crime-related insecurity impacts their allocation of time. While time allocated to domestic chores diminishes, working time increases in the agricultural sector. At household level, one should expect that these observed effects impact other household members time allocation. In particular,

adults' perceived and experienced violence could affect investment choices in under-age members. In Madagascar, although under 15 work is legally forbidden, almost a third of 10 to 14 years old children and 17% of 5 to 14 years old are working (INSTAT, 2013c). I estimate the relationships between having at least one adult member who is worried and victim of crime and under 15 time allocation. Results are reported in Tables 3.8 and 3.9 according to head's or spouse's sector of activity.²⁰

In households with at least the head or her spouse in the agricultural sector, living with a fearful adult increases participation in the labour market for under 15 individuals. The time spent at work for children under 15 years old increases by 10% (column 3). On the intensive margin, the more household members are worried about criminal violence in their day-to-day life (measured by the household share of GPS-SHaSA respondents), the more likely to work they are (see column 1 of appendix Table 3.A8). An increase of the share of fearful household members by one standard deviation rises the probability of under 15 to work by 1.7 percentage point. This increase of under 15 participation further supports the protection coping strategy assumption. The greater participation of household members in the productive activity without observed benefit corresponds to an increased presence at work potentially to deter other from theft or destruction. In addition to presenting some risks for children development, this decision further reduces overall productivity. Nevertheless, the increase of under 15 participation in the household economic activity does not seem detrimental to school attendance (column 4). Indeed, the presence of fearful adults does not significantly affect school attendance of under-age individuals. Conversely, it does affect involvement of young household members in domestic chores. Presence of fearful adults reduces children's likelihood of doing some chores by 8 percentage points.

In the nonagricultural sector, results regarding time spent working and the probability to do some domestic chores are very similar to those of the households in the agricultural sector (see Table 3.9 and appendix Table 3.A9). Yet, estimates are not significant.²¹ The impact of having at least one victim among the household members is not significant on under-age's time allocation, regardless of the sector of activity.

²⁰The specification remains the same as the baseline. Only the number of under 15 members is replaced by the birth order of the observed individual.

²¹Results are robustly significant when looking at having a secondary activity but estimates rely on very small sub-sample. These results should be interpreted with caution.

Table 3.8: Fear, victimisation and time allocation of under 15 in the agricultural sector

	Head or spouse works in the agricultural sector					
	Work	Secondary activity	Nb of hrs (log)	Attend school	Domestic chores	
					Some	Nb of hrs (log)
(1)	(2)	(3)	(4)	(5)	(6)	
At least one adult worried about crime	0.0223 (0.0173)	-0.0371 (0.0242)	0.109* (0.0620)	-0.00337 (0.0121)	-0.0830*** (0.0233)	-0.0266 (0.0632)
At least one adult victim of crime	0.0212 (0.0199)	0.0321 (0.0325)	-0.0956 (0.0852)	-0.0153 (0.0172)	0.0381 (0.0264)	-0.0514 (0.0662)
<i>Controls</i>	YES	YES	YES	YES	YES	YES
<i>Region dummies</i>	YES	YES	YES	YES	YES	YES
Observations	4,148	999	968	4,148	3,698	1,058
Adjusted R^2	0.364	0.0446	0.260	0.613	0.212	0.267

Note: Estimations are at individual level. Robust standard errors are in parentheses (adjusted for clustering at enumeration area level). All estimations include individual characteristics (gender, age group, level of education, relationship to household head and marital status) and household characteristics (area of residence, under 15 rank, month of interview and geo-climatic covariates: remoteness, number of gemstone mines, standardised rainfall deviation from the previous twenty years average during last rice growing season and mean of night lights radiance during the past 6 months). Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Sources: GPS-SHaSA modules, ENE 2105. INSTAT-Madagascar, DIAL-IRD. Author's calculations.

Table 3.9: Fear, victimisation and time allocation of under 15 in the nonagricultural sector

	Head or spouse works in the nonagricultural sector					
	Work	Secondary activity	Nb of hrs (log)	Attend school	Domestic chores	
					Some	Nb of hrs (log)
(1)	(2)	(3)	(4)	(5)	(6)	
At least one adult worried about crime	-0.0118 (0.0192)	-0.124** (0.0479)	0.257 (0.156)	0.00656 (0.0146)	-0.0604 (0.0368)	0.0425 (0.126)
At least one adult victim of crime	0.0362 (0.0308)	-0.126*** (0.0435)	0.130 (0.187)	-0.0183 (0.0175)	0.0322 (0.0352)	-0.0946 (0.163)
<i>Controls</i>	YES	YES	YES	YES	YES	YES
<i>Region dummies</i>	YES	YES	YES	YES	YES	YES
Observations	1,321	151	148	1,321	1,218	282
Adjusted R^2	0.245	0.312	0.229	0.603	0.229	0.331

Note: See Table 3.8. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Sources: GPS-SHaSA modules, ENE 2105. INSTAT-Madagascar, DIAL-IRD. Author's calculations.

3.5 Conclusion

In Madagascar, citizens report criminal violence as one of their main concerns in their day-to-day lives. This paper analyses the relationship between the experienced insecurity on the one hand, the perceived insecurity on the other hand and workers' habits in the Malagasy informal sector. Workers of the informal sector represent the very large majority of the total workforce in the Red Island and to a broader extent in low-income countries. They are very vulnerable to shocks including crime as they work in difficult conditions, often without proper premises, and benefit from poor

safety nets. I use augmented labour force survey conducted in 2015 to disentangle the effects of victimisation and the fear of crime on workers' time allocation and earnings.

Perceived insecurity tends to affect individuals' decisions on the informal labour market to a much broader extent than experienced insecurity. Overall, the fear of crime increases the time spent at work by two hours per week. This effect is driven by workers of the agricultural sector and rural inhabitants. This increase of time worked in the main activity implies a withdrawal from secondary activities. These results are robust to alternative measures of fear of crime which mitigate potential measurement errors bias. Secondary activities are an important insurance mechanism as it helps households diversify their sources of income. Adults worried about criminal violence put their household and themselves at risk if a shock directly affects their production through the loss of their crops or livestock.

Further estimations rules out omitted variable bias due to individuals' risk aversion or structural local insecurity and economic performance. Results remain consistent with other estimation models that account for selection into participation in the informal sector and into migration.

In addition to higher risk exposition, the fear of crime affects productivity negatively as the increase in worked time is insufficiently compensated by the implied higher gains. This could explain part of labour misallocation to the agricultural sector and the very low productivity of the agricultural sector in Madagascar and to a broader extent in developing countries.

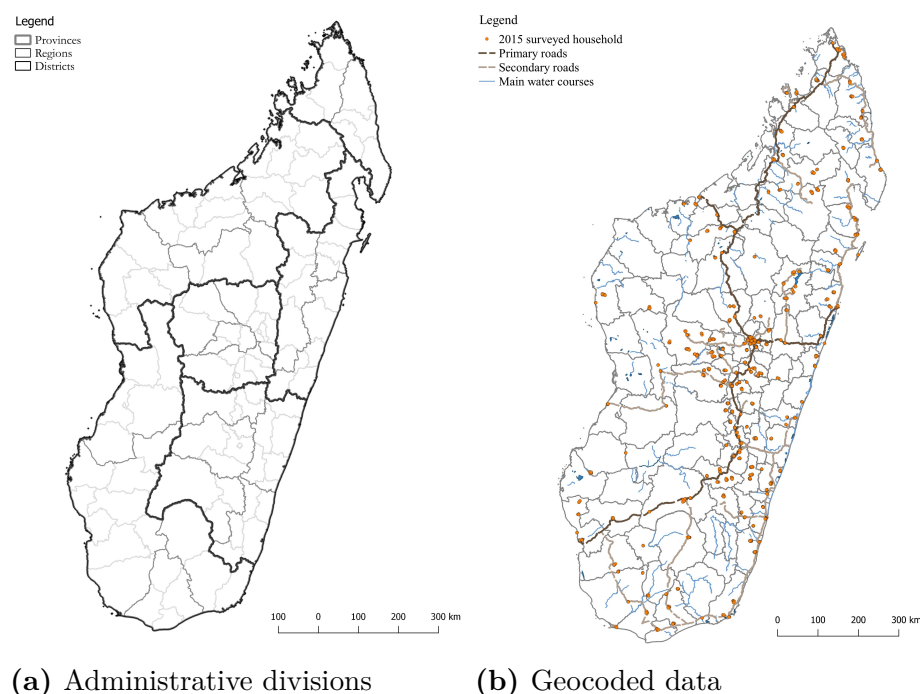
In the nonagricultural sector, the fear of crime is non-significantly related to workers' decisions overall. Underlying heterogeneities, particularly between urban and rural areas provide keys to understand coping strategies in insecure contexts. In rural areas, the high interdependence of sectors of activity explain that workers of the nonagricultural sector adopt very similar strategies to agricultural workers. In urban areas, despite non-significant effects, the fear of crime seems to affect workers in the opposite way. Workers tend to adopt avoidance strategies as their time at work seems to decrease. Similarly, despite a robust negative effect, victimisation does not significantly affect time spent at work and earnings. This could be explained by further estimation biases, including endogeneity biases.

Overall, I provide some evidence of the extent to which the feeling of insecurity affects working decisions as well as individual and local wealth. The fear of crime appears to affect workers to a much larger extent than actual criminality. Not only

the effects of fear seem stronger in magnitude but the fear of crime affects citizens to a much broader extent than criminality. In addition to the obvious necessity to control violence, the integration of perceptions of crime-related insecurity should be brought forward in the political agenda for development purposes. From the existing literature, information campaigns represent a useful tool to limit erroneous perceptions on violence.

Appendix

Figure 3.A1: Madagascar administrative divisions and ENE15 surveyed households



Sources: ENE15. INSTAT-Madagascar, DIAL-IRD. Author's computation.

Table 3.A1: Fear, victimisation and labour market outcomes in 2015

	Main activity				
	Worked last week	Number of hours worked	Have a paid work	Log of monthly earnings	Have a secondary activity
	(1)	(2)	(3)	(4)	(5)
Fear of crime	-0.00212 (0.00471)	1.870*** (0.470)	0.0158* (0.00953)	0.0661** (0.0287)	-0.0452*** (0.0148)
Victim of at least one crime	0.00559 (0.00638)	-0.768 (0.744)	-0.00407 (0.0131)	-0.0479 (0.0481)	0.0211 (0.0194)
<i>Controls</i>	YES	YES	YES	YES	YES
<i>Region dummies</i>	YES	YES	YES	YES	YES
Observations	6,442	6,261	6,403	4,306	7,165
Adjusted R-Squared	0.0309	0.159	0.532	0.287	0.205

Note: Estimations are at individual level. Robust standard errors are in parentheses (adjusted for clustering at enumeration area level). All estimations include individual characteristics (gender, age group, level of education, relationship to household head and marital status) and household characteristics (area of residence, number of individuals under 15, month of interview and geo-climatic covariates: remoteness, number of gemstone mines, standardised rainfall deviation from the previous twenty years average during last rice growing season and mean of night lights radiance during the past 6 months). Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Sources: GPS-SHaSA modules, ENE 2105. INSTAT-Madagascar, DIAL-IRD. Author's calculations.

Table 3.A2: Fear, victimisation and labour market outcomes in the formal sector in 2015

	Main activity in the formal sector				
	Worked last week	Number of hours worked	Have a paid work	Log of monthly earnings	Have a secondary activity
	(1)	(2)	(3)	(4)	(5)
Fear of crime	-0.0136 (0.0170)	1.816 (1.280)	0.0365 (0.0225)	-0.0937 (0.0571)	0.00749 (0.0333)
Victim of at least one crime	0.0171 (0.0222)	1.560 (2.730)	-0.0189 (0.0345)	-0.0465 (0.103)	-0.0510 (0.0536)
Constant	1.012*** (0.129)	46.12*** (10.64)	1.407*** (0.262)	3.102*** (0.651)	0.143 (0.366)
<i>Controls</i>	YES	YES	YES	YES	YES
<i>Region dummies</i>	YES	YES	YES	YES	YES
Observations	598	578	596	536	598
Adjusted R-Squared	0.0360	0.161	0.203	0.344	0.192

Note: Estimations are at individual level. Robust standard errors are in parentheses (adjusted for clustering at enumeration area level). All estimations include individual characteristics (gender, age group, level of education, relationship to household head and marital status) and household characteristics (area of residence, number of individuals under 15, month of interview and geo-climatic covariates: remoteness, number of gemstone mines, standardised rainfall deviation from the previous twenty years average during last rice growing season and mean of night lights radiance during the past 6 months). Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

Sources: GPS-SHaSA modules, ENE 2105. INSTAT-Madagascar, DIAL-IRD. Author's calculations.

Table 3.A3: Fear, victimisation and labour market outcomes in the informal sector in 2015

	Main activity in the informal sector				
	Worked last week	Number of hours worked	Have a paid work	Log of monthly earnings	Have a secondary activity
	(1)	(2)	(3)	(4)	(5)
Fear of crime	-0.000115 (0.00500)	1.838*** (0.475)	0.0142 (0.0100)	0.0792** (0.0313)	-0.0554*** (0.0168)
Victim of crime	0.00705 (0.00703)	-0.668 (0.741)	-0.00239 (0.0157)	-0.0433 (0.0506)	0.0290 (0.0221)
Female	-0.0122* (0.00693)	-2.599*** (0.529)	-0.0304** (0.0131)	-0.323*** (0.0310)	0.00414 (0.0171)
Rural	0.00708 (0.0101)	-2.424** (0.961)	-0.101*** (0.0269)	-0.242*** (0.0538)	0.0655** (0.0283)
Age group (reference: 18-20 y.o)					
21-25	0.0151 (0.0108)	1.497* (0.777)	0.0739*** (0.0234)	0.232*** (0.0732)	0.0342 (0.0236)
26-30	0.0184 (0.0119)	2.747*** (0.768)	0.0977*** (0.0233)	0.259*** (0.0723)	0.0487* (0.0257)
31-40	0.0183* (0.0108)	2.383*** (0.812)	0.0979*** (0.0236)	0.310*** (0.0703)	0.0448* (0.0262)
41-50	0.0236** (0.0100)	1.886** (0.812)	0.108*** (0.0235)	0.336*** (0.0728)	0.0223 (0.0266)
51-60	0.0134 (0.0118)	1.735** (0.868)	0.0868*** (0.0245)	0.316*** (0.0743)	-0.0422 (0.0290)
61 and more	0.000216 (0.0136)	-2.027** (0.971)	0.0869*** (0.0257)	0.196** (0.0825)	-0.132*** (0.0318)
Education level (ref.: None)					
Primary	-0.00324 (0.00631)	0.243 (0.527)	0.0142 (0.0109)	0.0635 (0.0393)	0.0166 (0.0183)
Secondary	-0.00278 (0.00676)	1.275** (0.629)	0.0424*** (0.0147)	0.255*** (0.0433)	-0.0257 (0.0211)
Post-secondary	-0.0302* (0.0181)	1.834 (1.891)	0.0773** (0.0319)	0.608*** (0.0898)	-0.0823* (0.0417)
Relationship to the household head					
Spouse	0.00109 (0.00844)	-1.847*** (0.585)	-0.652*** (0.0243)	-0.0911** (0.0387)	-0.119*** (0.0181)
Child	0.00770 (0.00660)	-2.860*** (0.693)	-0.627*** (0.0295)	-0.183*** (0.0647)	-0.110*** (0.0237)
Other relatives	0.00106 (0.0124)	-1.051 (1.146)	-0.611*** (0.0330)	-0.102 (0.0870)	-0.188*** (0.0319)
Other	0.0315*** (0.00943)	12.61*** (3.164)	-0.147* (0.0828)	-0.630*** (0.115)	-0.235*** (0.0843)
Number of under 15 members	-0.00297* (0.00155)	-0.101 (0.109)	-0.00357 (0.00289)	0.00236 (0.00817)	0.00235 (0.00458)
Distance to the closest primary road (km)	7.31e-05 (9.44e-05)	-0.0314*** (0.00778)	-0.000404* (0.000216)	-0.000403 (0.000504)	0.000171 (0.000331)
Average altitude	1.82e-05 (1.93e-05)	0.00208 (0.00149)	-4.75e-05 (3.62e-05)	0.000277** (0.000122)	-0.000311*** (6.92e-05)
Distance x Altitude	6.95e-08 (1.29e-07)	-1.67e-05 (1.49e-05)	1.87e-07 (3.31e-07)	-1.60e-06* (9.66e-07)	1.98e-06*** (5.95e-07)
Number of mines registered	-0.00275 (0.00453)	-0.952** (0.433)	-0.00272 (0.00975)	-0.0565** (0.0277)	0.00858 (0.0124)
Night lights average radiance [$m - 6; m$]	-0.0110 (0.0313)	7.971* (4.239)	0.324*** (0.0795)	0.243 (0.264)	-0.0849 (0.134)
Std dev. of rain. from the prev. 20 y. avg. ($t - 1$) (growing season)	-0.00709 (0.0164)	2.591** (1.132)	-0.00362 (0.0206)	-0.0280 (0.0680)	0.0315 (0.0425)
Std dev. of rain. from the prev. 20 y. avg. ($t - 2$) (growing season)	0.0122 (0.0126)	-1.118 (0.987)	0.0338* (0.0189)	0.0375 (0.0674)	-0.00183 (0.0402)
Month dummies	YES	YES	YES	YES	YES
Region dummies	YES	YES	YES	YES	YES
Observations	5,844	5,683	5,807	3,770	5,844
Adjusted R-squared	0.0350	0.160	0.562	0.225	0.180

Note: Estimations are at individual level. Robust standard errors are in parentheses (adjusted for clustering at enumeration area level). Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

Sources: GPS-SHaSA modules, ENE 2105. INSTAT-Madagascar, DIAL-IRD. Author's calculations.

Table 3.A4: Other measures of fear, victimisation and labour market outcomes

	Agricultural sector					Non-agricultural sector				
	Worked last week	Nb. of hrs worked	Paid work	Log of earnings	Secondary activity	Worked last week	Nb. of hrs worked	Paid work	Log of earnings	Secondary activity
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<i>Panel A</i>										
Worried about the threat of criminal violence (reference: Not really)										
<i>Not at all</i>	0.00577 (0.00777)	-0.762 (0.614)	-0.00692 (0.0128)	0.0335 (0.0498)	0.0126 (0.0231)	0.0112 (0.0151)	-3.435** (1.721)	0.0391 (0.0292)	0.0531 (0.0771)	0.0107 (0.0431)
<i>Somewhat</i>	0.00730 (0.00632)	2.635*** (0.480)	0.00115 (0.0105)	0.158*** (0.0505)	-0.0520*** (0.0189)	0.00650 (0.0112)	-1.575 (1.403)	0.0275 (0.0200)	0.0797* (0.0472)	-0.00487 (0.0306)
<i>Very much</i>	-0.0172 (0.0108)	0.335 (0.760)	0.0243* (0.0134)	-0.0155 (0.0592)	-0.0877*** (0.0285)	0.0287 (0.0196)	2.061 (1.939)	0.0807** (0.0310)	0.0542 (0.0841)	-0.0733 (0.0474)
Victim of crime	0.00993 (0.00853)	-0.197 (0.768)	-0.0150 (0.0141)	-0.0333 (0.0635)	0.0305 (0.0258)	0.0110 (0.0119)	-2.445 (1.687)	-0.00778 (0.0324)	-0.0609 (0.0815)	0.0435 (0.0426)
Adjusted R^2	0.0404	0.195	0.713	0.207	0.175	0.0463	0.0601	0.170	0.253	0.185
<i>Panel B</i>										
Likely to be victim of crime	0.00377 (0.00543)	2.607*** (0.522)	0.0312*** (0.00937)	0.0400 (0.0365)	-0.0787*** (0.0190)	0.0262** (0.0113)	0.797 (1.056)	0.00943 (0.0192)	0.00817 (0.0483)	0.0210 (0.0242)
Victim of crime	0.00765 (0.00815)	-0.348 (0.777)	-0.0163 (0.0138)	-0.0371 (0.0630)	0.0289 (0.0261)	0.0108 (0.0113)	-2.152 (1.742)	-0.00278 (0.0319)	-0.0568 (0.0800)	0.0345 (0.0421)
Adjusted R^2	0.0388	0.194	0.714	0.200	0.176	0.0508	0.0550	0.166	0.253	0.185
<i>Panel C</i>										
Feel unsafe outside (daytime)	-0.0120 (0.0107)	0.800 (0.713)	0.0221 (0.0191)	-0.0983 (0.0601)	-0.0556* (0.0336)	-0.00529 (0.0174)	1.581 (1.784)	0.0414** (0.0173)	0.0443 (0.0858)	-0.00393 (0.0361)
Victim of crime	0.00849 (0.00824)	-0.0400 (0.794)	-0.0126 (0.0138)	-0.0319 (0.0624)	0.0198 (0.0261)	0.0131 (0.0112)	-2.129 (1.749)	-0.00306 (0.0321)	-0.0570 (0.0809)	0.0364 (0.0421)
Adjusted R^2	0.0391	0.184	0.713	0.201	0.172	0.0459	0.0553	0.167	0.253	0.184
<i>Panel D</i>										
Feel unsafe in general	-0.00554 (0.00522)	0.476 (0.500)	0.0178** (0.00892)	-0.0355 (0.0430)	-0.0349* (0.0194)	0.00444 (0.0112)	0.757 (1.109)	0.00667 (0.0196)	-0.0978* (0.0536)	-0.00873 (0.0257)
Victim of crime	0.00853 (0.00821)	-0.0510 (0.794)	-0.0132 (0.0138)	-0.0303 (0.0629)	0.0206 (0.0262)	0.0125 (0.0112)	-2.150 (1.734)	-0.00254 (0.0324)	-0.0455 (0.0811)	0.0370 (0.0420)
Adjusted R^2	0.0389	0.184	0.713	0.200	0.172	0.0460	0.0550	0.166	0.256	0.184
<i>Controls</i>	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
<i>Region dummies</i>	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	4,555	4,435	4,522	2,630	4,555	1,289	1,248	1,285	1,140	1,289

Note: See Table 3.2. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.
Sources: GPS-SHaSA modules, ENE 2105. INSTAT-Madagascar, DIAL-IRD. Author's calculations.

Table 3.A5: Fear, victimisation per type of crime and labour market outcomes

	Agricultural sector					Non-agricultural sector				
	Worked last week	Nb. of hrs worked	Paid work	Log of earnings	Secondary activity	Worked last week	Nb. of hrs worked	Paid work	Log of earnings	Secondary activity
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Fear of crime	-0.00152 (0.00589)	2.288*** (0.460)	0.00986 (0.00906)	0.100** (0.0404)	-0.0660*** (0.0193)	0.00813 (0.00995)	0.0983 (1.299)	0.0263 (0.0182)	0.0613 (0.0422)	-0.0210 (0.0281)
Victim of assault	0.00750 (0.0140)	-1.464 (1.262)	0.0288 (0.0301)	-0.00347 (0.0857)	0.0121 (0.0484)	-0.0498 (0.0325)	-4.502 (2.890)	0.0739 (0.0486)	-0.0785 (0.118)	0.0309 (0.0756)
Victim of property crime	0.00692 (0.00968)	-0.294 (0.855)	-0.0241 (0.0154)	-0.0536 (0.0713)	0.0225 (0.0299)	0.0358*** (0.0119)	-1.200 (1.856)	-0.0404 (0.0341)	-0.0432 (0.0841)	0.0359 (0.0498)
<i>Controls</i>	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
<i>Region dummies</i>	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	4,555	4,435	4,522	2,630	4,555	1,289	1,248	1,285	1,140	1,289
Adjusted R^2	0.0385	0.192	0.713	0.203	0.174	0.0487	0.0554	0.169	0.253	0.184

Note: See Table 3.2. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.
Sources: GPS-SHaSA modules, ENE 2105. INSTAT-Madagascar, DIAL-IRD. Author's calculations.

Table 3.A6: Heckman selection procedure by sector of activity

	Agricultural sector					Non-agricultural sector				
	Worked last week	Nb. of hrs worked	Paid work	Log of earnings	Secondary activity	Worked last week	Nb. of hrs worked	Paid work	Log of earnings	Secondary activity
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Fear of crime	-0.000213 (0.00614)	2.316*** (0.453)	0.00695 (0.0105)	0.101** (0.0401)	-0.0647*** (0.0191)	0.00777 (0.00981)	0.0777 (1.229)	0.0283 (0.0203)	0.0615 (0.0431)	-0.0219 (0.0283)
Victim of crime	0.00877 (0.00890)	-0.339 (0.736)	-0.0141 (0.0151)	-0.0451 (0.0637)	0.0287 (0.0258)	0.0123 (0.0152)	-1.937 (1.757)	-0.000123 (0.0346)	-0.0712 (0.0899)	0.0353 (0.0459)
Selection term	-0.0697* (0.0364)	-3.057 (2.298)	0.206*** (0.0514)	-0.0899 (0.149)	-0.0822 (0.0762)	-0.0101 (0.0609)	-5.414 (6.992)	-0.128 (0.155)	0.132 (0.307)	0.109 (0.172)
<i>Controls</i>	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
<i>Region dummies</i>	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Selected observations	4555	4435	4522	2630	4555	1289	1248	1285	1140	1289
Non-selec. observations	2610	2730	2643	4535	2610	5876	5917	5880	6025	5876

Note: See Table 3.2. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

Sources: GPS-SHaSA modules, ENE 2105. INSTAT-Madagascar, DIAL-IRD. Author's calculations.

Table 3.A7: Fear, victimisation per status of migration and labour market outcomes

	Agricultural sector					Non-agricultural sector				
	Worked last week	Nb. of hrs worked	Paid work	Log of earnings	Secondary activity	Worked last week	Nb. of hrs worked	Paid work	Log of earnings	Secondary activity
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Have migrated in the last 15 years	0.0161 (0.0109)	-1.074 (1.040)	0.0901*** (0.0272)	0.0518 (0.115)	-0.0518 (0.0407)	0.00291 (0.0255)	-0.0730 (2.114)	0.0234 (0.0294)	-0.0361 (0.0895)	-0.0225 (0.0481)
Fear of crime	-0.000467 (0.00618)	2.299*** (0.461)	0.0185** (0.00869)	0.0982** (0.0405)	-0.0681*** (0.0197)	0.00812 (0.0115)	-0.0927 (1.425)	0.0272 (0.0200)	0.0128 (0.0475)	-0.0121 (0.0307)
Fear × Migrated	-0.0125 (0.0215)	-0.721 (1.578)	-0.0945*** (0.0351)	0.0599 (0.159)	0.0342 (0.0531)	-0.00345 (0.0345)	0.225 (2.357)	-0.00137 (0.0365)	0.222** (0.102)	-0.0597 (0.0655)
Victim of crime	0.00932 (0.00784)	-0.342 (0.813)	-0.0198 (0.0141)	-0.0460 (0.0662)	0.0131 (0.0273)	0.0150 (0.0131)	-0.855 (1.881)	0.00275 (0.0355)	0.0325 (0.0866)	0.0574 (0.0490)
Victim × Migrated	-0.0142 (0.0260)	0.304 (1.679)	0.0369 (0.0563)	-0.0102 (0.216)	0.169* (0.0967)	-0.0153 (0.0383)	-5.758 (3.702)	-0.0451 (0.0835)	-0.421** (0.175)	-0.0854 (0.0992)
<i>Controls</i>	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
<i>Region dummies</i>	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	4,555	4,435	4,522	2,630	4,555	1,289	1,248	1,285	1,140	1,289
Adjusted R ²	0.0384	0.192	0.715	0.203	0.175	0.0441	0.0539	0.166	0.258	0.187

Note: See Table 3.2. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

Sources: GPS-SHaSA modules, ENE 2105. INSTAT-Madagascar, DIAL-IRD. Author's calculations.

Table 3.A8: Share of insecure adults and time allocation of under 15 in the agricultural sector

	Head or spouse work in the agricultural sector					
	Work	Secondary activity	Nb of hrs (log)	Attend school	Domestic chores	
					Some	Nb of hrs (log)
(1)	(2)	(3)	(4)	(5)	(6)	
Household share of adults worried about crime	0.0380** (0.0192)	-0.0256 (0.0266)	0.0995 (0.0610)	-0.0173 (0.0131)	-0.108*** (0.0256)	0.0205 (0.0748)
Household share of adults victim of crime	0.0409 (0.0264)	0.0323 (0.0373)	-0.169 (0.106)	-0.0111 (0.0239)	0.0485 (0.0368)	-0.115 (0.0990)
<i>Controls</i>	YES	YES	YES	YES	YES	YES
<i>Region dummies</i>	YES	YES	YES	YES	YES	YES
Observations	4,148	999	968	4,148	3,698	1,058
Adjusted R ²	0.365	0.0426	0.261	0.613	0.215	0.268

Note: See Table 3.8. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

Sources: GPS-SHaSA modules, ENE 2105. INSTAT-Madagascar, DIAL-IRD. Author's calculations.

Table 3.A9: Share of insecure adults and time allocation of under 15 in the nonagricultural sector

	Head or spouse work in the nonagricultural sector					
	Work	Secondary activity	Nb of hrs (log)	Attend school	Domestic chores	
					Some	Nb of hrs (log)
	(1)	(2)	(3)	(4)	(5)	(6)
Household share of adults worried about crime	-0.0109 (0.0201)	-0.129*** (0.0478)	0.199 (0.157)	-0.00348 (0.0169)	-0.0626 (0.0385)	0.134 (0.128)
Household share of adults victim of crime	0.0513 (0.0470)	-0.139** (0.0559)	0.129 (0.262)	-0.0309 (0.0260)	0.0590 (0.0548)	-0.150 (0.222)
<i>Controls</i>	YES	YES	YES	YES	YES	YES
<i>Region dummies</i>	YES	YES	YES	YES	YES	YES
Observations	1,321	151	148	1,321	1,218	282
Adjusted R^2	0.245	0.315	0.217	0.603	0.230	0.336

Note: See Table 3.8. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Sources: GPS-SHaSA modules, ENE 2105. INSTAT-Madagascar, DIAL-IRD. Author's calculations.

General conclusion

Bad governance, conflict and insecurity were acknowledged as the main obstacles to achieve the Millennium development goals. Post-2015 international and African agendas have finally brought the matters of good governance, peace and security on the foreground of development. This thesis in applied microeconomics knock on three front doors to better apprehend the impacts of symbolic, political and criminal violence. It seeks to provide answers to both researchers and policymakers questioning on the link between these factors and economic development. Chapter 1 questions whether the fear-of-the-State skews responses to public-sponsored surveys. The unique quasi-experimental design of this work gives ground to the absence of an attenuation bias or self-censorship from respondents who are interviewed by public-related organisations as compared to self-professed independent organisations. It provides substantial evidence on the capacity and legitimacy of government-related organisations to collect data on governance as a matter of national interest and sovereignty. It emphasizes the central role of National Statistics Offices plays in collecting data of unmatched precision thanks to their long-lasting experience, knowledge of specific local context, and, though certainly insufficiently provided, highly motivated staff. This work suggests the importance of relying on these institutions to conduct sound and serious analyses on topics ranging from their traditional fields of experience, such as socio-demography, to more sensitive issues such as governance, peace and security.

Chapter 2 examines the conflict impacts on associational membership and interpersonal trust between 2012 and 2015 in Mali. It accounts for the evolution of association membership based on the original distinction of the nature and purposes of those associations. The increase in membership in areas exposed to violent events is observed solely for family and political associations, which are comparatively inward-looking and act as interest groups. We interpret this finding as a form of withdrawal behind group or community boundaries, an interpretation supported by further analysis of interpersonal trust. Such behaviour should have exacerbated eth-

nic divisions and deepened the conflict since 2016-2017. Hence, this work provides tools to understand the cycle of violence Mali has entered in and the ongoing deadlock. While this work confirms the idea that conflict favours cooperation within groups, it contradicts the view that conflict fosters cooperation between groups. This latter effect should be considered with particular attention as inter-group cooperation is essential to individual and local economic development while intra-group interaction is by nature already high. This result could explain at least partly the ‘conflict trap’. From a policymaker point of view, the importance to maintain bridges between groups appear essential although very complex.

Chapter 3 analyses the relationship between criminal violence, through experienced and perceived insecurity, and workers’ behaviour on the informal labour market in Madagascar. Results show that victimisation and the fear of crime affect workers very differently. While victims seem to spend less time at work regardless of the sector of activity, the fear of crime affects working practices in opposite ways depending on the sector of activity. In the agricultural sector, fearful workers establish protection strategies as they spend up to two additional hours at work. In the nonagricultural sector, fearful adults rather try to limit their time spent at work. This research emphasizes the very different impacts of the fear of crime and actual violence occurrence. It supports the assumption that perceptions substantially impact behaviours and economic development. The fear of crime could be one cause of labour misallocation to the agricultural sector as it increases workers’ presence in its extensive and intensive margins. Through this work, it appears essential to integrate the matter of crime-related insecurity and to a broader extent general insecurity to development questions. Of course, actual violence needs to be dealt with, but policymakers should also address individuals’ perceptions of violence.

This dissertation also evidences the complexity of socio-economic phenomena. If it provides clear answers to some research questions, it also brings forward new challenges. We show in Chapter 1 the absence of attenuation bias or self-censorship when surveys are state-sponsored. Yet, some differences remain between responses provided to state-related interviewers and to non-governmental interviewers. These differences cannot be explained with the available data. Explanations to these remaining dissimilarities are potentially multiple including sampling errors, data collection timing and questionnaire design. The sequence of questions and interviewees’ understandings (procedural vs. outcome lens interpretations) of those questions should also be of particular interest to clarify the origins of such differences.

Chapter 2 conceptual approach relies on the complexity of social capital. Results highlight the importance of unbundling the effects of conflict (and to a larger extent shocks) on all the facets of this notion. Violence occurrence emphasizes an in-group bias at the cost of out-group interactions. This loss of bridging social capital is detrimental for individual and local development. It may even explain the conflict in which Mali seems deadlock. If these results should be externally valid, analysis of violence impacts on social capital are difficult to reproduce at a broader level (cross-countries) with such precision. Indeed, the line between Putnamesque and Olsonian groups (inclusive and exclusive interactions) is context-specific and hence difficult to extend to different localities.

Lastly, Chapter 3 present very heterogeneous effects of crime-related insecurity. On the one hand, the measure of insecurity, whether it is perceived or experienced, affects workers' behaviours in very different ways. Although crime is more difficult to capture, it seems to imply avoidance strategies from workers. On the other hand, the impacts of fear of crime are sector-specific. Even within sectors, I identify different changes in practices. In the nonagricultural sector, workers of rural areas adopt very similar strategies to agricultural workers: they increase their time at work and seem to limit earnings diversification. In urban areas the effects of insecurity appear opposite. Workers rather adopt avoidance strategies potentially to protect the goods and assets present at home. This works provide an understanding of labour market responses in its entirety before potential zoom in further niche of development economics.

These emerging questions pave the way to future research I am looking forward to committing to. The question of measurement is the first raised in this thesis. In taking part in projects to randomise question orders, wording, response options and different survey techniques (for instance list experiments), we could provide some explanations to the remaining differences we present in this first methodological work of the kind. Through the results of Chapters 1 and 2, results bring forward the interest of further analysing the governance-violence nexus. How do experienced and perceived violence impact trust in/access to institutions and support to leaders? How does governance affect the perceptions of violence? The role of fear needs also much further attention in the economic development literature as the last chapter suggests. For instance, how insecurity affects education choices and health outcomes remains unanswered questions.

These results provide potential policy recommendations on governance, peace

and security matters but cannot prefigure how efficient they would be. They leave open the question of best political practices. This corresponds to a substantial line of research yet very poorly covered. The literature answers very scarcely to such question. Recent works have shown the complexity of easing inter-group relationships (Mousa, 2020) and the role of information to reduce violence (Armand et al., 2020). The kind of incentives or measures that could reduce violence, both experienced and perceived, and improve interpersonal relations in times of ethnic tensions and confrontation, is a question worth investigating into.

Finally, this dissertation demonstrates the essential role of the GPS-SHaSA project that I am lucky to be part of. GPS data provide information of unmatched quality and prime interest for researchers, policymakers and the civil society. This bottom-up approach is meant to pass individual assessment of national and local governance and security related issues onto not only public officials but also to the civil society and the citizens. It is particularly useful in developing countries to empower the citizens and develop a scientific culture. It offers the possibility to examine a very large set of unanswered question in development economics and political economy. With the proper investment, this type of initiative should contribute to a much greater extent to the understanding of the world we live in. Developed countries absolutely need to catch up the fast moving train of GPS data collection that developing countries are driving.

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RÉSUMÉ

Cette thèse en micro-économie du développement s'articule autour de l'objectif de développement durable numéro 16 visant à « promouvoir l'avènement de sociétés pacifiques et inclusives aux fins du développement durable, assurer l'accès de tous à la justice et mettre en place, à tous les niveaux, des institutions efficaces, responsables et ouvertes à tous ». Elle propose d'étudier, à partir de données d'enquêtes originales et de première main, les interactions et les effets de la Gouvernance, la Paix et la Sécurité pour les ménages et les entreprises des pays d'Afrique subsaharienne. Ce projet s'articule autour de deux axes de recherche. Le premier, transversal et méthodologique, interroge la fiabilité des données utilisées. En effet, ces données portent, d'une part, sur des sujets sensibles (respect des droits fondamentaux, démocratie, corruption...) et d'autre part, elles ont été recueillies par des opérateurs publics : les instituts nationaux de la statistique. Les résultats de ce premier chapitre montrent que les instituts publics sont totalement légitimes pour collecter des données de gouvernance : aucun biais de réponse systématique en faveur (ou en défaveur) des pouvoirs publics n'existe quand les enquêtés sont interrogés par des agents d'organisation publique. Le second axe étudie les conséquences micro-économiques de la violence au travers de deux études de cas. Le deuxième chapitre porte sur la violence d'ordre politique et ses effets sur le capital social au Mali depuis le début du conflit en 2012. L'exposition aux violences renforce les liens forts, exclusifs entre individus d'une même communauté, aux détriments des liens inter-groupe dits faibles, inclusifs qui déterminent le développement économique et social individuel et local. Ce repli sur soi est probablement un facteur de l'enracinement des tensions inter-ethniques qui ont explosé après 2016. Enfin, le dernier chapitre analyse les effets de la violence criminelle sur le marché du travail informel à Madagascar. Alors que les victimes de criminalité ajustent relativement peu les conditions de leur travail, la peur de la violence criminelle, largement partagée dans la société malgache, impacte négativement la productivité des ménages agricoles. Ces derniers adoptent des comportements plus risqués sur le marché du travail. Cette inquiétude a des effets sur les plus jeunes dont le temps de travail augmente.

MOTS CLÉS

Microéconomie du développement, Enquête auprès des ménages, Violence, Gouvernance, Marché du travail, Capital social

ABSTRACT

This dissertation in applied development microeconomics centres on Sustainable Development Goal 16 which “promote[s] just, peaceful and inclusive societies”. This work aims at studying the interactions and effects of Governance, Peace and Security through the analysis of first-hand and high-quality household survey data in Sub-Saharan Africa. It is built around two lines of research. The first line of research is cross-cutting and methodological: it questions the reliability of the data used. Indeed, public organisations, namely National Statistics Offices, administer the surveys and collect information of sensitive nature (dealing with respect of fundamental rights, democracy, corruption among other things). Results show no systematic self-censorship or attenuation bias from adults surveyed by NSOs compared with adults surveyed by independent organisations. We provide evidence of the capacity and legitimacy of government-related organisations to collect data on governance, at much higher levels of precision than other existing data sources. The second line of research focuses on the impacts of violence in two African countries. On the one hand, we study the impacts of political violence on social capital since 2012 in the case of the Malian conflict. The increased association participation in areas exposed to violent events cannot be considered as positive. Indeed, it is observed solely for family and political associations, which are comparatively inward-looking and act as interest groups. We interpret this finding as a form of withdrawal behind group or community boundaries which may exacerbate ethnic divisions and deepen the conflict. On the other hand, I study how workers of the informal labour market cope with criminal violence in Madagascar. Although victims of criminality seem not to adopt different behaviours on the labour market, the fear of crime impact productivity negatively, particularly in the agricultural sector. Fearful workers become more vulnerable to shock occurrence. Adults' fear of criminal violence also channels to under 15 household members whose participation on the labour market increases.

KEYWORDS

Development microeconomics, Household survey, Violence, Governance, Labour market, Social capital