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The Ebb and Flow of Economic Distribution Amid a Long-Running Civil War: Mali

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Abstract

Since 2012 Mali has witnessed a metamorphosing civil war along geographic, ethnic, religious and economic lines. Distributional analysis using growth incidence curves and quantile-regression decompositions, applied to microdata of the annual 2011–2020 Modular and Permanent Household Survey, points to differences in the fortunes of conflict-affected versus comparator socio-demographic groups, between the rich and the poor, as well as across different phases in the long-running and mutating conflict. The parts of the country that were contemporaneously decimated by conflict were found to experience general reductions in incomes, particularly among the bottom income deciles, but also increases in the dispersion of incomes at the top, signaling structural shifts among the elites with respect to political allegiances and control over resources. These findings shed light on the theorized incidence of the brunt of conflict, and on strategies for alleviating suffering and safeguarding equity through tailoring of social protection, human empowerment, transparent rules-based governance, and conflict conciliation.

Keywords: Conflict and inequality; civil war; income gap decomposition; growth incidence; Sahel.

JEL Classification: D74, D31, D63, N37, O55.

Introduction

Least developed countries (LDC) in Africa's Sahel are often plagued by long-running wars and civil strife. Conflict brings distributional changes such as widespread impoverishment and simultaneously undue enrichment to some, particularly when it erupts in resource-rich countries. Enter Mali, Africa's eighth largest country and third greatest producer of gold on the cross-Atlantic drug-smuggling route – in its fourteenth year of civil war. Since 2012 the country has witnessed a string of metamorphosing conflicts along geographic, ethnolinguistic, religious and economic lines (Leuprecht and Roseberry 2018) that has upended its social arrangement and development.

Mali's case illustrates that resource-rich countries are not conflict-free. Instead, access to and control of natural resources – and the inability to *a priori* divide them across relevant socioeconomic groups – tends to form a distinct dimension of conflict (Davis 2023). Mali's civil war has simmered since 2012 (Figure 1), accompanied by a deterioration in various macroeconomic, financial, governance and social indicators (Figures 2 and 3). The civil war has resulted in a lost decade (and counting) for the national economy, as the country's resources have been plundered or laid bare, and investors and traders have stayed away. Poverty and inequality also rose during the 2010s (Figure 4). Empirical and anecdotal evidence makes clear that the

harms of civil war were concentrated at the bottom of the economic distribution, but how did higher economic strata fare – on various sides of the war – is less clear.

This study investigates how the mutating war and the associated changes in social balance affected the economic performance of the affected demographic groups, at various income quantiles. To this end, growth incidence curves (GIC) and unconditional quantile regressions (UQR) are used to estimate between-group gaps in incomes across all deciles. GICs are estimated across pairs of survey waves, illustrating the year-to-year income changes experienced by the respective demographic groups at different income quantiles. Income quantile gaps in the UQRs are also decomposed into parts due to socio-demographic factors – differentials in workers' human capital, market access, and other market-valued characteristics amid widespread displacement and demographic change – and differentials in the returns to those characteristics partly attributed to the changing tides of the conflict and their institutional undertow.

The study fits in the field of institutional economics, and contributes to existing scholarship on the postcolonial political-economic history of the Sahel by employing up-to-date high-quality and representative survey microdata to study the incidence of burdens of conflict. The study also contributes to understanding the anatomy of a complex mutating conflict by tracking the year-to-year changing fate of distinct groups affected by it. Through this careful tracking of the distributional impacts of conflict the study goes beyond existing assessments of trends in nationwide inequality (Anyanwu et al. 2016; Bircan et al. 2017; Odusola et al. 2017), or comparisons of regional gaps before–after conflict (Cederman et al. 2011; Dahlum et al. 2019).

This investigation is crucial to understanding the ebb and flow of civil strife long-running in many LDCs worldwide, and to designing structural reforms and targeted welfare programs aimed at alleviating widespread impoverishment and injustice and, just maybe, preventing a relapse of the conflict. Understanding the precise incidence of the burden of conflict across the society is crucial for any war-recovery, poverty-reduction, and developmental programs. This is particularly critical in resource-rich developing countries, where effective, sustainable and inclusive management of resources must take into account conflict prevention and resolution.

The following sections are organized as follows. The next section briefly reviews the background and the up-to-date flow of the ongoing Malian civil war. The following section introduces our hypotheses and analytical approaches taken for testing them, and the data available. Our main results are presented next. Finally we conclude, drawing implications for domestic public policy and for international peacekeeping efforts.

Economic background and context of the civil war

Mali is a heavily indebted LDC with unrelenting poverty problem and a moderate but fluctuating degree of inequality. The country is a chronic heavy recipient of foreign aid and loans with a consistently negative net current account.

Since its independence from France in 1960, Mali's intermittent economic growth has been interspersed by periods of drought – such as during 1968–1974, 1982–1984 and early 2000s – and spells of civil conflict – such as in the late 1960s, mid-1990s and since 2012. The Malian

economy thus grew strongly only in the late 1970s, late 1980s and much of the 2000s. The promise of peace, stability and growth was perhaps the highest in the early 1990s when the first democratic elections took place in 1992, and the new government embarked on political decentralization and economic adjustment programmes during 1992–1995 (Backiny-Yetna 2009; World Bank 2015). Nevertheless, these pro-growth developments were hijacked by the mass return of Tuareg migrant workers from abroad and their rebellion in Northern Mali to gain greater political autonomy and access to land. This also coincided with the escalation of a narcotics turf war, first over the smuggling of Moroccan hashish in the 1990s, and then over the ever-more lucrative trafficking of Colombian cocaine in the early 2000s and Nigerian methamphetamines around 2008 (UNODC 2013). The cocaine-trafficking business peaked during 2006–2009 (coinciding with the peak of global cocaine production, see UNODC 2024). The influx of cocaine money helped to finance the construction of “Cocainebougou” (or cocaine town) mansions in Gao, but also fuel clashes between rival groups including Tuareg’s rebellions against the state in 2006–2009 and 2012 (ICG 2018). Following the outbreak of the civil war in 2012, real GDP per capita rose sluggishly throughout the decade except amid the first large wave of violence in the North during 2011–2013, and a larger outbreak of violence nationwide in 2020–2021 (and COVID) when the economy contracted. Among other economic indicators, the country faced moderate rates of inflation except for deflation in 2013, 2016 and 2019 linked to the economic contractions.

Roots of the civil war burgeon in the north

Skirmishes between cross-border trafficking groups and Northern ethnic communities date back to long before the outbreak of the full-blown civil war in 2012 – at least to the years following Mali’s independence from France. The traditionally nomadic Tuareg tribes in Mali’s North, “alienated from the flow of central state resources” (GITOC 2014), strove to achieve autonomy through a series of rebellions – most notoriously in 1962–1964, 1990–1995 and 2006–2009 (Thurston and Lebovich 2013). Local militias involved in illicit-goods trafficking – successively arms, cigarettes, hashish, cocaine, methamphetamine, migrants – fought over routes and financed other clashes over local political power (ICG 2018). The conflicts were temporarily suppressed by the state army or resolved through economic compromise among the involved groups.

The relationships among the various Northern communities and trafficking groups were complex, and their allegiances changed regularly. An important role in these relationships was played by Northern ‘notables,’ or influential families who had amassed their wealth by traditional business means and/or through political rents and trafficking (GITOC 2014; Bøås 2015). These families controlled their militias, chose their allegiances with other groups or with public authorities and, under the country’s political decentralization, often assumed roles in local administration collecting rents or levying taxes (Saraceno 2015). A changing tide of conflict or a change in group allegiances was thus accompanied by a change in the concentration of economic power and distribution of incomes even at the top of the distribution.

Conflict explodes in the north in 2012

In January 2012, northern separatists, led by Tuareg’s secular National Movement for the Liberation of Azawad (MNLA) and joined by several Islamist groups, rebelled in the

impoverished northern desert territory against government control. The rebellion echoed earlier clashes between the Tuareg and local farming ethnic groups and government forces about access to land and resources, but this time they were supported by the jihadist wave. The larger rebellion in 2012 was partly motivated by the new economic regulation and the Tuaregs' desire to wean themselves off the regulation and duties imposed by the national government on their trade and trafficking across the border. Like in the early 1990s, the mass return of Tuareg (mercenaries from the Libyan civil war) added to the social pressures in Northern Mali (Ronen 2013).

The national military added to the crisis by staging a coup d'état in March 2012 over the president's handling of the rebellion, deposing him. The rebels took advantage of the distraction to overrun the entire northern half of the country in April and declare the territory's secession. The African Union and the European Union refused to recognize it. The Economic Community of West African States (ECOWAS) placed Mali under an embargo. By June of 2012, Islamist rebel groups broke away from MNLA and repelled it from all but a few towns.

On request by the Malian interim government, French, African and other international forces joined Malian army in launching Operation Serval, recapturing most of the north in February 2013 and allowing democratic national elections to take place in August.

The strife did not end there. As early as September 2013, rebels pulled out of a peace agreement with the government forces, and periodic clashes between the two sides and other various Islamic groups continued. The violence throughout 2012 and 2013 led to widespread displacement, particularly in the Timbuktu and Gao regions (IOM reports; Leuprecht and Roseberry 2018; INSTAT 2019a).

Epicenter of the conflict shifts to central Mali in 2015–2018

The political and security crisis deepened after 2014. Even after the signing of the June 2015 Inter-Malian Peace Agreement (a.k.a., Algiers Accords), clashes between the secessionist coalition, the government, and other groups including traffickers continued (ICG 2018).

Between 2015 and 2018, Dogon and Bambara ethnic farming communities in Mali's central plateau by the Niger River intensified their preexisting feud against the historically-nomadic Fulani (a.k.a., Peul) ethnic group of herders. The conflict was ostensibly over access to land and water, but also had an ethnic and religious character. The Fulani formed an al-Qaeda militant group allied with the northern Islamists, because of their joint opposition to the Tuareg. The Dogon and Bambara people, protected by government forces, responded by organizing "self-defense" militias.

By mid-2018 the warfare of the Islamist and rebel groups had also spread from the north into central Mali, leading to substantial displacement (Wabern 2018). The various Islamist and ethnic militias fought until the new national elections were held in August 2018. These led to a negotiated ceasefire in September 2018, only to be broken in March 2019 by a massacre of a Fulani community. That year violence also erupted between the Islamist groups themselves. Although government forces returned to Kidal in February 2020 after six years of absence, they

faced resistance, in part from trafficker networks. Intergroup conflict, displacement, and attacks on armed forces continued till mid-2020, by which point the government controlled only one-third of the national territory.

Conflict moves to the south in 2020

The civil strife became particularly pronounced in April 2020 following irregularities in national parliamentary elections. The military decried the government's inability to tackle the unrest and in August staged a coup d'état in Bamako, the capital city in the southeast. The president resigned and was replaced by an interim leader, even though the ECOWAS condemned the coup and pushed for the deposed president's reinstatement. A civilian interim government was installed, but was again overthrown in May 2021 by a military commander, citing the interim administration weakness. When the junta announced a four-year deferral of national elections in 2022, an international standoff took place. Mali withdrew from the G5 Sahel anti-terrorist operation partnership with Burkina Faso, Chad, Mauritania and Niger. French and ECOWAS representatives were expelled, and peacekeepers from Canada, France, other European states and the United Nations Multidimensional Integrated Stabilization Mission in Mali (MINUSMA) began withdrawing from the country.

In January 2021, the Dogon and Bambara communities signed a peace agreement with the Fulani. Meanwhile, the ethnic conflict in the north of the country and the struggle for autonomy continued. Narcotic trafficking turf war around Kidal and along the lengthy Mali–Mauritanian border continued to rise over the flow of refugees and drug trafficking (UNODC 2024). Between 2022 and 2024, the Islamic State in the Greater Sahara came to control much of southeastern Mali, and along with other Islamist terrorist groups conducted attacks, notable along the Niger River, in Tinzaouaten and in Bamako.

Socio-economic implications of the civil war

As a result of these spells of conflict, the past quarter-century has been marked by escalating waves of violent encounters and casualties (Figure 1). The first wave occurred at the peak of the Tuareg uprising and the cocaine war in 2008 in Kidal, their epicenter. The next wave took place in 2012–2013 in Kidal, and spread to Gao and Mopti, and to a lesser degree Timbuktu. The third wave rocked Central Mali with an explosion of violence in 2017–2020 in Mopti, spilling over to the neighboring Ségou and Timbuktu, and as far as Gao, Kidal and Menaka. Violence in Mopti only marginally abated in 2021 before exploding even more strongly again in 2022–2024, engulfing again its neighbors Ségou and Timbuktu, and even Gao and – with a delay, in 2023 – Kidal. Violence across Mali has kept rising to the present (i.e., till 2024 in the available data), with Mopti and Ségou in Central Mali, Kidal in the North, and Kayes in the Southwest showing the greatest risk of continuing conflict.

The outbreak of wider violence and instability in 2012 had nationwide implications, including adverse labor-market developments and reversals in poverty reduction (INSTAT 2019b). According to International Labour Organization data, labor force participation rate dropped in 2015 from a historic level of 71% to 66%, and only started recovering to 69% in 2022. Unemployment rate also picked up during the years with the greatest conflict (2012–2013 and

post 2017), peaking in 2021. Employment informality jumped in 2013 from under 90% to 93–96% in the following five years. Poverty at the national poverty line (\$3.41/day per capita) rose from 41.1% in 2009 to peak at 47.2% in 2015, then temporarily abating to 41.9% in 2020 before reaching again 44.6% in 2021 amid the pandemic and renewed violence. Poverty according to the \$3.00/day (2021 PPP) international poverty line declined since the 2000s but ticked up again in the latter 2010s, from 29.4% in 2018 to 36.1% in 2021 (INSTAT 2020; World Bank 2025).

Poor socio-economic outcomes are associated with low human-capability endowments. Mali is a low human development country with only a 35% literacy rate (FRED 2025) and life expectancy of merely 60 years, 59 among men (World Bank 2025). Educational attainment has been chronically low, and school enrollment further distinctly fell since 2011 (World Bank 2025). As of 2020, only 18% of adults had access to formal financial markets through accounts with formal financial institutions.

The civil war clearly affected the entire society, but the incidence of the burdens differed across social groups. Since pre-war years, the Gini index of inequality of consumption thus rose to 35.96% in 2018 and 35.65% in 2021, up from a historical low of 33.03% in 2009 (World Bank 2015, 2025). The war has drained public resources and the state's capacity to help the poor using social assistance schemes or effective redistribution. Existing social assistance programmes include cash transfers, public works (such as the World Bank-supported Jigisemejiri programme – refer to the World Bank, 2011), support for higher education and vocational training, social pensions, and capacity-building information campaigns. By and large, these programmes have been low, often transient, and received by too small a share of households – especially the contributory schemes covering only the formally employed – to have a positive impact on poverty and income distribution (Alkemade et al. 2021; David & Munzi 2022). Social assistance also features some regressive indirect transfers including value added taxes and import duties, and most notably the electricity and fuel subsidies that have benefited richer urbanites who have the greatest access to the country's energy infrastructure, noting that less than one-half of population have access to electricity (World Bank 2015; Hounsa et al. 2019).¹ In recent years, blockades of Senegalese border crossings by militants have also led to shortages of gasoline particularly among those without political connections. Instead of public support, poor households in remote areas rely on private transfers from their extended families and from international remittances, particularly from oil-rich Algeria and Libya (Gubert 2010).

Job informality, poverty and inequality all have high systematic components along the geographic and employment-sector lines. Mali has high cross-regional inequality of incomes. Southern and Central regions, historically associated with high-export-value colonial cash crop production, show significantly lower levels of income insecurity (Kirchhof 2025). The country's North, being less urbanized, more reliant on low-productivity agriculture, with higher concentration of informal jobs and self-employment, as well as less educated population, sees significantly lower incomes than the urbanized and more productive areas in the South. Meanwhile, earnings in the informal sector are one-third as high as in the formal sector (David and Munzi 2022). The South is also where the vast bulk of the gold and rare metals mines are. Beside employment earnings, cross-border remittances also account for a large share of the

¹ These patterns corroborate the evidence of 'fiscal impoverishment' in other sub-Saharan countries (Lustig et al. 2019).

economy, particularly in the gold-producing Kayes region across its long porous border with Guinea, Senegal and Mauritania. Mali's lowest-income regions are Ségou and Sikasso, while the capital Bamako and the trafficking hub Kidal are among the richest. In fact, Bamako accounts for 40% of Mali's GDP, and incomes in Bamako are 2.5 times as high as in Ségou and Sikasso.

Conceptualization and existing evidence

This study investigates the '*ex-durante*' (Abay et al. 2023) year-to-year changing fortunes of several demographic groups affected by the conflict, and their comparator groups, and the incidence of the burdens across different points in the conflict on their respective income distributions.

Our key premise is that conflict has redistributive impacts, as the brunt of violence, displacement and the socioeconomic changes they bring typically fall differently on distinct demographic groups and income strata (Hlasny 2025). The incidence of losses and gains can change across subsequent breakouts of conflict, as different groups intermittently prevail and gain control over critical resources.

Political science postulates that benefits from prevailing in a conflict may accrue most at the top to the economic elites, while losses from being on the losing side are harder to allocate, and may accrue across the entire economic spectrum. Damages tend to be meted out by the victors as retribution and as blows to the most vocal empowered opponents seen as a threat, but also tend to be faced by the most disenfranchised groups on both sides of the conflict. These narratives have implications for the predicted incidence of losses, and inequality, among groups affected by the conflict.

Several specific hypotheses can be advanced: First, spells of conflict affect general incomes of the affected groups negatively as they lead to the destruction and waste of productive resources, not least the prime-working age male workforce. Second, economically marginalized strata among the affected groups bear the brunt of the conflict, being the source of collateral damage and of spoils of war to the fighting militias. Casualties, kidnappings, and confiscation of material property at border crossings are cases in point. Border towns brought to economic standstill, with markets and transportation disrupted and public service provision stopped are also examples. Third, spoils of war accrue to some economic elites at the expense of others, increasing the spread of upper incomes among the affected groups. Relatedly, when some spoils of war come from external sources – such as groups prevailing in the conflict taking control of productive public or cross-border resources (e.g., gold mines, duties revenue) – upper incomes among the affected group may rise. To summarize:

H1: Incomes of the conflict-affected demographic groups fall during the conflict years.

H2: Incomes of lower economic strata among the conflict-affected groups fall during the conflict years.

H3: Incomes of upper economic strata among the conflict-affected groups become more unequally distributed during the conflict years.

Most concretely, we thus hypothesize that the spells of violence in Northern regions (Gao, Kidal, Timbuktu) during 2012–2013, 2017–2018 and 2020, and those in the Central and Southern regions (particularly Mopti, Ségou, Koulikoro) during 2017–2020 led to falling incomes of poorer households in the respective regions. At the same time, the spread of upper incomes – and therefore inequality – in the respective regions increased amid violence. Finally, deregulation of northern trade that came with secession and the coming into power of Islamist groups in mid-2012 led to increases in incomes of the Northern ‘notables.’

Analytical approach

While causal relationships cannot be drawn definitively, the following analysis describes the association between the spells of conflict, and the earnings distributions of the affected and comparator groups, controlling for the groups’ demographic compositions. Because any spoils of war are thought to accrue to political and economic elites, while losses may be borne by the poorest groups and/or by other elites in the affected groups, the analysis assesses the differential exposure to conflict by households across different parts of the income distribution. To this aim we apply two distinct event-study approaches to income-survey microdata for 2011–2020: GICs and UQRs.

Growth incidence curves

GICs are estimated across pairs of survey waves both for the population groups affected by conflict and for the comparator groups. This method helps to visualize the plight of specific demographic groups and income strata across pairs of years.

As our second method, recognizing that the composition of population changes over time, we use unconditional quantile regressions, implemented through the technique of a recentered influence function, to study between-group gaps in household incomes across all income deciles. Recognizing that different population groups have different sets of market-valued characteristics (e.g., human capital), and that these sets change over time due to ageing, casualties and displacement, the income gaps are decomposed into the parts due to differentials in households’ endowments and differentials in the returns to those endowments. The identified income gaps are linked to the state of conflict and the changes in the political balance.

Unconditional quantile regressions

Recent studies have recognized that income gaps between demographic groups tend to vary markedly between the lower and the upper tails of the respective income distributions, and describing them using other statistics than the gaps at the groups’ means yields results that are important in their own right. Assessing the income differentials among the richest and the poorest households is especially relevant because of their implications for growth incidence and economic polarization.

It is common to decompose the gaps at various income deciles using decile-specific regressions. Income gaps are also known to be caused by various factors – namely, differentials in the respective groups’ endowments, and differentials in the returns to those endowments and other

unmeasured factors between the two groups (Oaxaca 1973). The endowment effect is the “explained” part of the income gaps associated with the typical differences in the market-valued endowments between the two groups, such as work experience, education, economic activity, and residence near employers and markets. An “unexplained” part of the income gap is associated with some latent circumstances that may interact with the respective groups’ stocks of endowments. Given the all-pervading impact of civil war across the society, here we interpret both the relative changes in the groups’ observed endowments and the changing market valuation of the groups’ endowments (both observed and unobserved) in relation to the state of conflict.

Quantile regressions distinguishing the explained and unexplained income differentials have become popular in labor-economic and development literature. However, this approach has two shortcomings in relation to inference. When counterfactually switching individuals’ treatment condition (i.e., being affected by conflict), the estimated income changes are based on the assumptions that the individuals remain on the same rank in the ‘conditional’ income distribution, and that the ‘conditional’ income distributions remain unchanged. Demographic and sectoral adjustments and general-equilibrium effects are assumed away. This is restrictive and unreasonable in light of the changes observed in the demographic and income composition of the various groups across Mali during 2011–2020 (figures 5 and A2).

One solution involves the estimation of an ‘unconditional’ recentered influence function (RIF), on which the quantile decompositions can be performed (RIF-UQR; Firpo *et al.* 2018). The regression-based RIF routine facilitates the decomposition of different distributional statistics – such as cross-group income gaps – across the unconditional joint distribution of income. This technique requires estimating the conditional distributions of income on covariates only at one point of the overall distribution without ex-ante imposing whether a conjectured treatment effect is in favor of either group (Fournier & Koske 2013). The RIF approach is used in this paper to decompose the overall income distribution by individuals’ residence in the Southern versus Northern regions.²

In this study, conflict affects the respective groups through the groups’ differential economic conditions amid shocks to their access to resources and attrition of households’ market-valued endowments – due to destruction, casualties and displacement – as well as the segmentation or paralysis of regional labor markets, or systematic discrimination of selected groups.

The sets of available endowments that are controlled for are of six types: 1) household-head’s demographics proxying for their work experience – age, age squared, gender and marital status; 2) head’s religious affiliation proxying for the unavailable ethnicity; 3) head’s literacy and education level (4 categories + baseline); 4) head’s industry group of employment (3 categories + baseline) and occupation (3 categories + baseline); 5) household characteristics including household size, household composition (4 categories + baseline), and ratios of those below 14

² Decompositions for other groups were tested. Muslim/non-Muslim religion and rural/urban residence were considered as additional social divides relevant in the civil war.

and above 65 years of age in the household; and finally 6) geographic location (8 regions + baseline) and a rural-residence indicator.³

Data

The following analysis relies solely on microdata from nine harmonized waves of a large, high-quality Modular and Permanent Household Survey (EMOP) conducted annually by the Mali National Statistical Institute (INSTAT) in the years 2011–2020 (with the exception of 2012, skipped for security reasons). The EMOP data were made available through collaboration between Agence Française de Développement (AFD), INSTAT and Luxembourg Income Study (LIS). Microdata were prepared and harmonized by LIS (2024).

The EMOP is a two-stage stratified sample survey. The sampling frame used was taken from the initial results of the (Re-)Census General of Population and Housing (RGPH) of April 2009. The sampling frame is based on the list of enumeration sections (SE) and households enumerated in the RGPH. EMOP is representative nationally as well as at the level of urban and rural areas in the 8 regions plus the city district of Bamako. The limitation is that Timbuktu and Gao regions were omitted in 2013, Kidal in 2013–2018, and some additional clusters during 2015–2018. This limitation to population representativeness and to intertemporal comparability is perceived not to affect the validity of central UQR results, because of the inclusion of a set of control variables, and because the interpretation of results takes place within each cross-section. When the geographic composition of the sample becomes critical, we discuss the plausible effects on the margins.

The following analysis uses households' total disposable income per adult equivalent (henceforth equivalized income) as the appropriate welfare concept.⁴ Income data are of high quality in EMOP, with only some irregularities noted in the 2011 and 2013 waves (David and Munzi 2022). (Meanwhile, the 2013 wave is not used below, because it excludes Northern regions.) The LIS-equivalized disposable income encompasses labor earnings (monetary and non-monetary), capital income (rental and other financial income), private pensions, private transfers and remittances, and public transfers. In the first wave (2011) only labour income, own consumption and transfers from relatives living elsewhere were collected. Other non-labour earnings (primarily capital income and social benefits) were not asked. Taxes and contributions were not screened in any survey wave. Square root of household size is used as the LIS equivalence scale – accounting for economies of scale and offering a compromise between viewing household

³ Specifically, education categories are: no diploma–never went to school, no diploma–no grade completed, primary school diploma, lower-secondary school diploma, higher education. Industries are grouped according to their mean earnings (low: fishing, hunting and agriculture, manufacturing, and household production; medium: construction, trade, services, transport and communication; high: mining, quarrying, utilities, finance, public administration & defense, health & education services, international organizations); and missing industry. Household composition categories are: One-person household; couple with children; couple without children plus relatives; one parent with children and relatives; other. Regions are Kayes, Koulikoro, Sikasso, Ségou, Mopti, Timbuktu, Gao, Kidal, Bamako. Occupation categories are managers; technicians and associate professionals; clerical support workers; and other.

⁴ For alternative welfare aggregates, labor income, capital income and consumption – all equivalized – are also considered. Labor income turns out to have very similar properties and distribution as total disposable income, while capital income appears to be problematic presumably due to unreliable self-reporting.

consumption as pure public or pure private good – and incomes are converted to real year-2020 West African Frank (CFA) terms.^{5,6}

To identify groups affected by conflict and their comparators, we are limited to using the existing variables for which sufficient sample sizes are available. Unfortunately, tribes, or language and ethnic groups are not available. Individual regions sometimes have small samples (refer to descriptive statistics in Tables A1 and A2), and in any case, conflict and the risk of conflict are known to spill over regional boundaries. For these reasons, we use South versus North to delineate the comparison groups. (Muslim versus non-Muslim, and urban versus rural were used in alternative specifications – results available on request – but these are thought to be more weakly associated with the line of conflict.) To the extent that conflict is not strictly confined to the Northern, or later Southern, regions – in other words, the delineation is subject to both exclusion and inclusion errors – our comparative results are expected to suffer from attenuation, and are viewed as conservative estimates of the effect of conflict.

Main results

Figures 5–7 present the main results of the analysis on the 2011–2020 EMOP microdata. Figure 5 shows that real income levels started at similar levels in the North as in the South in 2011, but as violence erupted in the North during 2013–2015, Northern incomes stagnated and fell back compared to the Southern incomes, before eventually catching up with them in 2017. Northern incomes again stagnated during 2017–2020 amid the resurgence of conflict in Kidal in 2017, but managed to end at the same level as Southern incomes in 2020 on account of a dramatic fall in Southern incomes during 2018–2020 upon explosion of violence in Mopti and Ségou in 2017 and the following years. Incomes thus rose at varying rates across distinct phases of the war and across demographic groups that were affected differently by the war. The observed pattern corroborates the thesis that regions experiencing conflict witnessed compressions in general income levels during the conflict years. When the conflict was limited to the Northern regions during 2012–2015, incomes in these regions clearly declined relative to those in Southern regions, while when the conflict spread – and its epicenter shifted – toward the South, both parts of the country started seeing stagnation or downright contraction of incomes, particularly clearly in the (henceforth-unaffected) South.

To understand the regional income gaps better, we next examine selected measures of income inequality and growth incidence, and we perform a formal decomposition of income gaps of specific groups and income strata according to the contributing factors (Figure 7, and also Figure

⁵ The conversion involves multiplying nominal terms as follows: 1.061 in 2011, 1.013 in 2013, 1.004 in 2014, 0.990 in 2015, 1.008 in 2016, 0.991 in 2017, 0.988 in 2018, and 1.004 in 2019 based on World Bank (2025) CPI data.

⁶ More technically, labour incomes are asked at the individual level (individuals aged 6+). Own consumption and incomes from transfers from relatives living elsewhere are asked at the household level. Labour incomes are asked on the monthly basis, but some additional benefits are asked yearly. Other individual (non-labour) incomes are asked either monthly, quarterly or yearly in line with standard conventions. Transfers from family members living elsewhere are asked yearly. Own consumption refers to the prior week. Labour incomes, collected during the 3rd interview phase (October to December), refer to the situation at the time of the survey. Transfers from family members living elsewhere, asked during the second interview period (from July to September), refer to the 12 months preceding the interview. Own consumption refers to the week before the interview, but was collected in all four interview phases to account for seasonality (April to March next year).

A8 and Tables A3–A4 in the appendix). Income and consumption inequality in Mali at large are shown to have declined during 2011–2016, then stabilized and increased during 2018–2020 (Table A1 and Figures A3–A5).⁷

Growth incidence curves across spells of conflict

We next isolate the income changes experienced by the groups affected directly by conflict, versus those not affected – across the North–South divide, and between the years pre- and post-spell of conflict in a quasi difference-in-difference (DID) setup. First, the analysis is performed for just two time periods, 2011–2016 versus 2016–2020 (Figure A6), dividing the period for which we have microdata roughly in half. During 2011–2016, income growth in the South was significantly and near monotonically pro-poor.⁸ By contrast, growth in the North was nearly distribution-neutral, favoring particularly the middle of the distribution between the 20th and 70th percentile, and only marginally disfavoring the bottom and the top deciles of the population. During 2016–2020, the trend in the South changed, with the top quarter of households achieving distinctly higher income growth compared to the lower three-quarters. In the North, growth continued to favor the middle of the income distribution between the 30th and 60th percentiles, while the bottom and the top deciles again saw stagnation or reduction in their incomes.⁹ During 2016–2020, we see very much of pro-rich growth, with the poorest 15% of households seeing an erosion of their consumption capacity while the richest 30% saw a great jump.

Figure 6 zooms in on pairs of adjacent years. This figure corroborates the findings from the temporally-aggregated analysis (Figure A6). While development was systematically and near-monotonically pro-poor and equalizing in the South during 2011–2014, it was anti-poor in the North, where it favored those between the 20th and the 60th percentiles. During 2014–2015, income growth in both the South and the North favored the poorest decile, while it was of comparable lower levels across higher quantiles. Only the top decile in the South saw substantially lower growth rates. These trends jointly led to falling inequality in both parts of the country and nationwide.

Development turned weakly anti-poor during 2015–2017 in the South and the North alike, with the bottom decile in the South and the bottom 20% in the North seeing somewhat lower growth rates than higher strata. The top decile saw markedly higher income growth during 2015–2016, but lower income growth during 2016–2017. These trends were unequalizing in both parts of the country, but coupled with the stagnation of Southern incomes (and catching up by the North), they translated into only a minor uptick in inequality nationwide during 2015–2016 and a decrease during 2016–2017 (refer to Figure A5). In 2017–2018, income growth favored the poorest 20% in both parts of the country, while it disfavored those in the upper half of the distribution (except for also favoring the top 10% in the south). These trends mitigated an increase in nationwide inequality due to a South–North divergence in growth rates, and

⁷ In EMOP data this is partly due to the new inclusion of the wealthy Kidal region during 2019–2020. Refer to Table A2.

⁸ World Bank (2015:49,58) showed the same growth incidence during 2006–2010 for the South and for the country at large.

⁹ To evaluate growth incidence of an alternative welfare aggregate, the trend in households' consumption (Figure A7) in the South was similar during both periods 2011–2016 and 2016–2020, while in the North we see more of pro-poor growth during 2011–2016 (except for stagnation among households in the 20th through 40th percentiles).

inequality nationwide stagnated. while the South saw a rapid recovery from the 2015–2017 stagnation, growth in the North came to a halt (Figure 5 illustrates).

The development during 2018–2019 mimicked to some extent that during 2015–2016: While the South witnessed near-monotonically anti-poor and pro-rich growth, the North saw a dramatic erosion of incomes of the bottom 15% of households, elevated growth among the 20–60th percentile group, and again a decrease among the top 40% of households. These trends – jointly with the endurance of the South–North mean-income gap – perpetuated the increase in nationwide inequality. Finally, during 2019–2020, growth in the South favored the poorest decile, while the rest of the distribution, particularly the upper half, saw negative growth. In the North, similarly, the poorest decile saw exceptional income growth, while the rest of the population experienced only modest progress. These trends resulted in a small reduction in inequality in both parts of the country as well as nationwide.

Income gap decomposition by quantile across points in time

Figure 7 (and Table A3) delves deeper in examining the income effects in each year, by making two adjustments: 1) it distinguishes the part of the North–South income gaps that is explained by differentials in households’ observed endowments, and the ‘unexplained’ part that can be partly attributed to structural or preference factors; and 2) it projects households’ income changes across the distribution more sensibly by relying on the unconditional RIF.¹⁰

The results suggest that the observed differentials in household endowments were responsible for a lion’s share of the North–South income gaps in 2011, favoring the South, but markedly diminished or disappeared across the years of the civil war. Despite considerable year-to-year variation, some patterns are clear. In 2011 the returns effected started out slightly favoring the North, but at the onset of the civil war it shifts to consistently favoring the South for the duration of 2014–2018. In 2019–2020 it near-disappears as violence reaches its peak in the Southern Mopti and Ségou regions. In most years, the returns effect is particularly large and pro-South among the bottom 2–3 deciles, with the exception of the year 2019, when the returns effect is pro-North among deciles 2–4.

The endowment effect favors the South in 2011, then disappears during 2014–2015, and becomes pro-North in 2016 and 2018, perhaps reflecting the displacement of low human-capital workers from the North. The endowment effect then again hovers around zero during 2019–2020. The endowment effect is typically greatest and pro-South among the highest decile group, as seen across all years except for the pre-war 2011, and 2018 when it turns heavily pro-North. (Rows 4–5 in Table A3 elaborate on the graphical analysis.)

Correspondingly, total income gap favors the South at all income quantiles during 2011–2018 (insignificant pro-North at the highest quantiles in 2017), but then disappears or turns weakly

¹⁰ The estimates in Figure 7 are based on the detailed UQR regressions. Table A3 reports them at selected quantiles: the 2nd, 5th and 8th deciles. This table reports the individual endowment and returns effects for each of the considered characteristics. These characteristics affect incomes directly if human-capital markets value them or offer allowances for them, or if they imply the presence of more (and more productive) working members contributing to the households’ equivalized incomes.

pro-North at lower quantiles in 2019–2020 (this is not shown in Figure 7, but in Table A3, where the vast majority of pro-South gaps are significant even at a 1% level).

The endowment and returns effects are further disaggregated by household characteristics. Among household endowments, the demographics of household heads (education, potential work experience, marital status), heads' employment industry, and household composition are the most significant drivers of the pro-South income gaps – particularly at lower income quantiles in the case of household demographics. Household head's literacy and education, and residence in specific regions, by contrast, tend to favor the North. Over time, household demographics become somewhat less important at favoring the South, and literacy and education also increase their pro-North influence, while household composition retains a chronic pro-South effect, and residence in specific regions also remains chronically pro-North throughout the years.

Among the (endowment-)returns effects, household-heads' demographics and industry of employment confer significantly higher returns in the South than in the North, contributing to the pro-South income gaps. Returns to higher education and to religious (i.e., Christian) affiliation, by contrast, somewhat favor Northern households.

How do the individual endowment and returns effects translate into a pro-South overall income gap? Essentially, while the endowment effects of individual household characteristics were more statistically significant than the respective returns effects (rows 7–12 vs. rows 13–18 in Table A3), they tended to be much smaller in absolute magnitude, and alternated at favoring the South or the North. By contrast, returns effects tended to be larger in magnitude and were in the same pro-South direction, leading to a jointly-significant overall pro-South returns effect in the years 2011–2018. In sum, while the Southern and Northern households had mixed sets of endowments that could not be consistently ranked between the two parts of the country, Southern households earned systematically higher returns on most of the observed endowments during 2011–2018 – perhaps an indication of pro-South valuation- or price- differentials, or pro-Southerner bias as the civil war raged in the North. When the conflict expanded and shifted to the South, both the endowment and returns effects diminished.

With respect to the hypotheses 1–3, the evidence in Figures 5–7 corroborates from multiple angles the thesis that during conflict years, incomes in conflict-affected areas fall and income growth becomes less pro-poor than in comparator areas. Hypotheses 1–2 thus appear to be valid. Hypothesis 3, holding that among conflict-affected groups upper incomes undergo a correction and become more unequally distributed, is only tangentially supported. We find that growth incidence among the upper income quantiles was more unequalizing in conflict-affected regions relative to the comparator regions – such as North during 2011–2015, and South during 2016–2019 (approximated in a summary Figure A6).

Conclusions and policy implications

Conflicts are known to be detrimental to citizens' standards of living and human capabilities (Collier 1999; Abadie and Gardeazabal 2003; Akresh et al 2012). Beyond confirming this in the case of the Malian civil war, the premise of this study has been that development in the context of a simmering conflict is not uni-directional, uniform across the population, or distribution-

neutral. That is particularly the case across population groups pitted against one another in the conflict, or their counterparts not directly affected by conflict. Using microdata from the Malian (near-)annual (near-)nationally-representative surveys for 2011–2020, the empirical evidence shows that during the decade-long and ongoing civil war in Mali, and across various phases of the conflict, the rate of income growth differed substantially between distinct demographic groups, and between economic strata. This was due to demographic shifts – not least the forced internal displacement, outmigration and casualties – but also due to shifting power dynamics, temporarily giving some socio-economic groups an upper hand at shaping the economic structure before the tide turned. This corroborates several relevant political-economy hypotheses about the distributional impacts of a simmering conflict.

The evidence shows that the parts of the country that were contemporaneously decimated by conflict saw general reductions in incomes, particularly among the poorest deciles, but also increased dispersion of incomes at the top, signaling structural shifts among the elites with respect to political allegiances and control over resources. Even before the onset of civil war, substantial shares of the Malian population faced structural exclusion from markets, human empowerment, and the financial system, particularly in remote rural areas and specific livelihood zones (World Bank 2015:94; UNCDF and INSTAT 2023). These pre-existing faults became perpetuated by conflict.

In this context, it is worth revisiting the circumstances leading to the observed chronic poverty and the particularly severe plight among the lower-income groups in conflict-affected areas. The state's inability to intervene effectively in these areas – where authority is often ceded to militias – has weakened its capacity to offset the harmful market effects of conflict. Social protection systems and labor-market policies remain inadequate, particularly for the poor and displaced.

It is important to re-imagine how the current regime could change to bring about a more generally prosperous and more inclusive state. Country-wide, authorities should strengthen the social protection systems and labor market institutions. This includes expanding pro-poor cash and in-kind transfers, especially in regions most affected by violence and displacement, alongside developing more robust safety nets for marginalized populations. Investment in active labor market policies, vocational training, and literacy initiatives is essential to address low creation of formal jobs, especially in higher-productivity sectors. At the same time, broadening the fiscal base – through improved taxation of the informal sector and self-employed workers – could encourage formalization while generating public revenues for more inclusive service delivery in health, education and infrastructure (Alkemade et al. 2021).

Efforts to make growth more inclusive should directly tackle regional, ethnic, and economic inequalities that risk fueling further resentment and conflict (Sackey and Dexia 2021). National authorities and their international backers should put in place mechanisms facilitating transparent rules-based governance and conflict conciliation. For example, post-conflict governance should avoid punitive or coercive policies toward previously restive communities (Liu 2022), or rewards for own constituencies (Haass and Ottmann 2021), and instead prioritize power-sharing and equitable access to public resources. Strengthening the state's ability to assert control over national borders (Strazzari 2015) and natural resources (Collier 2003; Roy 2018) – with international support (IMF 2013) – is also critical. This requires a demilitarization of the

economy—curbing trafficking, kidnappings, and illegal extraction—supported by international partners. A governance model that promotes sustainable and inclusive management of natural resources can best safeguard against conflict motivated by smuggling and expropriation.

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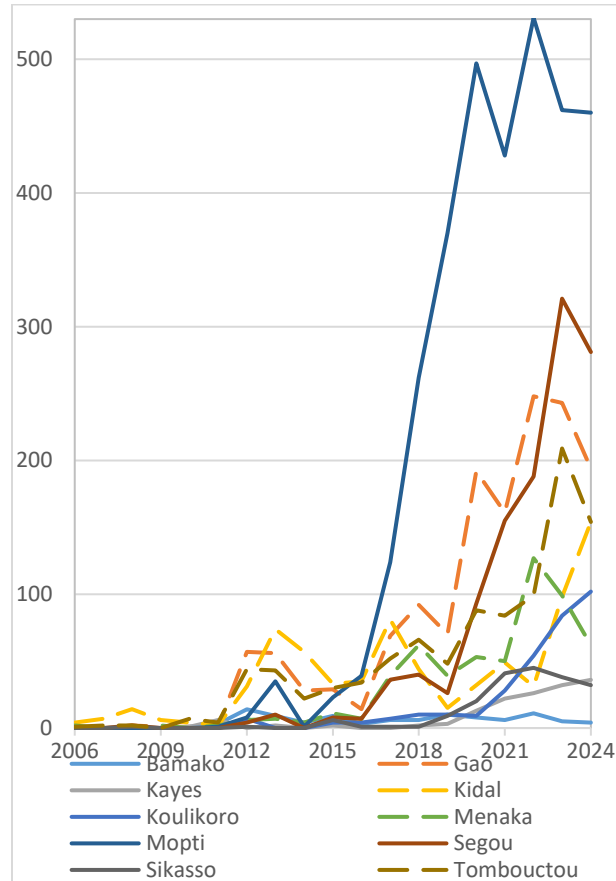
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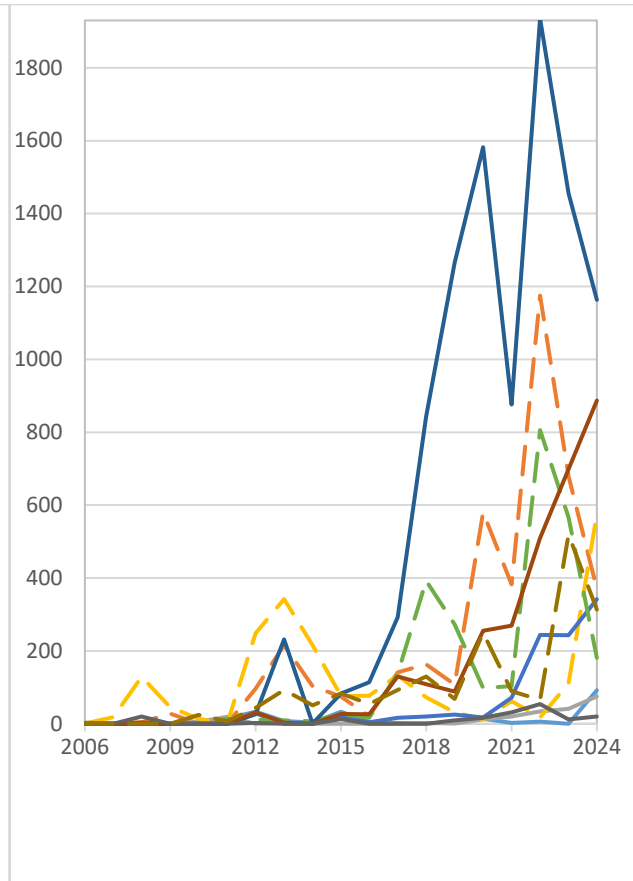
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Figure 1. Political violence events and fatalities (count)

i. Events

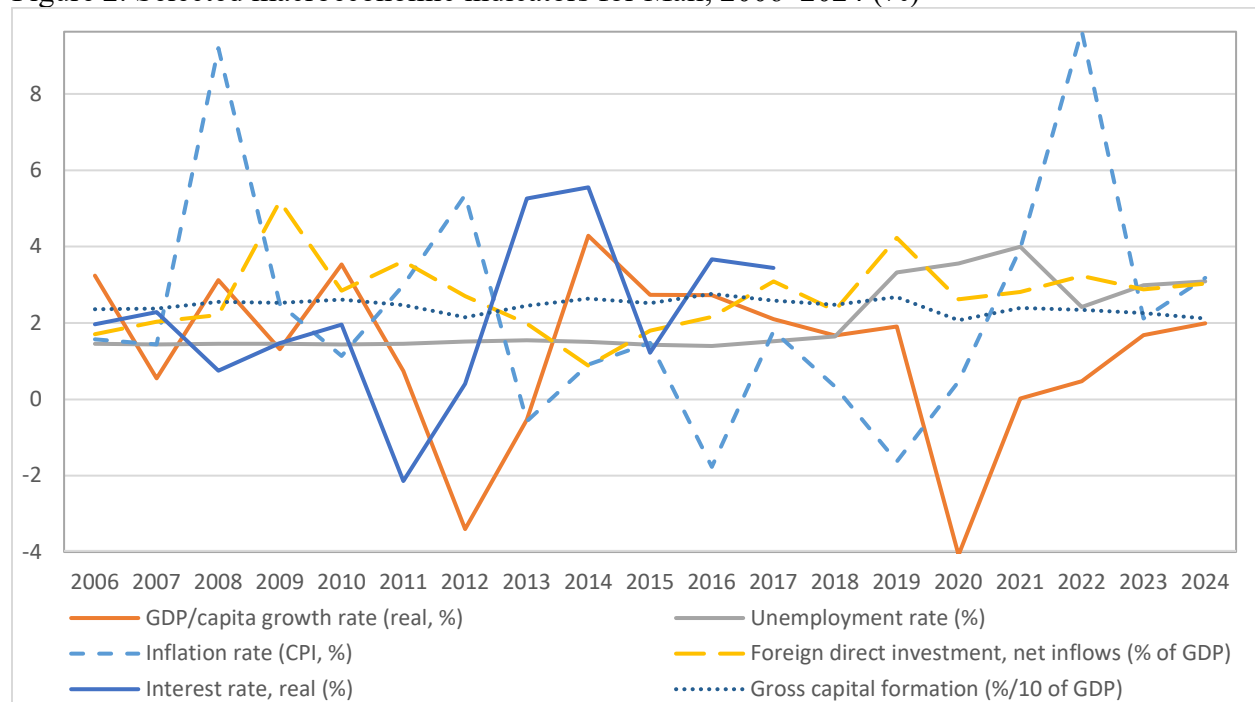


ii. Fatalities



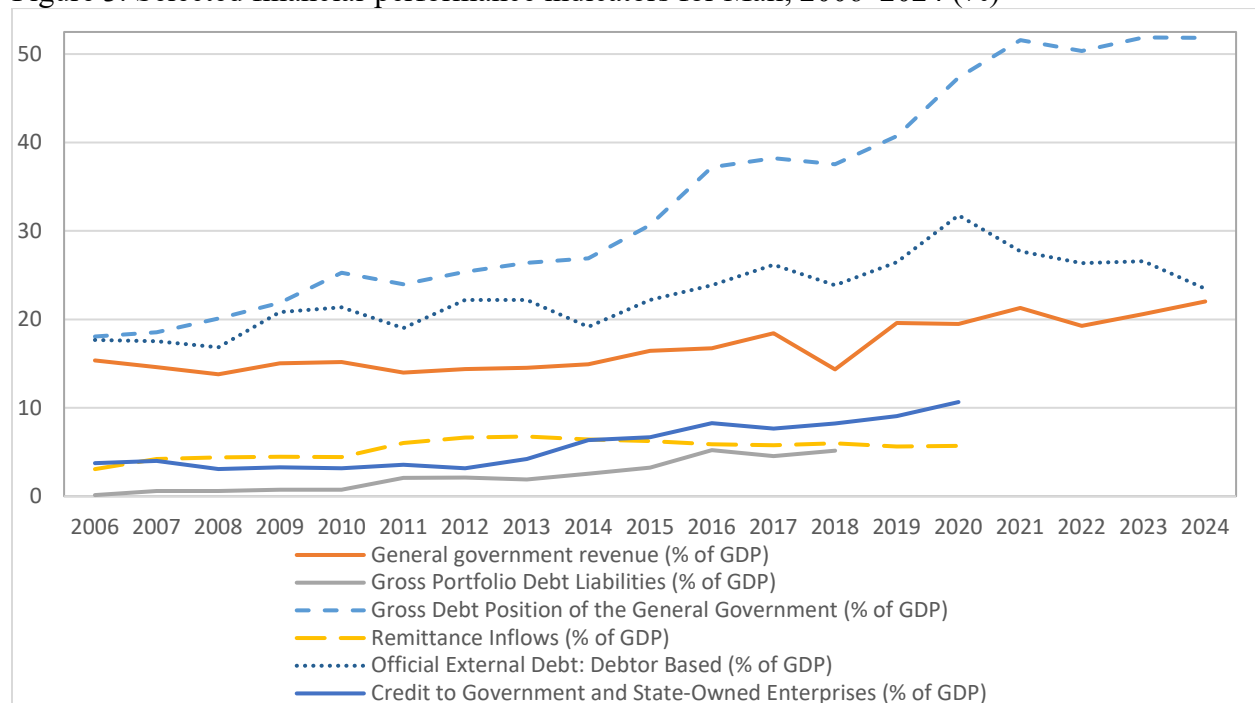
Notes: Dashed lines are for Northern regions, while solid lines are for Southern regions. (Ménaka region is excluded from EMOP surveys.). Author's analysis of ACLED (2025) data.

Figure 2. Selected macroeconomic indicators for Mali, 2006–2024 (%)



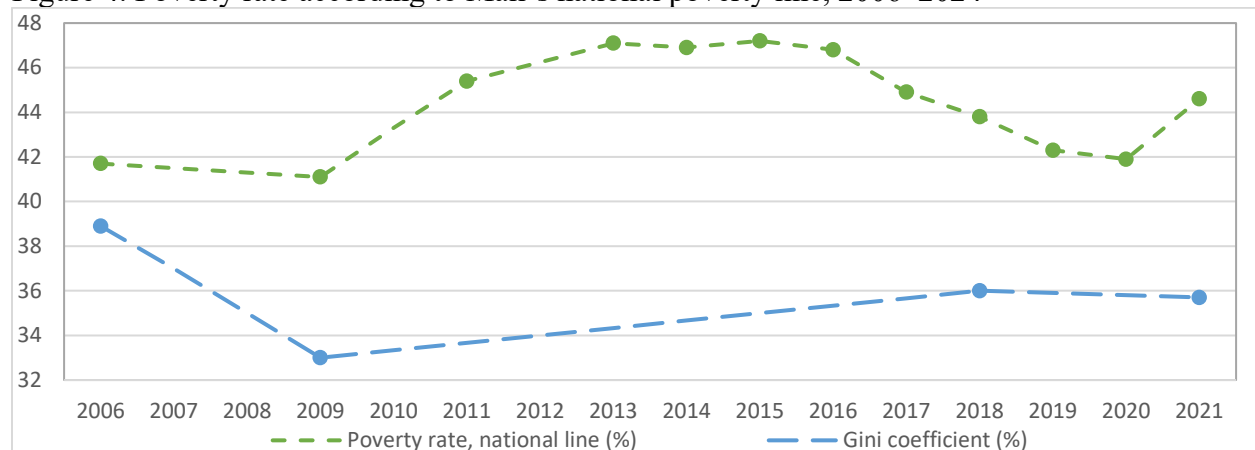
Source: World Bank (2025) Development Indicators.

Figure 3. Selected financial-performance indicators for Mali, 2006–2024 (%)



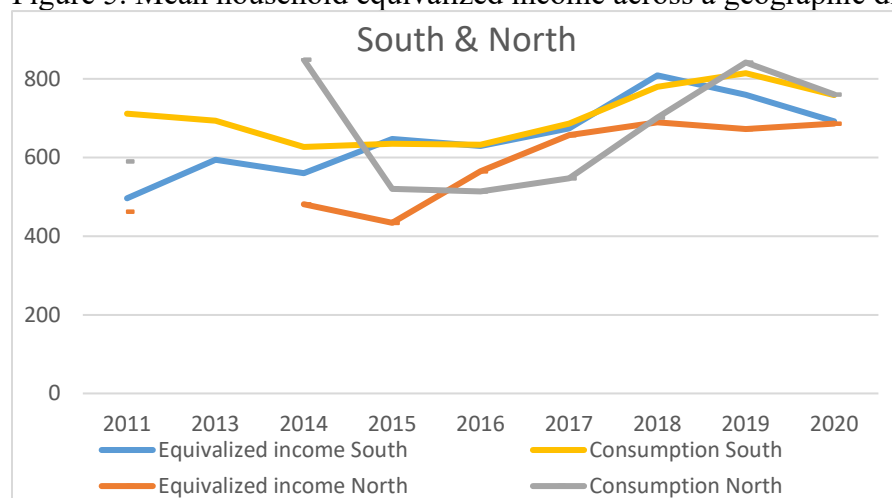
Source: US Federal Reserve Bank of St. Louis FRED (2025).

Figure 4. Poverty rate according to Mali's national poverty line, 2006–2024



Notes: Dashed lines provide linear interpolations between markers showing World Bank (2025) estimates.

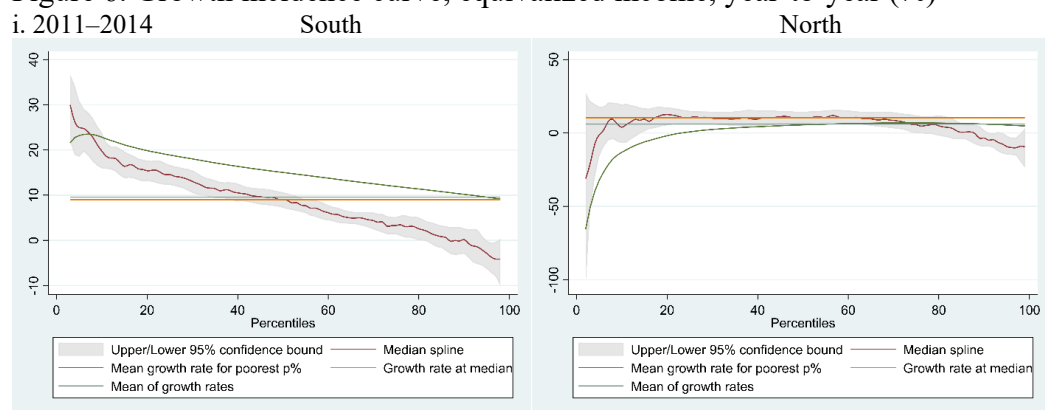
Figure 5. Mean household equivalized income across a geographic divide, 2011–2020



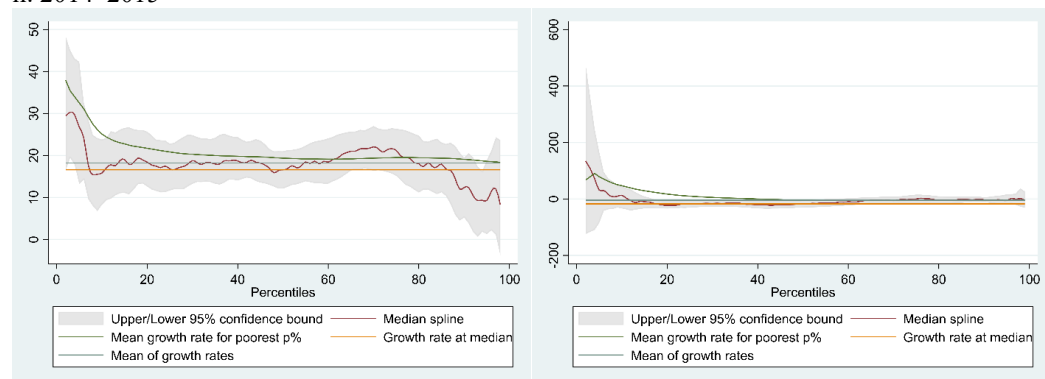
Notes: Author's analysis of EMOP 2011–2020 (LIS 2024). Ménaka and Taoudenit regions in the North were excluded from EMOP sampling frame. Northern regions (Timbuktu, Gao and Kidal) were fully excluded from EMOP in 2013 due to conflict on the ground. Kidal region remained excluded till 2018. Monetary amounts in CPI-corrected year-2020 West African Francs (CFA).

Figure 6. Growth incidence curve, equivalized income, year-to-year (%)

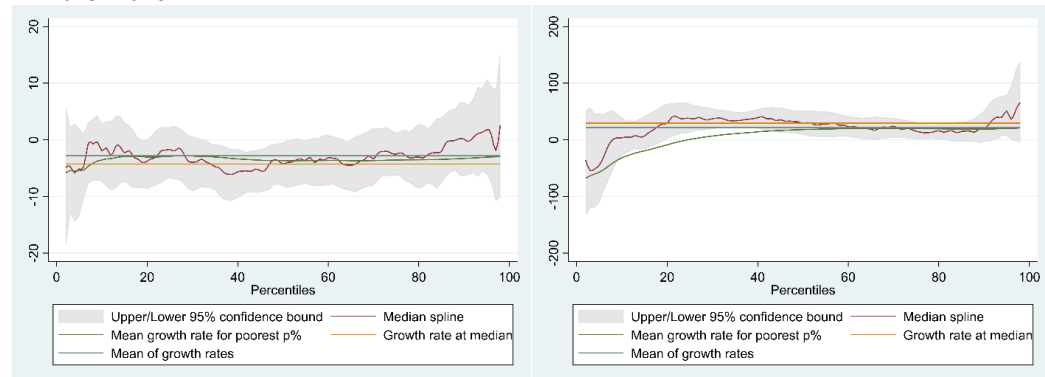
i. 2011–2014



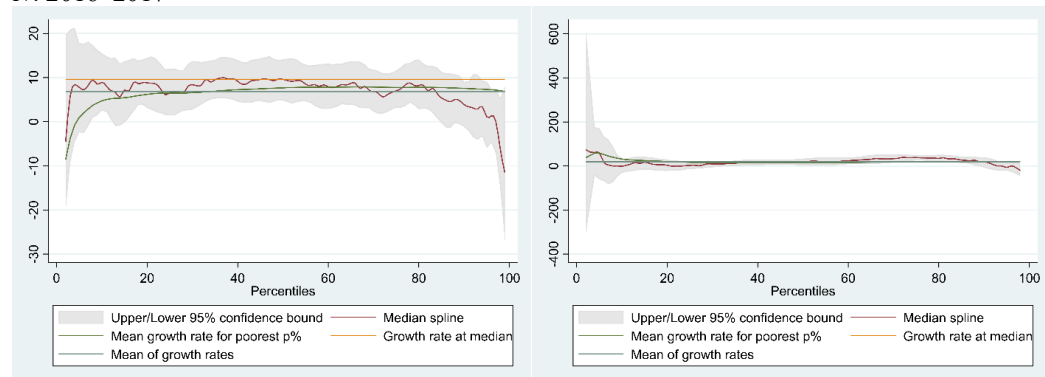
ii. 2014–2015



iii. 2015–2016

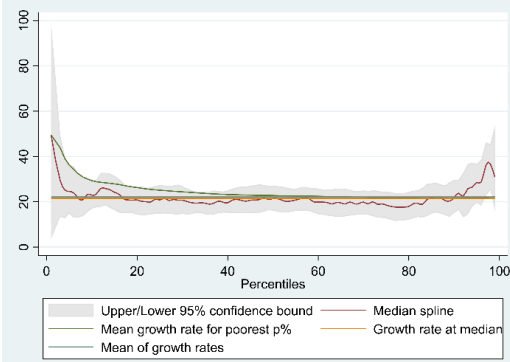


iv. 2016–2017

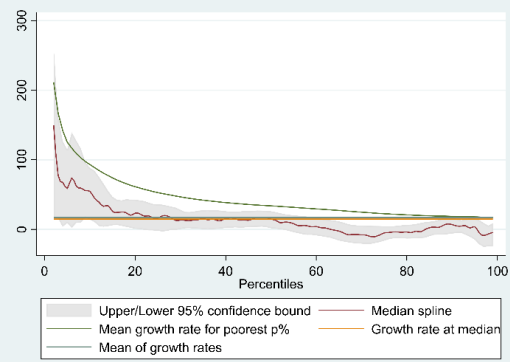


v. 2017–2018

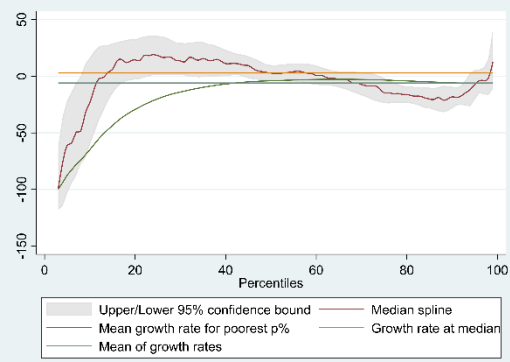
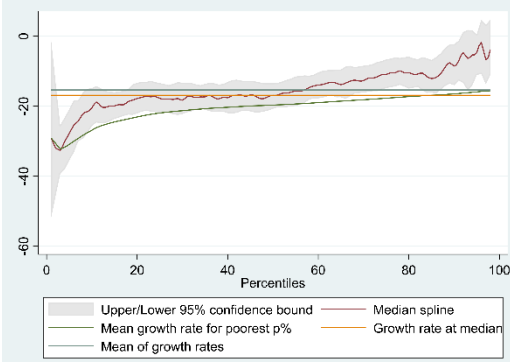
South



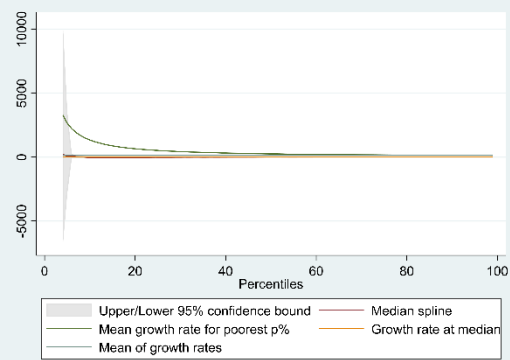
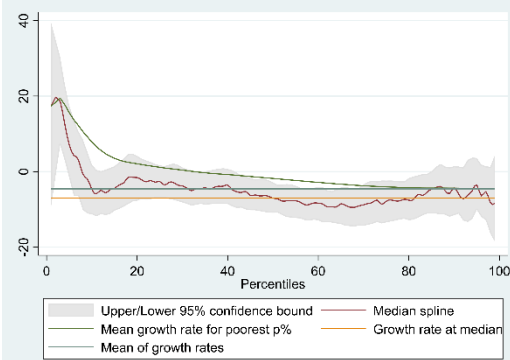
North



vi. 2018–2019

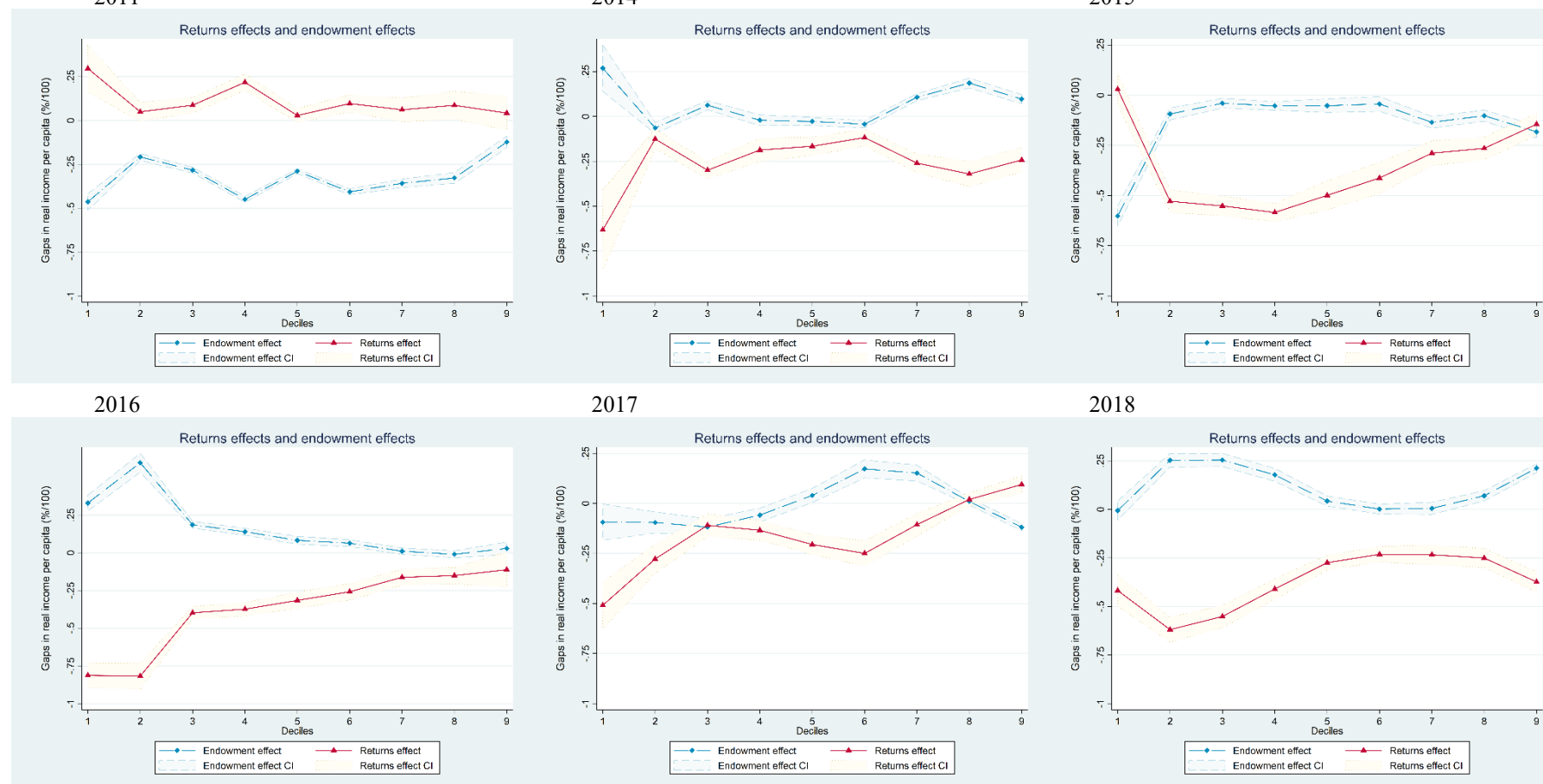


vii. 2019–2020



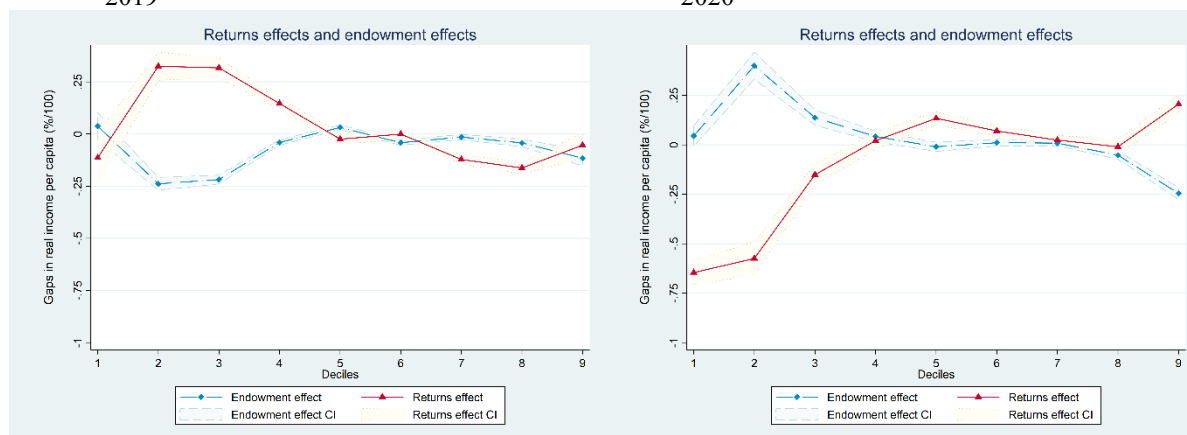
Notes: Author's analysis of EMOP 2011–2020 (LIS 2024). Ménaka and Taoudenit regions in the North were excluded from EMOP sampling frame. Northern regions (Timbuktu, Gao and Kidal) were fully excluded from EMOP in 2013 due to conflict on the ground. Kidal region remained excluded till 2018. Monetary amounts in CPI-corrected year-2020 West African Francs (CFA).

Figure 7. South–North equivalized-income gaps by income decile: Returns affects and endowment effects
2011 2014 2015



Notes: Author's analysis of EMOP 2011–2020 (LIS 2024), population-weighted samples. Ménaka and Taoudenit regions in the North were excluded from EMOP sampling frame. Northern regions (Timbuktu, Gao and Kidal) were fully excluded from EMOP in 2013 due to conflict on the ground. Kidal region remained excluded till 2018. Incomes in CPI-corrected year-2020 West African Francs (CFA) – income gaps are in percentage terms. Negative signs indicate pro-South gaps, positives indicate pro-North gaps.

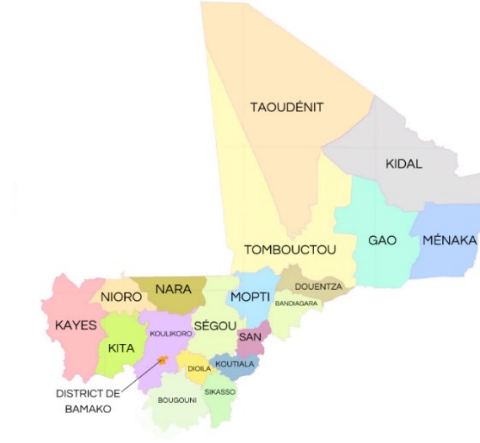
Figure 7 (cont.). South–North equalized-income gaps by income decile: Returns affects and endowment effects
2019 2020



Notes: Author's analysis of EMOP 2011–2020 (LIS 2024), population-weighted samples. Ménaka and Taoudenit regions in the North were excluded from EMOP sampling frame. Northern regions (Timbuktu, Gao and Kidal) were fully excluded from EMOP in 2013 due to conflict on the ground. Kidal region remained excluded till 2018. Incomes in CPI-corrected year-2020 West African Francs (CFA) – income gaps are in percentage terms. Negative signs indicate pro-South gaps, positives indicate pro-North gaps.

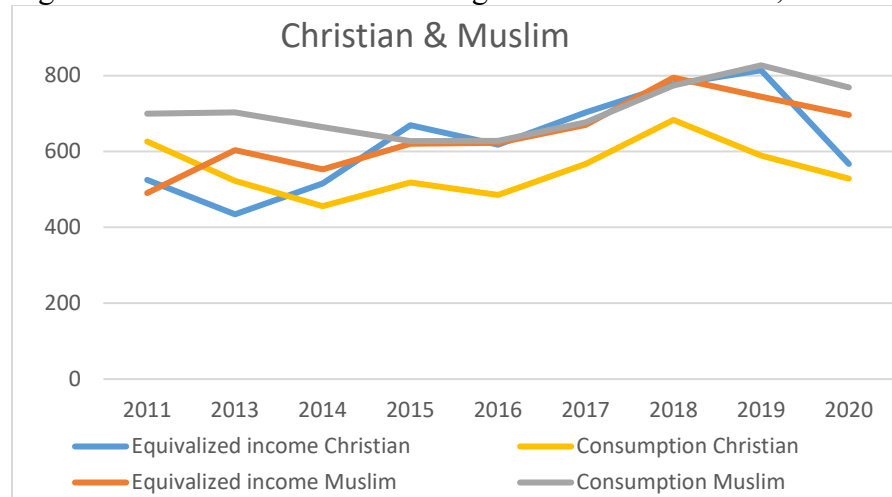
Appendix

Figure A1. Illustrative administrative map of Mali



Source: Open-source map.

Figure A2. Mean income across religious affiliation divides, 2011–2020

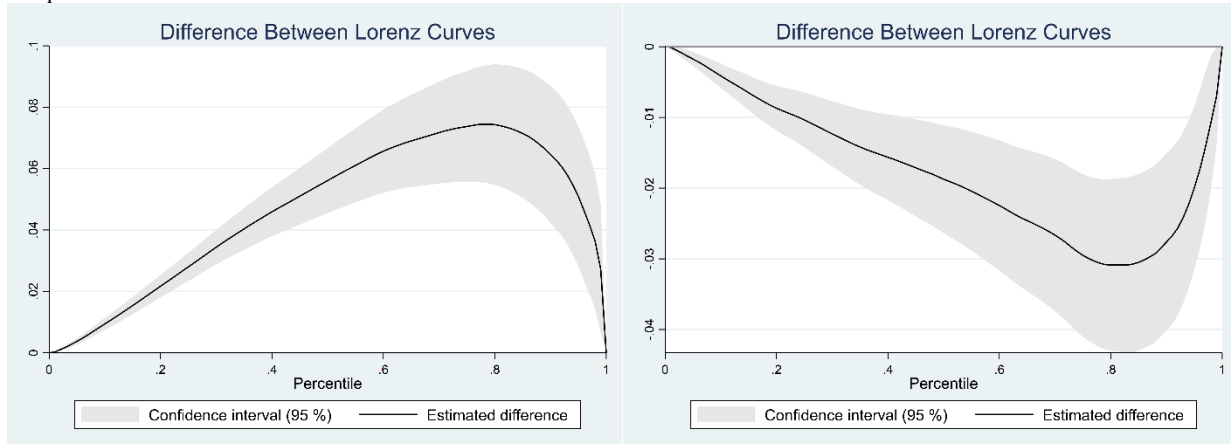


Notes: Author's analysis of EMOP 2011–2020 (LIS 2024). Ménaka and Taoudenit regions in the North were excluded from EMOP sampling frame. Northern regions (Timbuktu, Gao and Kidal) were fully excluded from EMOP in 2013 due to conflict on the ground. Kidal region remained excluded till 2018. Monetary amounts in CPI-corrected year-2020 West African Francs (CFA).

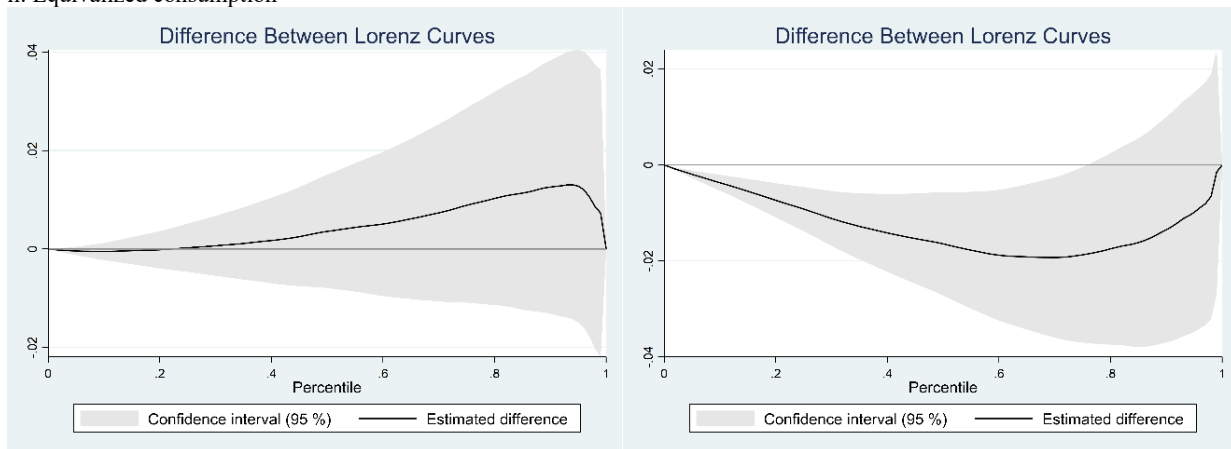
Figure A3. Lorenz curve of inequality, differences, 2011 vs. 2016 and 2016 vs. 2020

i. Equivalized income: 2011 vs. 2016

2016 vs. 2020



ii. Equivalized consumption



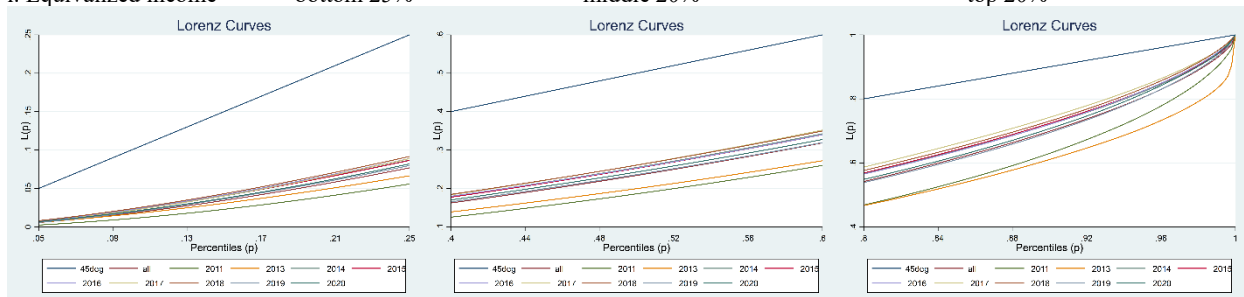
Notes: Author's analysis of EMOP 2011, 2016, 2020 (LIS 2024). Ménaka and Taoudenit regions in the North were excluded from EMOP sampling frame. Northern regions (Timbuktu, Gao and Kidal) were fully excluded from EMOP in 2013 due to conflict on the ground. Kidal region remained excluded till 2018.

Figure A4. Lorenz curve of inequality, bottom 25%, middle 20% and top 20% population segments, 2011–2020

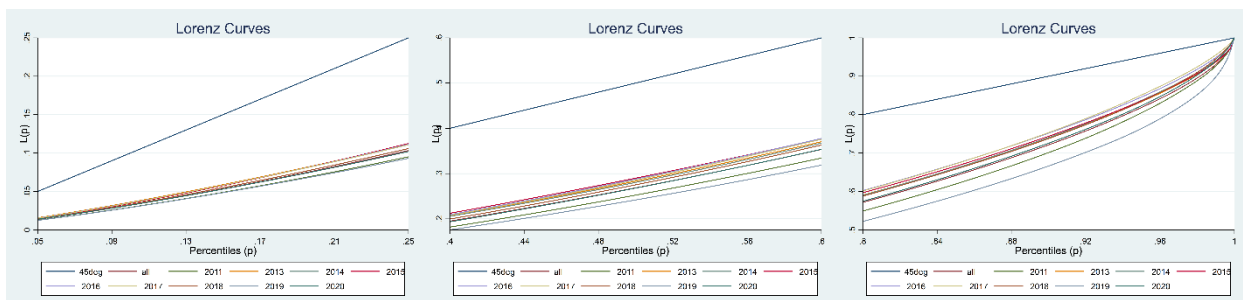
i. Equivalized income bottom 25%

middle 20%

top 20%

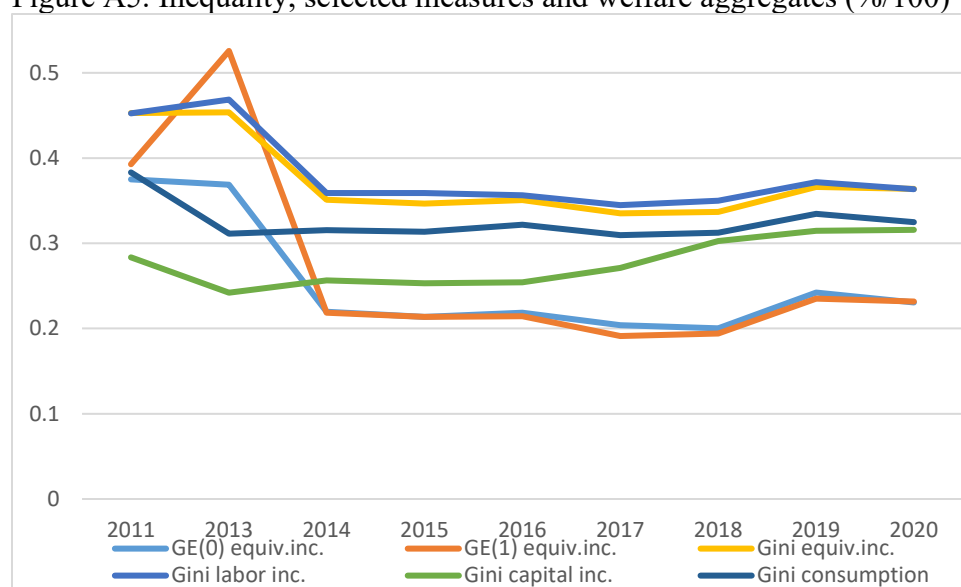


ii. Equivalized consumption



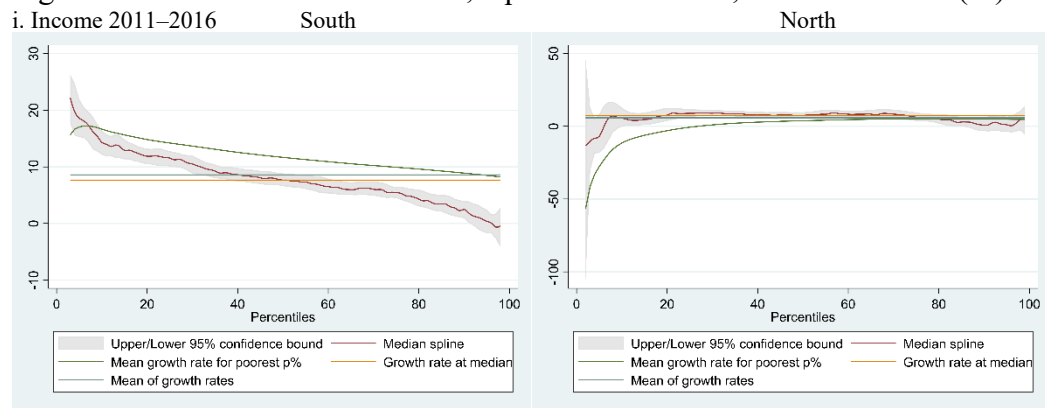
Notes: Author's analysis of EMOP 2011–2020 (LIS 2024). Ménaka and Taoudenit regions in the North were excluded from EMOP sampling frame. Northern regions (Timbuktu, Gao and Kidal) were fully excluded from EMOP in 2013 due to conflict on the ground. Kidal region remained excluded till 2018.

Figure A5. Inequality, selected measures and welfare aggregates (%/100)

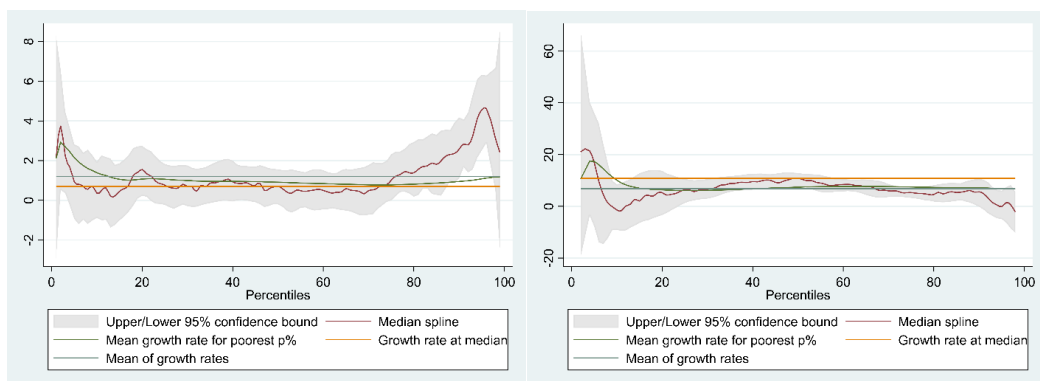


Notes: Author's analysis of EMOP 2011–2020 (LIS 2024). Ménaka and Taoudenit regions in the North were excluded from EMOP sampling frame. Northern regions (Timbuktu, Gao and Kidal) were fully excluded from EMOP in 2013 due to conflict on the ground. Kidal region remained excluded till 2018.

Figure A6. Growth incidence curve, equivalized income, South vs. North (%)

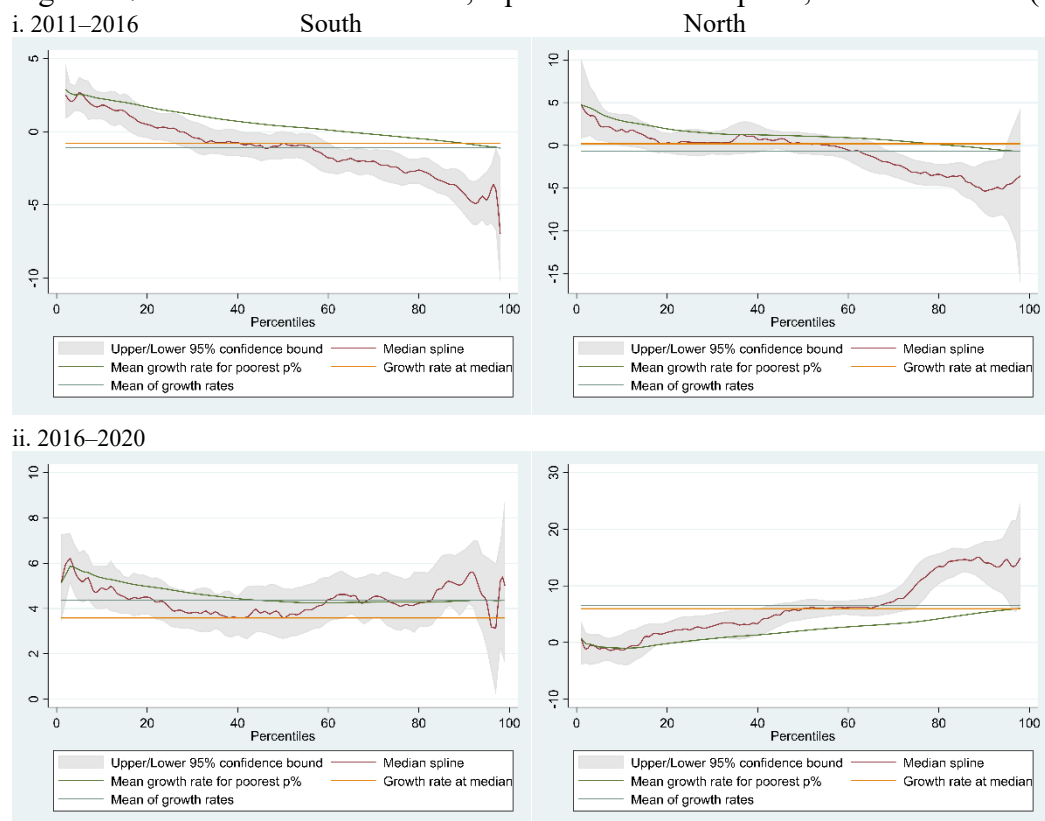


ii. Income 2016–2020



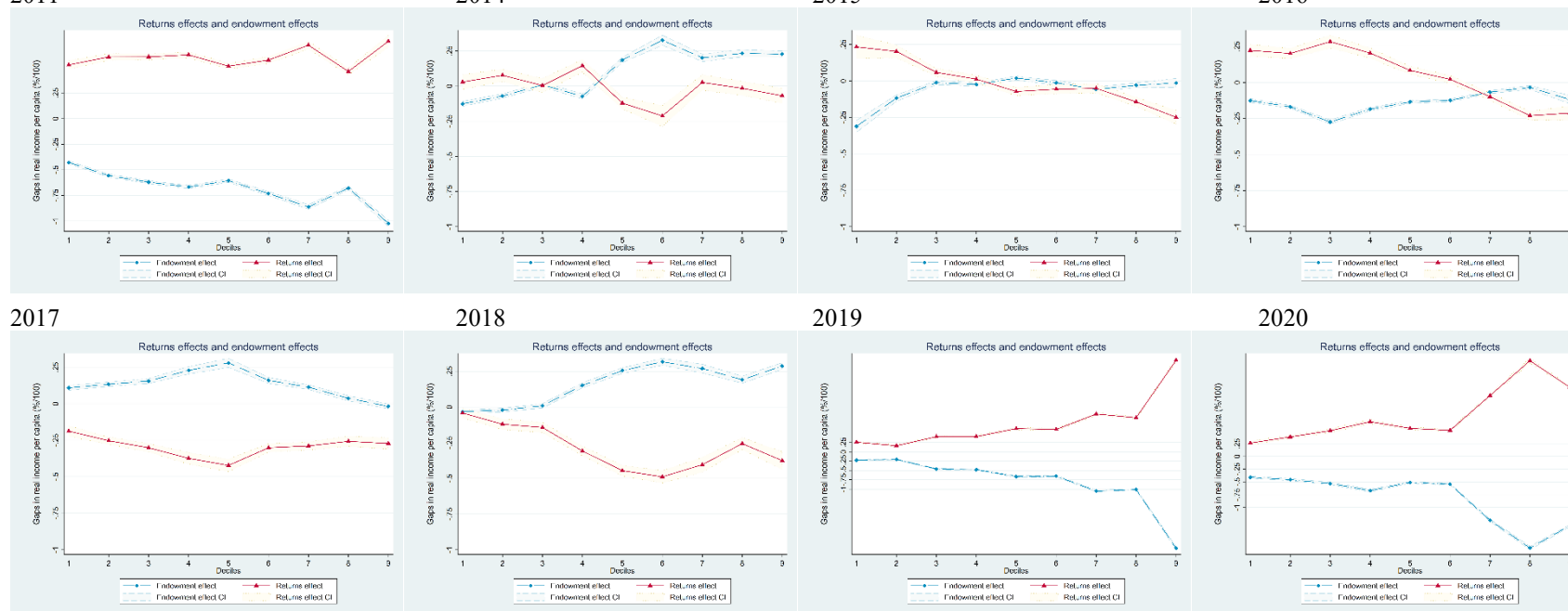
Notes: Author's analysis of EMOP 2011, 2016, 2020 (LIS 2024). Ménaka and Taoudenit regions in the North were excluded from EMOP sampling frame. Northern regions (Timbuktu, Gao and Kidal) were fully excluded from EMOP in 2013 due to conflict on the ground. Kidal region remained excluded till 2018. Monetary amounts in CPI-corrected year-2020 West African Francs (CFA).

Figure A7. Growth incidence curve, equivalized consumption, South vs. North (%)



Notes: Author's analysis of EMOP 2011, 2016, 2020 (LIS 2024). Ménaka and Taoudenit regions in the North were excluded from EMOP sampling frame. Northern regions (Timbuktu, Gao and Kidal) were fully excluded from EMOP in 2013 due to conflict on the ground. Kidal region remained excluded till 2018. Monetary amounts in CPI-corrected year-2020 West African Francs (CFA).

Figure A8. South–North equivalized-consumption gaps by consumption decile: Returns effects and endowment effects
2011 2014 2015 2016



Notes: Author's analysis of EMOP 2011–2020 (LIS 2024). Consumption in CPI-corrected year-2020 West African Francs (CFA).

Table A1. Descriptive statistics for surveyed households

	2011	2013	2014	2015	2016	2017	2018	2019	2020
Households	6,912	5,215	6,057	5,881	5,915	6,094	5,674	6,634	6,703
Enumeration sections	1,158	911	1,040	1,043	1,022	1,120	1,120	1,200	1,200
Response rate (%)	96.3	95.4	97.1	94.0	88.0	90.7	84.4	89.7	90.6
Urban (%)	21.54	28.93	24.27	24.16	25.56	24.84	26.15	25.65	23.29
Prime working age (Yrs)	40.57	40.91	42.07	43.65	45.49	45.05	43.33	44.04	47.54
Male (%)	89.10	92.21	91.43	91.84	92.08	91.56	90.74	93.06	92.42
Never attended school	66.31	71.46	73.93	70.83	75.08	73.29	71.78	66.83	76.19
Employed	82.90	85.30	81.61	85.48	84.02	84.05	83.83	85.53	85.69
Southern regions	87.81	100.00 ^a	88.24	88.43	89.03	88.79	87.62	86.55	86.50
Muslim	95.65	94.44	94.41	94.64	94.12	94.57	95.54	96.14	95.93
Literate	64.63	56.47	66.69	62.69	65.32	63.15	60.84	61.61	66.40
Mean real equivalized inc.	524.17	638.90	568.16	651.55	647.77	686.26	829.07	737.88	698.49
Median real equival. inc.	365.03	444.88	474.31	543.10	529.58	584.20	701.92	594.49	556.01
Gini (equivalized income)	0.453	0.454	0.351	0.347	0.351	0.335	0.337	0.366	0.364
Gini (labor income)	0.452	0.469	0.359	0.359	0.356	0.345	0.350	0.372	0.363
Gini (capital income)	0.284	0.242	0.257	0.253	0.254	0.271	0.303	0.315	0.316
Gini (equivalized cons.)	0.383	0.311	0.315	0.313	0.322	0.310	0.313	0.335	0.325

Notes: Author's analysis of EMOP 2011–2020 (LIS 2024). Monetary amounts in CPI-corrected year-2020 West African Francs (CFA). ^a Ménaka and Taoudenit regions in the North were excluded from EMOP sampling frame. North was fully excluded from EMOP in 2013 due to conflict on the ground. Kidal region in the North remained excluded till 2018.

Table A2. Representation of administrative regions in surveys

	2011	2013	2014	2015	2016	2017	2018	2019	2020
Kayes	11.48	14.59	12.82	12.54	11.94	11.28	12.05	11.96	11.27
Koulikoro	14.85	15.84	15.15	16.02	17.25	16.06	14.5	13.86	15.79
Sikasso	16.11	18.8	15.99	14.8	14	14.08	13.61	12.98	14.35
Ségou	16.6	17.54	15.69	15.84	14.42	16.19	15.48	16.69	17.25
Mopti	14.56	16.74	14.62	15.1	17.22	17.02	16.81	15.68	13.36
Timbuktu	6.27	0	7.25	7.43	7.24	6.94	7.42	7.59	7.13
Gao	5.3	0	4.51	4.14	3.73	4.28	4.97	4.99	5.47
Kidal	0.62	0	0	0	0	0	0	0.87	0.9
Bamako, District	14.22	16.5	13.97	14.12	14.2	14.15	15.16	15.38	14.49

Notes: Author's analysis of EMOP 2011–2020 (LIS 2024): Ménaka and Taoudenit regions in the North were excluded from EMOP sampling frame. Timbuktu, Gao and Kidal regions in the North were excluded from EMOP in 2013 due to conflict on the ground. Kidal region remained excluded till 2018.

Table A3. Quantile decomposition of equivalized (log-)income gaps between South and North regions, selected deciles by year

	2 nd decile								5 th decile – Median								8 th decile							
	2011	2014	2015	2016	2017	2018	2019	2020	2011	2014	2015	2016	2017	2018	2019	2020	2011	2014	2015	2016	2017	2018	2019	2020
North log income	5.08 (0.03)	5.45 (0.03)	5.19 (0.03)	5.55 (0.05)	5.48 (0.05)	5.68 (0.04)	5.94 (0.04)	5.66 (0.05)	5.68 (0.02)	5.99 (0.03)	5.78 (0.04)	6.06 (0.03)	6.21 (0.03)	6.35 (0.02)	6.40 (0.01)	6.44 (0.02)	6.38 (0.04)	6.53 (0.04)	6.46 (0.03)	6.64 (0.03)	6.91 (0.02)	6.87 (0.03)	6.73 (0.02)	6.79 (0.02)
South log-income	5.24 (0.02)	5.64 (0.01)	5.81 (0.01)	5.77 (0.01)	5.86 (0.01)	6.05 (0.01)	5.85 (0.01)	5.83 (0.01)	5.94 (0.01)	6.18 (0.01)	6.33 (0.01)	6.29 (0.01)	6.38 (0.01)	6.58 (0.01)	6.39 (0.01)	6.32 (0.01)	6.62 (0.02)	6.67 (0.01)	6.83 (0.01)	6.80 (0.01)	6.88 (0.01)	7.05 (0.01)	6.93 (0.01)	6.85 (0.01)
Overall gap	-0.16 (0.03)	-0.19 (0.03)	-0.62 (0.03)	-0.22 (0.06)	-0.37 (0.05)	-0.37 (0.04)	0.09 (0.04)	-0.17 (0.06)	-0.26 (0.03)	-0.19 (0.03)	-0.55 (0.04)	-0.23 (0.03)	-0.17 (0.03)	-0.23 (0.03)	0.01 (0.02)	0.12 (0.02)	-0.24 (0.05)	-0.13 (0.04)	-0.37 (0.03)	-0.16 (0.03)	0.03 (0.02)	-0.18 (0.03)	-0.21 (0.02)	-0.06 (0.03)
Endowments (Explained)	-0.21 (0.16)	-0.06 (0.05)	-0.09 (0.08)	0.60 (0.08)	-0.10 (0.11)	0.25 (0.15)	-0.24 (0.10)	0.40 (0.16)	-0.29 (0.12)	-0.03 (0.05)	-0.05 (0.10)	0.08 (0.05)	0.04 (0.08)	0.04 (0.09)	0.03 (0.04)	-0.01 (0.06)	-0.33 (0.24)	0.19 (0.07)	-0.10 (0.08)	-0.01 (0.05)	0.01 (0.05)	0.07 (0.12)	-0.04 (0.05)	-0.05 (0.07)
Returns on endow (Unexpl)	0.05 (0.16)	-0.13 (0.06)	-0.53 (0.08)	-0.82 (0.08)	-0.28 (0.11)	-0.62 (0.16)	0.33 (0.11)	-0.58 (0.16)	0.03 (0.12)	-0.17 (0.06)	-0.50 (0.11)	-0.32 (0.05)	-0.21 (0.08)	-0.28 (0.09)	-0.02 (0.04)	0.13 (0.06)	0.09 (0.24)	-0.32 (0.08)	-0.27 (0.08)	-0.15 (0.05)	0.02 (0.05)	-0.25 (0.12)	-0.16 (0.05)	-0.01 (0.07)
Constant (Unexpl.)	1.44 (0.83)	-0.80 (0.83)	-1.20 (1.32)	0.55 (1.98)	0.71 (1.32)	-1.07 (0.86)	1.83 (0.85)	6.02 (1.01)	0.43 (0.63)	-0.57 (0.74)	0.70 (1.66)	-0.07 (1.27)	1.26 (0.93)	-0.19 (0.55)	0.49 (0.41)	1.01 (0.47)	0.94 (1.13)	-0.04 (0.99)	0.21 (1.32)	-0.42 (1.27)	0.58 (0.66)	0.05 (0.69)	-0.15 (0.44)	0.12 (0.56)
<i>Endowments (Explained) Effects</i>																								
Demographics of hhd. head	-0.05 (0.01)	-0.04 (0.02)	-0.08 (0.03)	-0.09 (0.03)	0.00 (0.04)	-0.04 (0.02)	-0.20 (0.04)	0.10 (0.07)	-0.02 (0.01)	-0.03 (0.02)	-0.10 (0.04)	-0.00 (0.02)	0.01 (0.03)	-0.03 (0.01)	-0.02 (0.01)	0.14 (0.03)	-0.01 (0.02)	-0.03 (0.03)	-0.13 (0.03)	0.04 (0.02)	0.02 (0.02)	-0.02 (0.01)	-0.02 (0.02)	0.05 (0.03)
Head religion	-0.02 (0.06)	-0.04 (0.02)	0.04 (0.02)	0.00 (0.00)	-0.02 (0.08)	-0.05 (0.13)	-0.00 (0.03)	0.12 (0.09)	0.01 (0.04)	0.03 (0.02)	0.02 (0.03)	0.00 (0.00)	-0.02 (0.06)	-0.05 (0.08)	0.03 (0.01)	0.04 (0.04)	0.05 (0.09)	0.00 (0.03)	0.01 (0.02)	0.00 (0.00)	-0.07 (0.04)	-0.08 (0.10)	0.03 (0.01)	0.02 (0.04)
Head education	0.01 (0.01)	-0.01 (0.01)	0.01 (0.01)	-0.01 (0.01)	0.01 (0.01)	-0.00 (0.01)	0.11 (0.02)	0.09 (0.04)	-0.00 (0.01)	-0.00 (0.01)	0.03 (0.02)	-0.02 (0.01)	0.00 (0.01)	0.03 (0.01)	0.05 (0.01)	0.12 (0.02)	-0.02 (0.01)	-0.01 (0.01)	0.01 (0.02)	-0.00 (0.01)	0.02 (0.01)	0.05 (0.01)	0.01 (0.01)	0.06 (0.02)
Head employment	0.04 (0.01)	0.07 (0.02)	0.04 (0.02)	-0.03 (0.03)	-0.10 (0.03)	-0.01 (0.01)	-0.03 (0.02)	-0.14 (0.04)	0.02 (0.01)	0.01 (0.01)	-0.01 (0.01)	-0.05 (0.02)	-0.06 (0.01)	-0.01 (0.01)	-0.01 (0.00)	-0.02 (0.01)	-0.02 (0.02)	0.00 (0.01)	-0.01 (0.01)	-0.00 (0.01)	-0.02 (0.01)	-0.01 (0.01)	0.01 (0.01)	0.04 (0.01)
Household composition	-0.04 (0.04)	-0.13 (0.04)	-0.06 (0.04)	-0.01 (0.04)	-0.33 (0.06)	0.14 (0.09)	0.11 (0.10)	0.10 (0.13)	-0.13 (0.03)	-0.09 (0.04)	0.05 (0.06)	-0.08 (0.03)	-0.21 (0.04)	0.09 (0.05)	0.09 (0.04)	-0.07 (0.05)	-0.19 (0.05)	0.09 (0.05)	0.05 (0.05)	-0.11 (0.03)	-0.08 (0.03)	0.04 (0.07)	-0.02 (0.04)	-0.20 (0.06)
Administrative region	-0.15 (0.15)	0.08 (0.04)	-0.05 (0.04)	0.74 (0.07)	0.34 (0.06)	0.21 (0.05)	-0.22 (0.05)	0.14 (0.06)	-0.15 (0.11)	0.05 (0.03)	-0.05 (0.05)	0.23 (0.04)	0.31 (0.04)	0.01 (0.03)	-0.11 (0.02)	-0.21 (0.03)	-0.14 (0.22)	0.13 (0.05)	-0.03 (0.04)	0.08 (0.04)	0.13 (0.03)	0.08 (0.04)	-0.06 (0.02)	-0.02 (0.03)
<i>Returns (Unexplained) Effects</i>																								
Demographics of hhd. head	-1.24 (0.43)	1.06 (0.42)	1.26 (0.46)	-0.50 (0.65)	-0.49 (0.62)	0.66 (0.49)	-0.72 (0.51)	-5.12 (0.72)	-0.34 (0.32)	0.47 (0.37)	0.17 (0.56)	0.52 (0.42)	-1.06 (0.44)	-0.05 (0.31)	-0.42 (0.23)	-1.77 (0.30)	-0.39 (0.59)	0.41 (0.50)	0.57 (0.45)	-0.05 (0.42)	-0.84 (0.32)	0.10 (0.39)	-0.57 (0.25)	-0.97 (0.33)
Head religion	0.03 (0.06)	0.05 (0.02)	-0.04 (0.03)	-0.01 (0.00)	0.01 (0.08)	0.05 (0.13)	-0.01 (0.03)	-0.11 (0.10)	0.00 (0.04)	-0.03 (0.02)	-0.02 (0.03)	0.01 (0.00)	0.02 (0.06)	0.04 (0.08)	-0.04 (0.01)	-0.03 (0.04)	-0.04 (0.09)	-0.00 (0.03)	-0.01 (0.03)	0.01 (0.00)	0.06 (0.04)	0.08 (0.10)	-0.04 (0.01)	-0.01 (0.04)
Head education	-0.07 (0.03)	0.10 (0.03)	-0.06 (0.03)	0.03 (0.04)	0.01 (0.04)	0.00 (0.03)	0.10 (0.04)	-0.02 (0.05)	-0.02 (0.02)	0.04 (0.02)	0.03 (0.04)	-0.03 (0.02)	-0.00 (0.02)	0.04 (0.02)	0.02 (0.02)	0.07 (0.02)	-0.04 (0.04)	0.04 (0.03)	0.03 (0.03)	-0.02 (0.02)	-0.00 (0.02)	0.10 (0.03)	0.02 (0.02)	0.04 (0.02)
Head employment	-0.52 (0.24)	-0.26 (0.21)	-0.31 (0.30)	0.28 (0.45)	-0.11 (0.38)	0.06 (0.27)	-0.24 (0.28)	-0.19 (0.55)	-0.50 (0.18)	-0.17 (0.19)	-0.65 (0.37)	0.11 (0.29)	-0.28 (0.26)	-0.11 (0.17)	0.02 (0.13)	0.23 (0.22)	-0.71 (0.33)	-0.21 (0.26)	-0.57 (0.30)	-0.33 (0.29)	0.14 (0.19)	0.10 (0.21)	0.17 (0.14)	0.56 (0.25)
Household composition	0.24 (0.70)	-0.43 (0.71)	-0.35 (1.21)	-1.04 (1.81)	-0.58 (1.10)	-0.54 (0.68)	-0.79 (0.59)	-1.25 (0.59)	0.29 (0.53)	-0.03 (0.62)	-0.89 (1.52)	-0.65 (1.16)	-0.35 (0.77)	-0.22 (0.44)	-0.36 (0.31)	0.44 (0.33)	0.06 (0.95)	-0.71 (0.84)	-0.72 (1.20)	0.66 (1.16)	-0.14 (0.55)	-0.88 (0.55)	0.20 (0.33)	-0.09 (0.41)
Administrative region	0.16 (0.05)	0.16 (0.04)	0.18 (0.04)	-0.13 (0.03)	0.16 (0.04)	0.22 (0.03)	0.15 (0.04)	0.08 (0.04)	0.17 (0.04)	0.12 (0.03)	0.17 (0.03)	-0.21 (0.02)	0.20 (0.03)	0.22 (0.02)	0.26 (0.03)	0.18 (0.03)	0.26 (0.05)	0.20 (0.04)	0.24 (0.03)	0.00 (0.03)	0.21 (0.03)	0.19 (0.03)	0.22 (0.03)	0.34 (0.04)
Observations	5537	6056	5836	5910	6075	5670	6611	6699	5537	6056	5836	5910	6075	5670	6611	6699	5537	6056	5836	5910	6075	5670	6611	6699

Notes: Author's analysis of EMOP 2011–2020 (LIS 2024), population-weighted samples. Ménaka and Taoudénit regions in the North were excluded from EMOP sampling frame. Northern regions (Timbuktu, Gao and Kidal) were fully excluded from EMOP in 2013 due to conflict on the ground. Kidal region remained excluded till 2018. The 20th, 50th and 80th percentiles are selected for illustration – other deciles are available from the author on request. Standard errors computed using the delta method are in parentheses – more precise values and significance levels available on request. Adult equivalence and economies of scale are approximated using square root of household size as per LIS approach. Negative signs indicate pro-South effects, positives indicate pro-North effects.

Table A4. Quantile decomposition of equivalized (log-)consumption gaps between South and North regions, selected deciles by year

	2 nd decile								5 th decile – Median								8 th decile								
	2011	2014	2015	2016	2017	2018	2019	2020	2011	2014	2015	2016	2017	2018	2019	2020	2011	2014	2015	2016	2017	2018	2019	2020	
North log consumption	5.80 (0.02)	5.86 (0.02)	5.91 (0.03)	5.81 (0.02)	5.77 (0.02)	5.87 (0.02)	5.91 (0.01)	5.88 (0.02)	6.18 (0.02)	6.29 (0.02)	6.20 (0.02)	6.19 (0.02)	6.17 (0.03)	6.27 (0.02)	6.33 (0.02)	6.42 (0.02)	6.63 (0.02)	6.93 (0.03)	6.50 (0.02)	6.46 (0.02)	6.56 (0.02)	6.84 (0.02)	6.78 (0.02)	6.96 (0.03)	
South log consumption	5.75 (0.01)	5.85 (0.01)	5.83 (0.01)	5.78 (0.01)	5.89 (0.01)	6.01 (0.01)	5.95 (0.01)	5.95 (0.01)	6.28 (0.01)	6.22 (0.01)	6.25 (0.01)	6.24 (0.01)	6.31 (0.01)	6.46 (0.01)	6.37 (0.01)	6.38 (0.01)	6.85 (0.01)	6.71 (0.01)	6.68 (0.01)	6.72 (0.01)	6.78 (0.01)	6.91 (0.01)	6.87 (0.01)	6.88 (0.01)	
Overall gap	0.04 (0.02)	0.01 (0.02)	0.08 (0.03)	0.03 (0.02)	-0.12 (0.02)	-0.14 (0.02)	-0.04 (0.02)	-0.07 (0.02)	-0.10 (0.02)	0.06 (0.03)	-0.05 (0.02)	-0.05 (0.02)	-0.14 (0.03)	-0.19 (0.02)	-0.04 (0.02)	0.04 (0.02)	-0.22 (0.02)	0.22 (0.03)	-0.17 (0.02)	-0.27 (0.02)	-0.22 (0.02)	-0.07 (0.03)	-0.10 (0.02)	0.08 (0.03)	
Endowments (Explained)	-0.56 (0.10)	-0.07 (0.04)	-0.12 (0.05)	-0.17 (0.04)	0.13 (0.04)	-0.02 (0.09)	-0.20 (0.07)	-0.46 (0.12)	-0.61 (0.08)	0.19 (0.04)	0.02 (0.03)	-0.14 (0.03)	0.28 (0.06)	0.26 (0.09)	-0.66 (0.10)	-0.51 (0.08)	-0.68 (0.10)	0.23 (0.05)	-0.03 (0.03)	-0.03 (0.03)	0.04 (0.05)	0.19 (0.10)	-1.01 (0.09)	-1.79 (0.15)	
Returns on endow (Unexpl)	0.60 (0.10)	0.08 (0.05)	0.20 (0.05)	0.20 (0.04)	-0.25 (0.04)	-0.12 (0.09)	0.16 (0.07)	0.38 (0.12)	0.51 (0.08)	-0.12 (0.05)	-0.07 (0.03)	0.08 (0.03)	-0.42 (0.07)	-0.45 (0.09)	0.62 (0.11)	0.55 (0.08)	0.46 (0.10)	-0.02 (0.06)	-0.14 (0.04)	-0.23 (0.04)	-0.26 (0.06)	-0.26 (0.10)	0.91 (0.09)	1.87 (0.15)	
Constant (Unexpl.)	-0.59 (0.54)	0.80 (0.63)	-0.45 (1.05)	1.61 (0.84)	-0.15 (0.49)	0.42 (0.53)	0.36 (0.36)	0.94 (0.50)	0.86 (0.45)	0.81 (0.61)	-0.28 (0.66)	0.02 (0.68)	-0.68 (0.79)	-0.57 (0.51)	0.67 (0.46)	-0.42 (0.42)	0.79 (0.55)	0.22 (0.76)	-0.83 (0.76)	-0.56 (0.72)	0.00 (0.68)	-0.88 (0.59)	-0.84 (0.44)	0.06 (0.63)	
Endowments (Explained) Effects																									
Demographics of hhd. head	-0.01 (0.01)	-0.03 (0.02)	-0.03 (0.02)	-0.02 (0.01)	0.01 (0.01)	0.01 (0.01)	-0.03 (0.01)	0.06 (0.03)	-0.01 (0.01)	-0.03 (0.02)	-0.05 (0.02)	0.00 (0.01)	0.05 (0.02)	0.00 (0.01)	0.04 (0.02)	0.09 (0.02)	0.01 (0.01)	0.01 (0.02)	-0.06 (0.02)	0.00 (0.01)	0.01 (0.02)	0.02 (0.01)	0.02 (0.02)	0.15 (0.04)	
Head religion	0.00 (0.04)	-0.01 (0.02)	-0.03 (0.02)	0.00 (0.02)	0.00 (0.03)	-0.01 (0.07)	0.00 (0.01)	0.01 (0.04)	0.00 (0.03)	0.04 (0.02)	0.02 (0.01)	0.00 (0.00)	-0.01 (0.05)	-0.03 (0.07)	0.03 (0.02)	-0.02 (0.03)	0.02 (0.04)	0.01 (0.02)	0.01 (0.01)	0.00 (0.01)	-0.04 (0.04)	-0.08 (0.08)	0.01 (0.01)	-0.01 (0.05)	
Head education	-0.01 (0.01)	0.00 (0.01)	0.00 (0.01)	-0.01 (0.01)	0.00 (0.00)	0.01 (0.01)	-0.01 (0.01)	0.05 (0.02)	-0.01 (0.01)	0.00 (0.01)	0.02 (0.01)	0.00 (0.00)	-0.03 (0.01)	0.02 (0.01)	0.03 (0.01)	0.08 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	0.00 (0.01)	0.02 (0.01)	0.05 (0.01)	0.02 (0.01)	0.09 (0.02)	
Head employment	-0.02 (0.01)	0.04 (0.01)	0.02 (0.01)	0.00 (0.01)	-0.01 (0.00)	-0.01 (0.01)	0.00 (0.00)	-0.07 (0.01)	-0.01 (0.01)	0.01 (0.00)	0.00 (0.00)	0.00 (0.01)	-0.01 (0.01)	0.00 (0.00)	-0.01 (0.01)	-0.02 (0.01)	-0.02 (0.01)	-0.02 (0.01)	-0.01 (0.01)	0.00 (0.01)	0.00 (0.00)	-0.01 (0.01)	-0.01 (0.00)	0.11 (0.02)	
Household composition	-0.19 (0.02)	-0.07 (0.03)	-0.03 (0.04)	-0.03 (0.02)	-0.09 (0.02)	-0.03 (0.05)	0.01 (0.03)	-0.24 (0.06)	-0.18 (0.02)	0.04 (0.03)	-0.01 (0.02)	-0.05 (0.01)	-0.26 (0.04)	0.04 (0.05)	-0.08 (0.05)	-0.14 (0.04)	-0.13 (0.02)	-0.04 (0.04)	0.01 (0.03)	-0.05 (0.01)	-0.15 (0.03)	0.00 (0.06)	-0.05 (0.04)	-0.58 (0.08)	
Administrative region	-0.33 (0.09)	0.01 (0.03)	-0.06 (0.04)	-0.11 (0.02)	0.23 (0.02)	0.01 (0.03)	-0.17 (0.06)	-0.26 (0.08)	-0.40 (0.08)	0.13 (0.03)	0.04 (0.02)	-0.08 (0.02)	0.54 (0.04)	0.24 (0.03)	-0.67 (0.08)	-0.50 (0.06)	-0.56 (0.09)	0.29 (0.04)	0.02 (0.03)	0.01 (0.02)	0.20 (0.03)	0.21 (0.03)	-1.00 (0.07)	-1.56 (0.11)	
Returns (Unexplained) Effects																									
Demographics of hhd. head	0.85 (0.28)	-0.03 (0.32)	0.76 (0.36)	-0.74 (0.28)	-0.05 (0.24)	-0.29 (0.30)	-0.21 (0.21)	-1.11 (0.32)	-0.48 (0.23)	-0.07 (0.31)	0.47 (0.23)	0.37 (0.23)	-0.05 (0.38)	-0.05 (0.29)	0.06 (0.27)	-0.18 (0.25)	-0.36 (0.28)	-0.28 (0.38)	0.55 (0.27)	0.61 (0.25)	-0.45 (0.32)	0.27 (0.33)	0.35 (0.26)	-0.82 (0.41)	
Head religion	0.03 (0.04)	0.03 (0.02)	0.06 (0.02)	0.01 (0.00)	0.02 (0.03)	0.03 (0.07)	0.02 (0.01)	0.01 (0.04)	0.01 (0.03)	-0.03 (0.02)	-0.01 (0.01)	0.01 (0.00)	0.03 (0.05)	0.04 (0.07)	-0.02 (0.02)	0.02 (0.03)	-0.02 (0.04)	0.00 (0.02)	0.00 (0.02)	0.01 (0.00)	0.04 (0.04)	0.08 (0.08)	-0.01 (0.01)	0.02 (0.05)	
Head education	-0.04 (0.02)	0.05 (0.02)	-0.12 (0.02)	-0.05 (0.02)	-0.02 (0.01)	-0.01 (0.02)	0.01 (0.01)	0.00 (0.02)	0.01 (0.02)	0.04 (0.02)	-0.02 (0.02)	-0.02 (0.01)	-0.04 (0.02)	0.02 (0.02)	0.04 (0.02)	0.00 (0.02)	-0.05 (0.02)	-0.05 (0.02)	-0.08 (0.02)	-0.02 (0.01)	0.03 (0.02)	0.08 (0.02)	0.03 (0.02)	0.01 (0.03)	
Head employment	-0.36 (0.15)	-0.34 (0.16)	-0.06 (0.24)	-0.18 (0.19)	-0.03 (0.14)	-0.20 (0.16)	-0.16 (0.11)	0.18 (0.24)	-0.63 (0.13)	-0.18 (0.16)	-0.24 (0.15)	0.24 (0.16)	-0.02 (0.23)	0.03 (0.16)	-0.36 (0.15)	0.28 (0.18)	-0.41 (0.15)	0.23 (0.19)	0.04 (0.17)	0.07 (0.17)	-0.23 (0.19)	0.23 (0.18)	0.20 (0.14)	0.88 (0.31)	
Household composition	0.54 (0.46)	-0.27 (0.53)	-0.14 (0.96)	-0.02 (0.77)	-0.15 (0.41)	-0.40 (0.43)	-0.01 (0.26)	0.21 (0.31)	0.46 (0.38)	-0.47 (0.52)	-0.24 (0.60)	-0.19 (0.62)	-0.06 (0.66)	-0.43 (0.41)	-0.11 (0.32)	0.43 (0.30)	0.03 (0.46)	0.02 (0.64)	-0.47 (0.69)	-0.09 (0.66)	-0.32 (0.56)	-0.52 (0.48)	0.37 (0.32)	0.95 (0.39)	
Administrative region	0.18 (0.04)	-0.15 (0.02)	0.16 (0.03)	-0.44 (0.02)	0.14 (0.02)	0.34 (0.02)	0.14 (0.03)	0.16 (0.03)	0.29 (0.03)	-0.23 (0.02)	0.25 (0.02)	-0.36 (0.02)	0.39 (0.03)	0.51 (0.02)	0.33 (0.02)	0.42 (0.03)	0.48 (0.04)	-0.16 (0.03)	0.64 (0.03)	-0.24 (0.02)	0.67 (0.03)	0.49 (0.02)	0.82 (0.02)	0.79 (0.03)	
Observations	5537	6056	5836	5910	6075	5670	6611	6699	5537	6056	5836	5910	6075	5670	6611	6699	5537	6056	5836	5910	6075	5670	6611	6699	

Notes: Author's analysis of EMOP 2011–2020 (LIS 2024), population-weighted samples. Ménaka and Taoudénit regions in the North were excluded from EMOP sampling frame. Northern regions (Timbuktu, Gao and Kidal) were fully excluded from EMOP in 2013 due to conflict on the ground. Kidal region remained excluded till 2018. The 20th, 50th and 80th percentiles are selected for illustration – other deciles are available from the author on request. Standard errors computed using the delta method are in parentheses. Adult equivalence and economies of scale are approximated using square root of household size as per LIS approach. Negative signs indicate pro-South effects, positives indicate pro-North effects.