Quantifying the "Mobility Dividend" of the AfCFTA

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Paper prepared for the 33rd International Input-Output Conference
22nd – 26th June 2026, Seville, Spain

Abstract

This paper estimates the Mobility Dividend — the macroeconomic gains achievable when AfCFTA trade liberalisation is coupled with labour market integration under the AU Protocol on Free Movement of Persons (FMP). Using the GTAP-GMig2 model and the newly released GMig2 database for GTAP 11 (Aguiar and Walmsley, 2025), we estimate seven policy scenarios that vary trade policy shocks (tariff-only; tariff plus NTM reduction) against three treatments of labour mobility: exogenous, endogenous, and enhanced under the FMP. A diagnostic analysis of the baseline database documents profound heterogeneity in African migration and remittance structures, motivating a core-periphery calibration of the FMP shock grounded in evidence from Abdel Jelil et al. (2025) on intra-African wage differentials and credential barriers.

Four findings emerge from preliminary short-run simulations. First, the passive migration response to trade-induced wages is negligible — endogenous and exogenous migration scenarios are indistinguishable — validating the conventional fixed-labour assumption for trade-only analyses while confirming that the Mobility Dividend requires explicit institutional reform. Second, the standalone FMP shock generates a continental GDP gain of approximately 2.2 percentage points, exceeding every trade scenario; the combined tariff-plus-NTM-plus-mobility scenario reaches approximately 3 percentage points, three to four times the tariff-only result. Third, migration flows operate through two distinct mechanisms: intra-African core-to-periphery reallocation in the Southern African corridor, and diaspora return migration to North Africa from the EU and Gulf. Fourth, FMP enhancement roughly doubles total remittance redistribution relative to trade-only scenarios, redirecting approximately USD 84 billion from labour-receiving to labour-sending economies. All results are conservative short-run lower bounds; a dynamic closure with endogenous capital accumulation constitutes the next phase of this research.

Keywords: AfCFTA; Protocol on Free Movement of Persons; labour mobility; Mobility Dividend; GTAP-GMig2; computable general equilibrium; remittances; intra-African migration; wage differentials

1. Introduction

The African Continental Free Trade Area (AfCFTA) represents the most ambitious act of regional economic integration in the continent's history. Covering 54 countries and a combined GDP exceeding $3 trillion, it aims to eliminate tariffs on the vast majority of goods traded between member states and progressively dismantle the non-tariff measures that have long fragmented African markets. Yet the AfCFTA's transformative potential is inseparable from its sister agreement — the Protocol on Free Movement of Persons (FMP) — which seeks to extend the logic of integration to the continent's single most abundant production factor: labour. The FMP has faced significant political headwinds and uneven ratification progress, and this asymmetry has consequences that macroeconomic modelling has not yet adequately captured.

A substantial body of computable general equilibrium (CGE) model-based literature has quantified the AfCFTA's economic potential, producing broadly convergent results despite varying model structures, data vintages, and policy assumptions. Early studies assuming complete elimination of intra-African tariffs found GDP gains of 0.2–1.6% (Mevel and Karingi, 2013; Sandrey and Jensen, 2015). More recent assessments calibrated to the actual AfCFTA modalities obtain considerably more modest tariff-only effects: Abrego et al. (2019) estimate a static gain of 0.05%, the World Bank (2020) projects 0.13% in a dynamic setting, and Simola et al. (2025) find effects in the same range. Averaging across the literature, tariff cuts alone yield approximately 0.3% of continental GDP, reflecting the already-low initial intra-African tariff levels — the trade-weighted average standing at around 1.3% prior to implementation — and the dominance of extra-African trade in African economies' total trade portfolios (Simola et al., 2026).

Non-tariff measures consistently account for a larger share of the welfare potential. Studies combining tariff cuts with NTM reductions find gains in the range of 0.4–2.2% of GDP, with the NTM component accounting for roughly two-thirds of the total effect (World Bank, 2020; Simola et al., 2021). Analyses by UNECA, AfDB, and the African Union (2025) estimate that eliminating NTMs could yield welfare gains two to four times greater than tariff reductions alone. Simola et al. (2026) model regulatory harmonization as a partial public good, finding that spillover effects to extra-African trade can amplify gains up to 16 times above the tariff-only baseline under ambitious

scenarios. Beckman et al. (2024) similarly find NTM reductions substantially expand intra-African agricultural trade. The World Bank (2022) projects long-run gains of up to 7.1% of GDP, though this reflects a qualitatively different dynamic horizon from the comparative static estimates typical of the literature.

Across this literature, labour mobility remains absent from the analytical framework. Models treat a continent in which workers do not move in response to integration — an assumption that is increasingly untenable. Africa is projected to account for more than half of global population growth through 2050, with five of the eight countries expected to drive that growth being African (UN DESA, 2024), and sub-Saharan Africa's population alone projected to rise by nearly 80% by the mid-2050s. Intra-African migration already constitutes one of the most significant economic phenomena on the continent, yet its interaction with trade integration has not been quantified. This paper takes a first step toward closing that gap.

We quantify what we term the "Mobility Dividend" — the additional macroeconomic gains achievable when continental trade liberalisation is coupled with enhanced labour market integration under the FMP. We employ the GTAP-GMig2 model (Walmsley et al., 2007) with the GMig2 database for GTAP 11 (Aguiar and Walmsley, 2025), which provides a globally consistent baseline of bilateral migrant stocks, skill-differentiated wages, and remittance flows. The paper proceeds as follows. Section 2 describes the data and baseline migration structure. Section 3 describes the model, scenarios, and closure. Section 4 presents preliminary short-run results. Section 5 concludes.

2. Data and Baseline Structure of African Labour Mobility

2.1 The GTAP-GMig2 Database

The empirical foundation is the GTAP-Migration (GMig2) database for GTAP 11 (Aguiar and Walmsley, 2025). The database extends the standard GTAP social accounting matrix to include a bilateral matrix of foreign labour stocks disaggregated by five skill categories — managers and professionals, technical workers, clerical workers, service and sales workers, and agricultural and other low-skilled workers — covering 141 countries and 65 sectors, plus a bilateral construction for remittances. The reference year is 2017. The sub-regional groupings used throughout (North, West, Central, East, and Southern Africa) follow the African Union classification; Appendix A provides the mapping from GTAP country codes to sub-regions.

A key parameter of the GMig2 framework is the BETA coefficient — the ratio of migrant wages to native wages in each destination country for each skill category and bilateral corridor. BETA captures the effective wage penalty migrants face due to formal barriers including legal restrictions, credential non-recognition, and labour market discrimination. In the current model version, BETA is initialised from the database but does not respond dynamically to wage changes during simulation. As described in Section 3.1, the FMP is implemented by shocking p_BETA — the proportional change in this coefficient — to represent the institutional improvements that allow migrants to realise a higher share of the destination wage.

2.2 The Structure of Intra-African Labour Stocks

Figure 1 presents the aggregate foreign labour stock by destination region, decomposed by origin. The dominant feature is the scale and insularity of West African labour circulation: the region hosts approximately 2.8 million foreign workers in the baseline, of whom roughly 2.5 million originate from within West Africa itself. This pattern is consistent with the long-standing free movement frameworks within ECOWAS, which have enabled substantial informal and seasonal labour mobility across the region's borders. East Africa hosts approximately 1.8 million foreign workers. Southern Africa is the most structurally distinctive destination: its approximately 1.7 million immigrant stock combines significant East African inflows with a substantial Rest of World component, reflecting the concentration of skilled expatriate workers in South Africa's mining, finance, and services sectors.

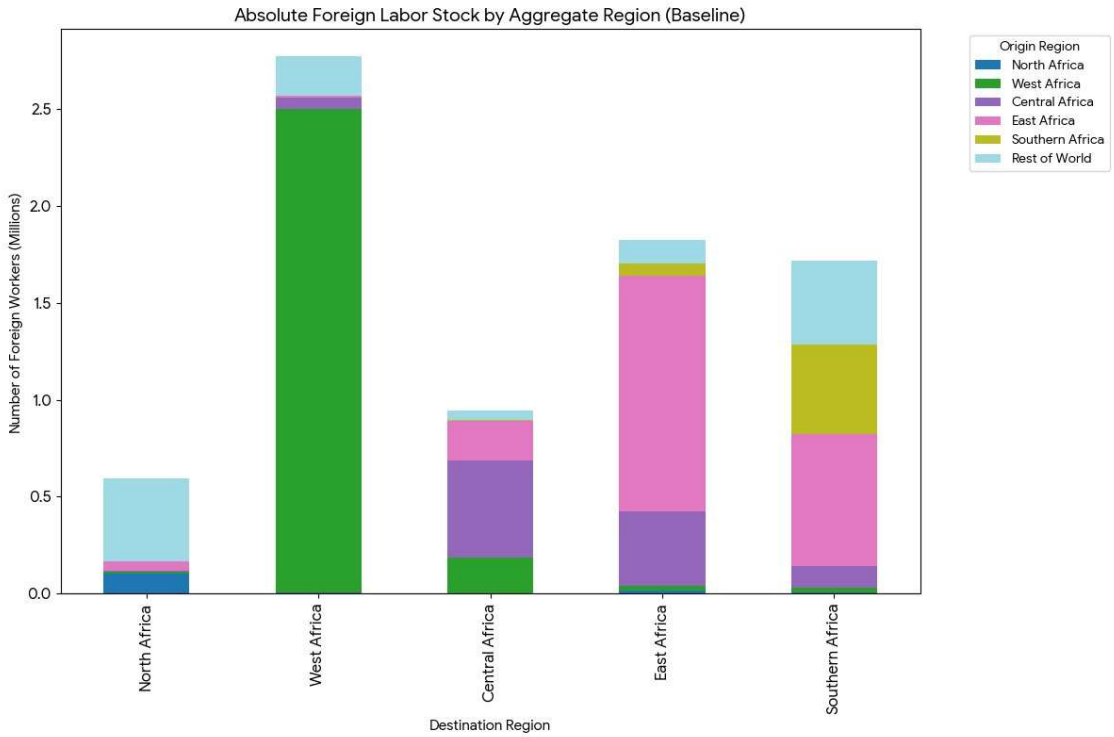

Figure 1. Absolute foreign labour stock by aggregate African region, baseline. Source: GTAP-GMig2 database for GTAP 11 (Aguiar and Walmsley, 2025); authors' calculations.

Figure 2 distinguishes the intra-African component of each country's gross immigrant and emigrant stocks from the total, sorting economies by their overall net migrant position. South Africa and Côte d'Ivoire are the dominant net receivers, with South Africa's immigrant stock being virtually entirely intra-African — confirming its role as the continent's primary labour hub. At the opposite end, Egypt and Morocco record the largest net emigrant positions; crucially, their emigrant stocks are overwhelmingly non-African. This means the FMP's direct reach affects these economies primarily through the return migration channel — improved conditions at home drawing back diaspora workers from Europe and the Gulf — rather than through new intra-continental flows, a distinction the simulation results in Section 4 confirm.

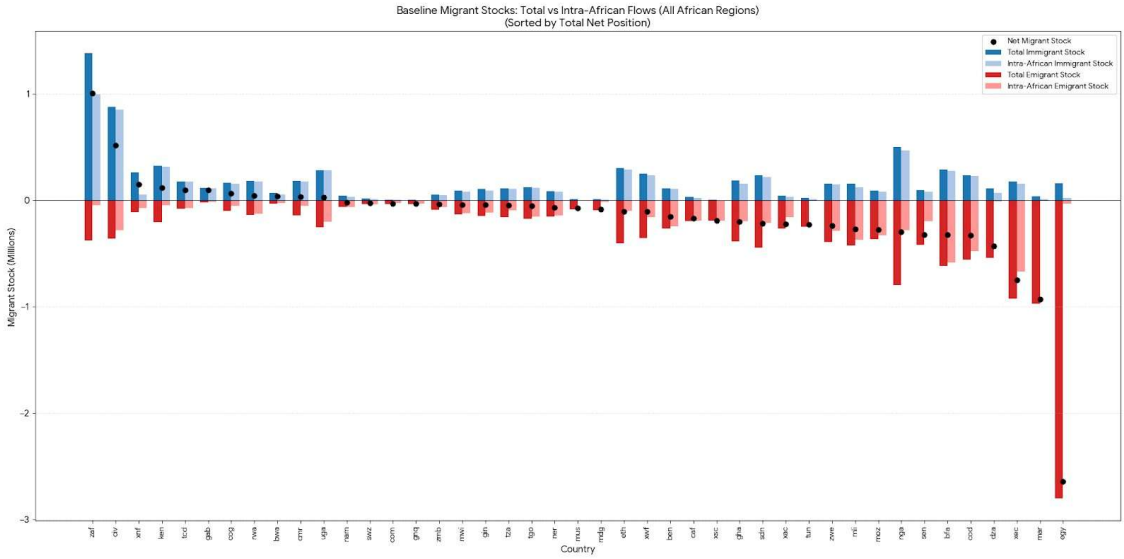

Figure 2. Baseline migrant stocks: total versus intra-African flows for all African regions, sorted by total net position. Source: GTAP-GMig2 database for GTAP 11 (Aguiar and Walmsley, 2025); authors' calculations.

2.3 Remittance Flows and the Decoupling from Labour Stocks

Figure 3 presents the source composition of remittance receipts in share terms. North Africa receives less than 1% of its remittances from within Africa; West Africa approximately 6%, despite hosting the continent's largest intra-regional labour stock. This decoupling reflects the modest wage differentials within ECOWAS, which limit remittance savings incentives relative to the European diaspora channels that dominate North and West African receipts. Central Africa, East Africa, and Southern Africa each derive 20–25% of their remittance receipts from within the continent — a substantially higher share reflecting the South African hub effect discussed below.

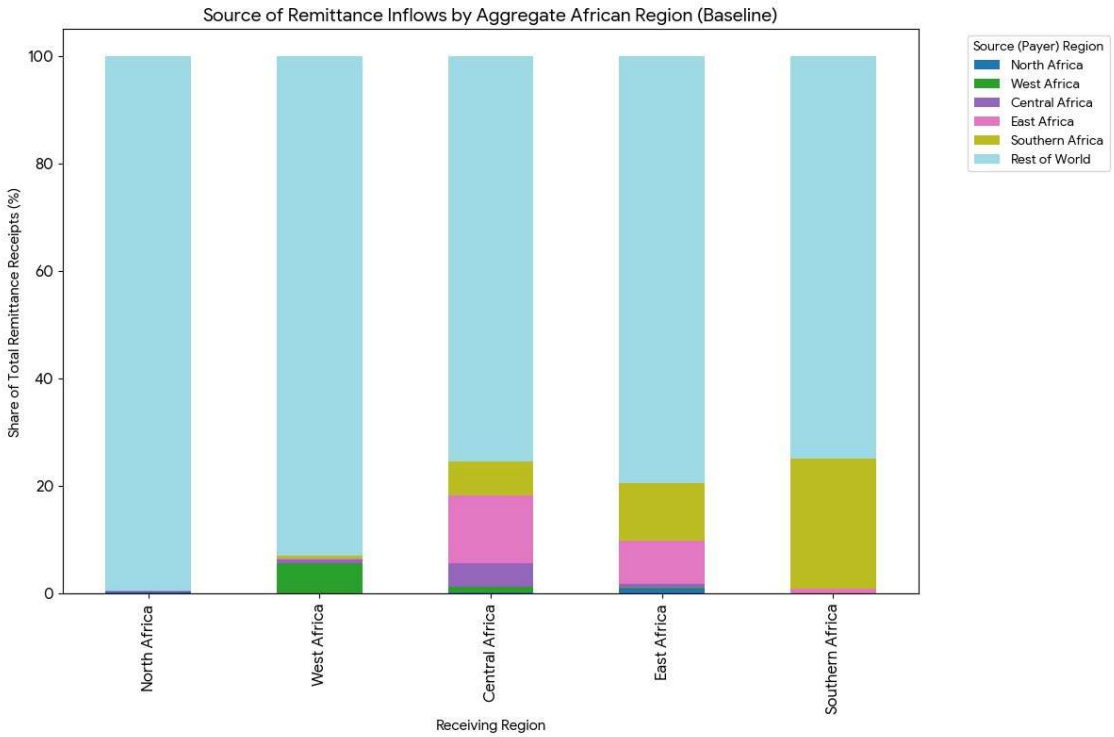

Figure 3. Source of remittance inflows by aggregate African region, baseline (shares). Source: GTAP-GMig2 database for GTAP 11 (Aguiar and Walmsley, 2025); authors' calculations.

Figure 4 presents the same data in absolute terms. North Africa receives approximately $35.5 billion and West Africa approximately $31 billion, with both totals derived almost entirely from Rest of World sources. South Africa is the continent's only major net remittance payer (Figure 5), sending approximately $2.5 billion outward as earnings from its immigrant population flow back to neighbouring economies — a role that the MigPlus scenario amplifies substantially.

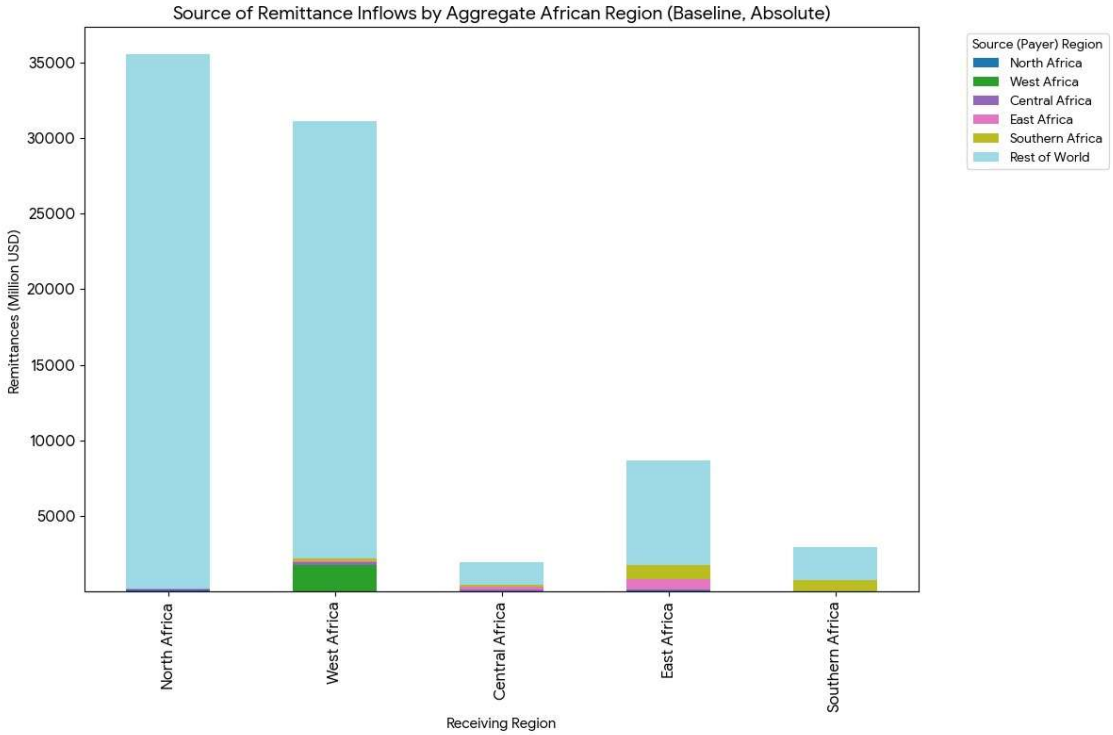

Figure 4. Source of remittance inflows by aggregate African region, baseline (absolute values, USD million). Source: GTAP-GMig2 database for GTAP 11 (Aguiar and Walmsley, 2025); authors' calculations.

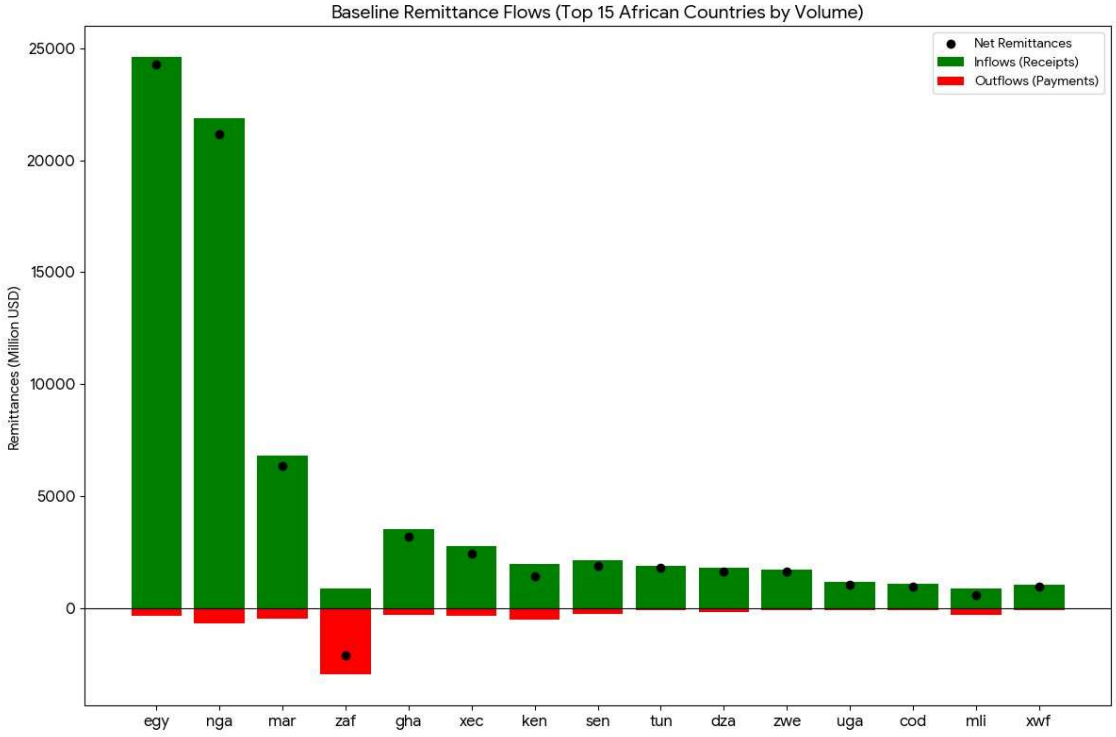

Figure 5. Baseline remittance flows for the top 15 African countries by volume (USD million). Source: GTAP-GMig2 database for GTAP 11 (Aguiar and Walmsley, 2025); authors' calculations.

3. Model, Scenarios, and Closure

3.1 The GTAP-GMig2 Model and the p_BETA Policy Mechanism

Simulations are conducted using the GTAP-GMig2 model (Walmsley et al., 2007), a global CGE model that extends the standard GTAP framework to incorporate bilateral migration flows. The model tracks workers across 141 country-pairs and five skill categories, allowing wages to differ between native and migrant workers within the same skill category and reallocating labour in response to effective wage differentials across corridors.

In the GMig2 migration equation, workers sort across destination corridors according to the effective wage they can realise relative to their origin wage. Formal barriers — legal restrictions on entry and work, credential non-recognition, and labour market discrimination — reduce the share of the destination wage that migrants can actually access. This gap is parameterised by the BETA coefficient: BETA below unity implies migrants receive less than a comparable native worker, with the gap representing the combined cost of formal barriers. Policy reforms that remove those barriers — as the FMP does through provisions on free movement rights, residency, and mutual recognition of qualifications — raise the effective wage offer. Accordingly, the FMP is implemented as a shock to p_BETA, the percentage-point change in the bilateral wage ratio, which shifts the effective attractiveness of each corridor through an institutional channel without directly altering underlying productivity or factor endowments.

The remittance channel complements the labour market mechanism. Migrants remit a fixed share of their earnings back to origin economies; shifts in migrant stocks therefore translate directly into household income changes in sending countries, a welfare transmission mechanism invisible to trade-only models. The model code is extended to include an exporter-side trade efficiency variable following Walmsley and Strutt (2021), allowing NTM efficiency gains to be allocated symmetrically between exporters and importers without the terms-of-trade bias from single-sided implementation. The model is implemented in GEMPACK (Harrison and Pearson, 1996).

3.2 Scenario Design

Seven policy scenarios vary along two dimensions: the trade policy shock and the treatment of labour mobility (Table 1). The trade dimension distinguishes tariff-only liberalisation from tariff combined with NTM reduction. The migration dimension distinguishes exogenous (fixed labour supply, equivalent to the standard GTAP assumption), endogenous (workers respond to trade-induced wage changes without any explicit FMP policy), and enhanced migration under the AU-FMP (MigPlus). The Mobility Dividend is defined operationally as the difference between matched trade scenarios with and without the MigPlus shock.

Table 1. Simulation scenario design.

#	Label	Trade liberalisation	Labour mobility	Migration treatment
1	*Tar*	Tariff reductions (Boysen 2024 repaired offer)	None	Exogenous (fixed)
2	*TarNTM*	Tariffs + 25% NTM reduction (0% spillover)	None	Exogenous (fixed)
3	*TarMig*	Tariff reductions (Boysen 2024 repaired offer)	None	Endogenous (responds to wages)
4	*TarNTMmig*	Tariffs + 25% NTM reduction (0% spillover)	None	Endogenous (responds to wages)
5	*MigPlus*	None	Enhanced AU-FMP	Endogenous (responds to wages)
6	*TarMigPlus*	Tariff reductions (Boysen 2024 repaired offer)	Enhanced AU-FMP	Endogenous (responds to wages)
7	*TarNTMmigPlus*	Tariffs + 25% NTM reduction (0% spillover)	Enhanced AU-FMP	Endogenous (responds to wages)

Source: Authors' elaboration. Blue: exogenous migration. Green: endogenous without FMP. Orange: enhanced AU-FMP scenarios.

The exogenous versus endogenous migration distinction isolates the passive response to trade-induced wage changes. As Section 4 shows, this effect is negligible in the short run — validating the conventional exogenous-migration assumption for trade-only analyses while demonstrating that the large gains from mobility require explicit institutional reform.

Tariff liberalisation follows the AfCFTA modalities-compliant repaired offer schedules of Boysen (2024). Pre-AfCFTA import-weighted average tariff rates range from near zero to approximately 11% (CEMAC), falling to a maximum of roughly 2% under the repaired offer. NTM reductions correspond to a 25% reduction in intra-African NTM ad valorem equivalents with no spillover to extra-African partners, equivalent to the conservative no-spillover scenario in Simola et al. (2026), implemented as a symmetric 50/50 efficiency shock to exporters and importers following Walmsley and Strutt (2021). NTM AVEs are sourced from World Bank (2019) based on Kee et al. (2009) and Kee and Nicita (2022).

Labour mobility shocks are applied through p_BETA (Section 3.1) across a core-periphery aggregation of AU members. The core (REGAUcor) comprises West, Central, and East Africa; the periphery (REGAUper) comprises North and Southern Africa. Abdel Jelil et al. (2025) document that wage employment accounts for only 23% of total employment in the core compared to 70% in the periphery, providing the economic rationale for large potential mobility gains from core-to-periphery migration. Table 2 reports the shock values for the moderate AU-FMP scenario.

Table 2. Labour mobility shock values (MigPlus, moderate AU-FMP scenario).

Migration corridor	**Skill category**	**p_BETA shock (pp)**
Core → Core	All	+4
Core → Periphery	Technical/professional (tech_aspros)	+11
	Office managers/professionals (off_mgr_pros)	+10
	Clerical (clerks)	+8
	Service and sales (service_shop)	+7
	Agricultural/low-skilled (ag_othlowsk)	+5
Periphery → Core	All	+2
Periphery → Periphery	All	+4

Source: Authors' calibration. REGAUcor = West, Central, East Africa; REGAUper = North, Southern Africa. Skill labels follow GTAP-GMig2 nomenclature.

The corridor-specific shock design draws on three elements of the evidence base in Abdel Jelil et al. (2025). First, the corridor structure reflects documented wage differentials: low-skilled migrants from the core earn approximately twice as much in the periphery — a 2:1 wage ratio for ECOWAS migrants in South Africa — while core-to-core migration yields gains close to unity, justifying the asymmetric structure in which the cor→per corridor receives the largest shock and the per→cor shock is smallest. Second, the skill gradient (+5 to +11 pp in the cor→per corridor) reflects the pervasive skill downgrading documented in that corridor — 41% of Zimbabwean migrants in South Africa work in low-skilled sectors despite their educational attainment — with the largest shocks assigned to skills most exposed to credential non-recognition, which the AU-FMP's mutual recognition provisions specifically target. Third, the overall moderate magnitude reflects the BLMA evidence that bilateral labour agreements increase migrant stocks by over 77% globally but have a "virtually absent" effect in African countries due to weak implementation capacity; the moderate scenario represents a partial institutional improvement rather than full-potential implementation, with a doubled-shock sensitivity scenario as the upper bound.

3.3 Closure

All policy simulations are short-run comparative static experiments with capital stocks held fixed. Labour supply in each region responds to migration shocks through the GMig2 labour market equations. Trade balances adjust endogenously, and the savings-investment block is closed through a swap making the United States savings rate the global capital market anchor. Capital immobility makes these results conservative by construction: the long-run complementarity between mobile labour and investment — the mechanism through which migration-induced labour supply expansion attracts additional capital and amplifies output — is not captured here.

4. Preliminary Results

4.1 GDP Effects: The Negligible Endogeneity Premium

Figure 6 presents the distribution of real GDP changes across African countries by sub-region. The most immediate observation is that across all five sub-regions and both trade shock variants, the endogenous migration scenarios (TarMig, TarNTMmig) sit almost exactly on top of their exogenous counterparts (Tar, TarNTM). The passive migration response to trade-induced wage changes is negligible in the short run. This validates the conventional exogenous-migration assumption for

AfCFTA trade-only assessments, while demonstrating that the migration channel cannot be unlocked through trade liberalisation alone: the wage changes induced by even the full tariff-plus-NTM scenario are insufficient to generate the labour reallocation that the AfCFTA's demographic logic promises. That reallocation requires the explicit institutional reform represented by the FMP.

4.2 The Mobility Dividend

The MigPlus scenarios — orange and red in Figure 6 — tell a sharply different story. The standalone MigPlus scenario, with no accompanying trade shock, generates a continental cross-country mean GDP gain of approximately 2.2 percentage points, exceeding the mean gain from every trade scenario. Adding MigPlus to tariff cuts (TarMigPlus) lifts the continental mean to approximately 2.5–3 percentage points, roughly three to four times the tariff-only result. The full combination (TarNTMmigPlus) reaches approximately 3 percentage points — a Mobility Dividend that dwarfs either trade policy instrument in isolation. The increment from TarMigPlus to TarNTMmigPlus is smaller than from Tar to TarNTM in trade-only scenarios, suggesting trade policy and labour mobility are partial substitutes in generating short-run gains.

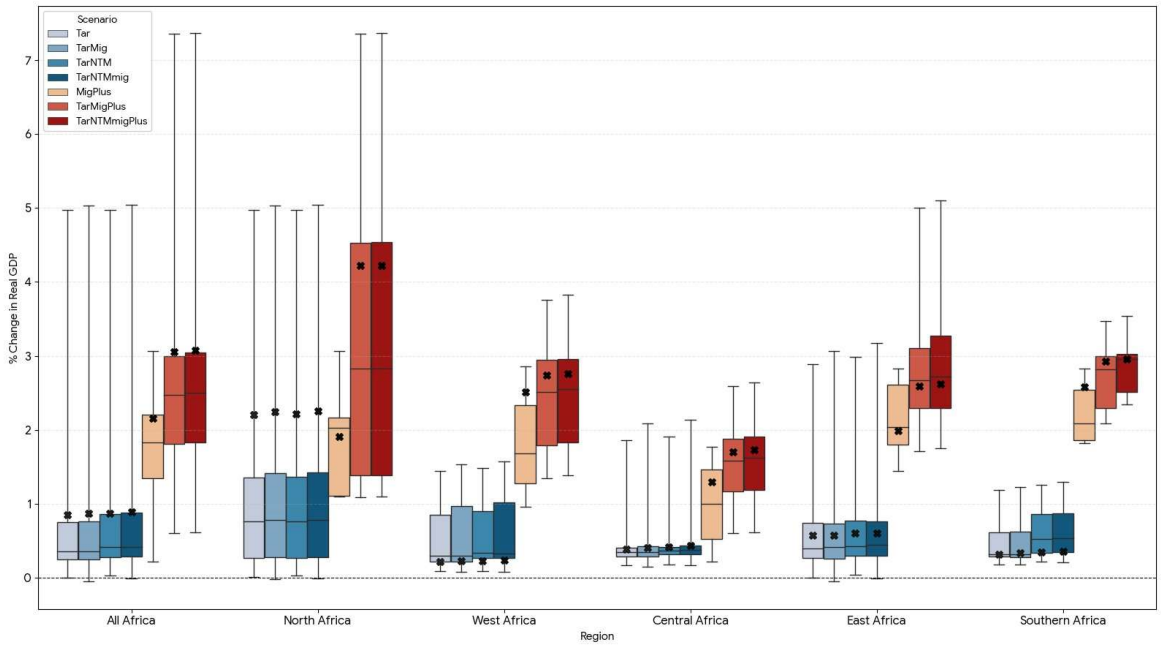

Figure 6. Short-run real GDP effects by African sub-region across seven scenarios (% change from 2017 baseline). Boxes show the interquartile range across countries within each sub-region; whiskers show the full range; crosses mark the cross-country mean. Source: Authors' GTAP-GMig2 simulations.

4.3 Regional Patterns

North Africa records the highest trade-scenario gains — approximately 2.2 percentage points mean for Tar compared to 0.5–0.8 elsewhere — reflecting relatively high pre-AfCFTA tariff levels in Egypt and Algeria. The combined TarNTMmigPlus mean reaches approximately 4.2 percentage points for North Africa, the highest of any sub-region. West Africa shows modest trade gains (~0.5 points for Tar) consistent with its already-developed ECOWAS integration, but a strong MigPlus contribution lifting the combined mean to approximately 2.8 points. Central Africa records the smallest gains. East and Southern Africa show strong MigPlus effects (~2.0 and 2.3 points respectively), consistent with their role as active labour-circulation zones.

4.4 Migration Flows: Intra-African Reallocation and Return Migration

Figure 7 decomposes migration flow changes under MigPlus. Two distinct mechanisms emerge. The first is intra-African labour reallocation within the core-periphery structure: South Africa attracts approximately 30,000 new immigrants drawn primarily from Mozambique and Zimbabwe — consistent with the 2:1 wage ratio documented by Abdel Jelil et al. (2025) for the cor→per corridor — while both origin economies record net outflows of approximately 11,000. The second mechanism is return migration: Egypt and Morocco gain approximately 26,000 and 11,000 workers respectively, but almost entirely as returning nationals rather than new intra-African inflows. Figure 8 confirms the source of these returnees — the EU_27 and Middle East/Turkey (MET) each record large net outflows of previously resident African migrants leaving for their home countries. This links the FMP to the North African diaspora through a channel trade-only models cannot capture: the protocol's primary effect on Egypt and Morocco operates through diaspora repatriation rather than continental reallocation.

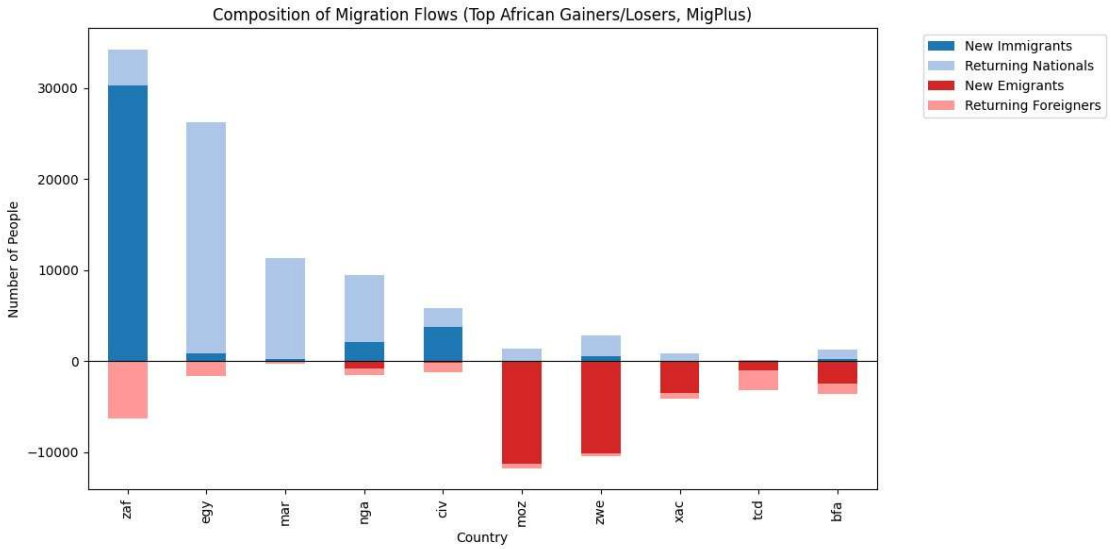

Figure 7. Composition of migration flow changes under MigPlus for top African gainers and losers (number of people), selected countries. Dark blue = new immigrants; light blue = returning nationals; dark red = new emigrants; light red = returning foreigners. Source: Authors' GTAP-GMig2 simulations.

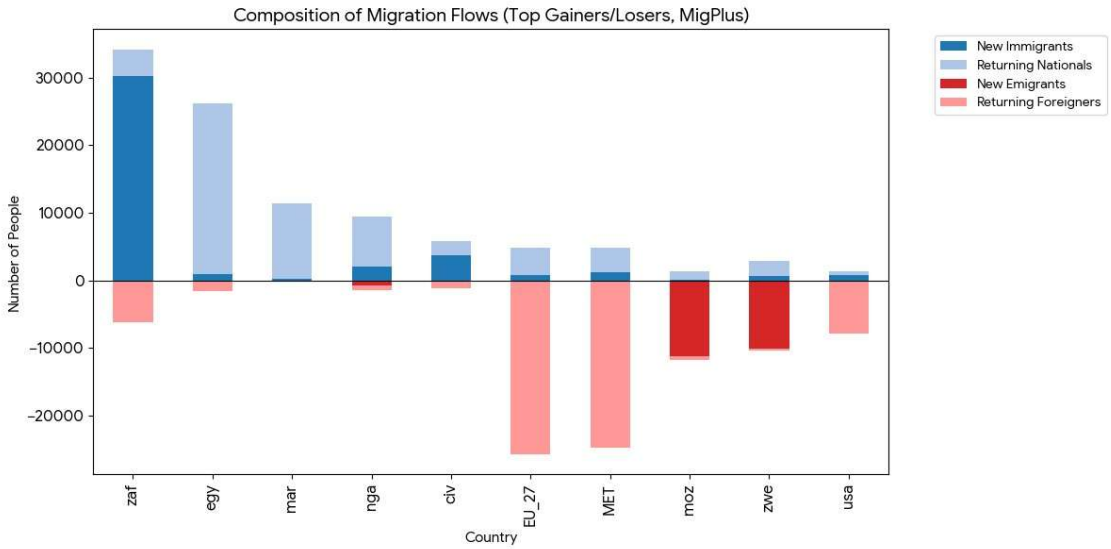

Figure 8. Composition of migration flow changes under MigPlus including major non-African destinations (number of people), selected countries. The EU_27 and Middle East/Turkey (MET) bars show net outflows as African diaspora workers return to their countries of origin. Source: Authors' GTAP-GMig2 simulations.

4.5 Trade Effects: Export-Led Growth under Combined Liberalisation

Figure 9 plots real export and import growth for all African countries under TarMigPlus. Most countries lie above the balanced-growth diagonal — exports grow faster than imports — consistent with the labour supply expansion that MigPlus delivers: immigrant workers augment production capacity in destination economies, raising output and export potential more than the demand-driven

import response. Ethiopia is a notable outlier at approximately 50% export growth against near-zero import growth, a result driven by the very large labour supply shock to a relatively small initial economy and warranting further sector-level investigation. A small number of countries including Congo sit below the diagonal, indicating their integration gains operate primarily through demand rather than supply channels.

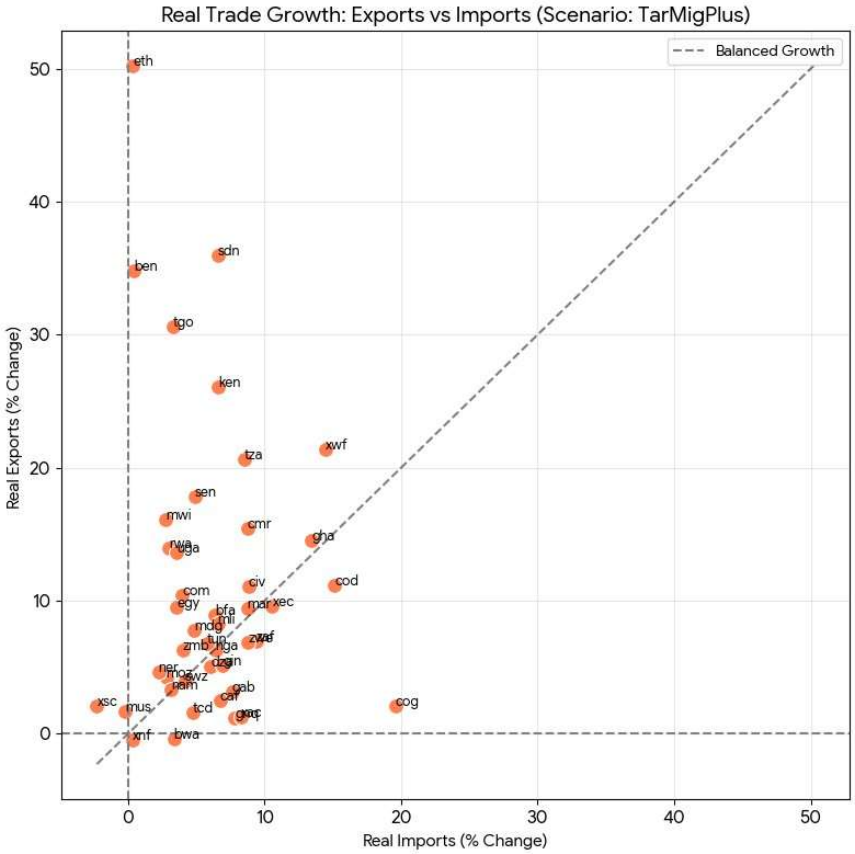

Figure 9. Real trade growth under TarMigPlus: exports versus imports (% change from 2017 baseline). The dashed line indicates balanced export-import growth. Source: Authors' GTAP-GMig2 simulations.

4.6 Remittance Redistribution: The Financial Transmission Channel

Figure 10 compares the total remittance redistribution generated by each scenario, measured as the sum of absolute net remittance changes across all countries. The trade-only endogenous scenarios generate approximately $45 billion in total redistribution. The standalone MigPlus raises this to approximately $62 billion, and the combined TarMigPlus and TarNTMmigPlus scenarios reach approximately $84 billion — roughly doubling the redistribution from trade liberalisation alone. Adding NTM reduction on top of MigPlus produces no further increase in remittance redistribution,

confirming that NTM reform adds to GDP through the trade channel but does not materially alter the financial transmission once labour mobility is enhanced.

The direction of redistribution matters: flows move from labour-receiving economies — primarily South Africa — to labour-sending economies in Central, East, and Southern Africa, partially correcting what Abdel Jelil et al. (2025) identify as Africa's core region receiving the lowest remittances per emigrant of any world region ($1,429 vs $3,707 in the periphery), owing to the concentration of core migrants in low-wage intra-African destinations.

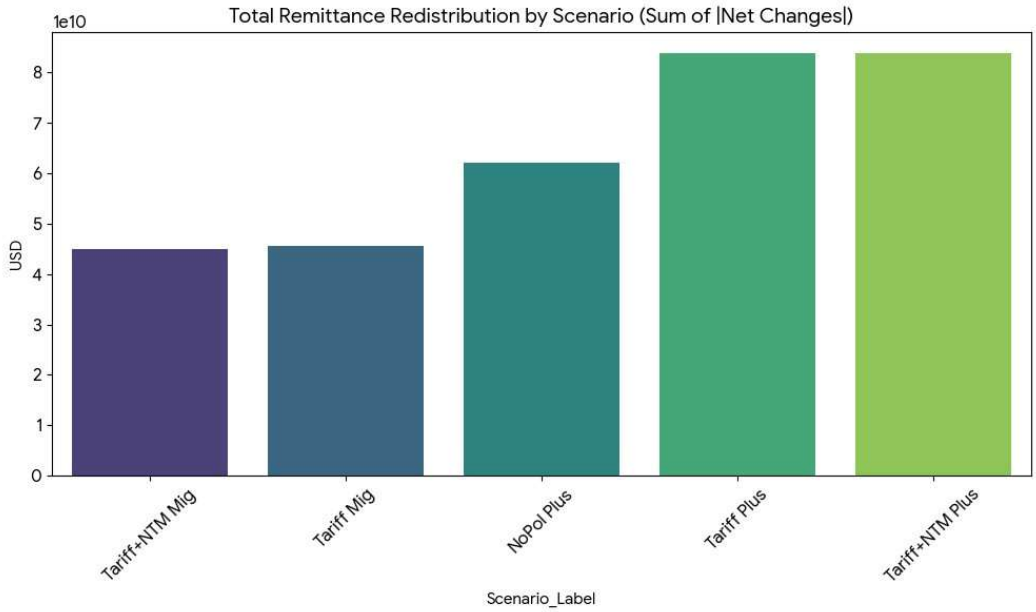

Figure 10. Total remittance redistribution by scenario, measured as the sum of absolute net changes across all countries (USD). Scenario labels: Tariff Mig = TarMig; Tariff+NTM Mig = TarNTMmig; NoPol Plus = MigPlus; Tariff Plus = TarMigPlus; Tariff+NTM Plus = TarNTMmigPlus. Source: Authors' GTAP-GMig2 simulations.

5. Conclusions and Further Work

This paper presents a first quantitative assessment of the Mobility Dividend — the macroeconomic gains from coupling AfCFTA trade liberalisation with the AU Free Movement Protocol — using GTAP-GMig2 with an original diagnostic of the baseline database.

Five results stand out. First, endogenous migration adds negligibly to trade-only GDP outcomes in the short run: the institutional channel of the FMP, not the wage response to trade, is what unlocks

mobility gains. Second, the explicit FMP shock generates GDP gains three to four times larger than tariff liberalisation alone at the continental mean, substantially exceeding even combined tariff-plus-NTM results. Third, migration flows operate through two qualitatively distinct mechanisms — intra-African core-to-periphery reallocation concentrated in the South African corridor, and diaspora return migration to North Africa — each with different welfare implications and different sensitivities to the FMP's provisions. Fourth, combined integration generates export-biased trade adjustment for most African economies, consistent with labour supply expansion raising productive capacity. Fifth, MigPlus roughly doubles total remittance redistribution relative to trade-only scenarios and redirects flows from receiving to sending economies, generating a financial transmission channel that GDP figures do not capture.

These results are conservative by construction. As the literature has demonstrated for trade integration (World Bank, 2022), long-run capital accumulation can substantially amplify the gains from policy reform. The labour-capital complementarity — where MigPlus-driven labour supply expansion in destination economies attracts investment and further amplifies output — is not captured in the current comparative static framework. Extending to a dynamic closure with endogenous capital, together with a household-level welfare decomposition of the remittance redistribution and a sensitivity analysis of the p_BETA calibration, constitutes the immediate research agenda.

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Appendix A. GTAP 11 African Regions: Mapping to Sub-regional Groups

The table below maps all 43 African country and composite regions in the GTAP 11 database to the five sub-regional groupings used in the figures throughout the paper. Sub-regional classification follows the African Union (AU) Convention. For composite "Rest of..." regions, the constituent countries are listed. Country codes follow GTAP 11 nomenclature.

Classification notes: Cameroon (cmr) is assigned to Central Africa per AU convention, although some GTAP aggregations place it in West Africa. Sudan (sdn) is assigned to East Africa per AU classification. Mauritania is included in xnf (Rest of North Africa).

Table A1. GTAP 11 African regional aggregation.

Sub-region	GTAP code	Country / Region name	Countries included (composite regions)

North Africa	dza	Algeria	—
	egy	Egypt	—
	mar	Morocco	—
	tun	Tunisia	—
	xnf	Rest of North Africa	Libya, Mauritania, Western Sahara
West Africa	ben	Benin	—
	bfa	Burkina Faso	—
	civ	Côte d'Ivoire	—
	gha	Ghana	—
	gin	Guinea	—
	mli	Mali	—
	ner	Niger	—
	nga	Nigeria	—
	sen	Senegal	—
	tgo	Togo	—
	xwf	Rest of West Africa	Cabo Verde, Gambia, Guinea-Bissau, Liberia, Sierra Leone
Central Africa	caf	Central African Republic	—
	cmr	Cameroon	—
	cog	Republic of Congo	—
	cod	Democratic Republic of Congo	—
	gab	Gabon	—
	gnq	Equatorial Guinea	—
	tcd	Chad	—
	xac	Rest of Central Africa	Angola, São Tomé and Príncipe
East Africa	com	Comoros	—
	eth	Ethiopia	—
	ken	Kenya	—

	mdg	Madagascar	—
	mus	Mauritius	—
	mwi	Malawi	—
	moz	Mozambique	—
	rwa	Rwanda	—
	sdn	Sudan	—
	tza	Tanzania	—
	uga	Uganda	—
	zmb	Zambia	—
	zwe	Zimbabwe	—
	xec	Rest of East Africa	Burundi, Djibouti, Eritrea, Mayotte, Seychelles, Somalia, South Sudan
Southern Africa	bwa	Botswana	—
	nam	Namibia	—
	swz	Eswatini	—
	zaf	South Africa	—
	xsc	Rest of SACU	Lesotho

Source: GTAP 11 database (Aguiar et al., 2022); African Union sub-regional classification. SACU = Southern African Customs Union.