: What Africa stands to gain from the AfCFTA:
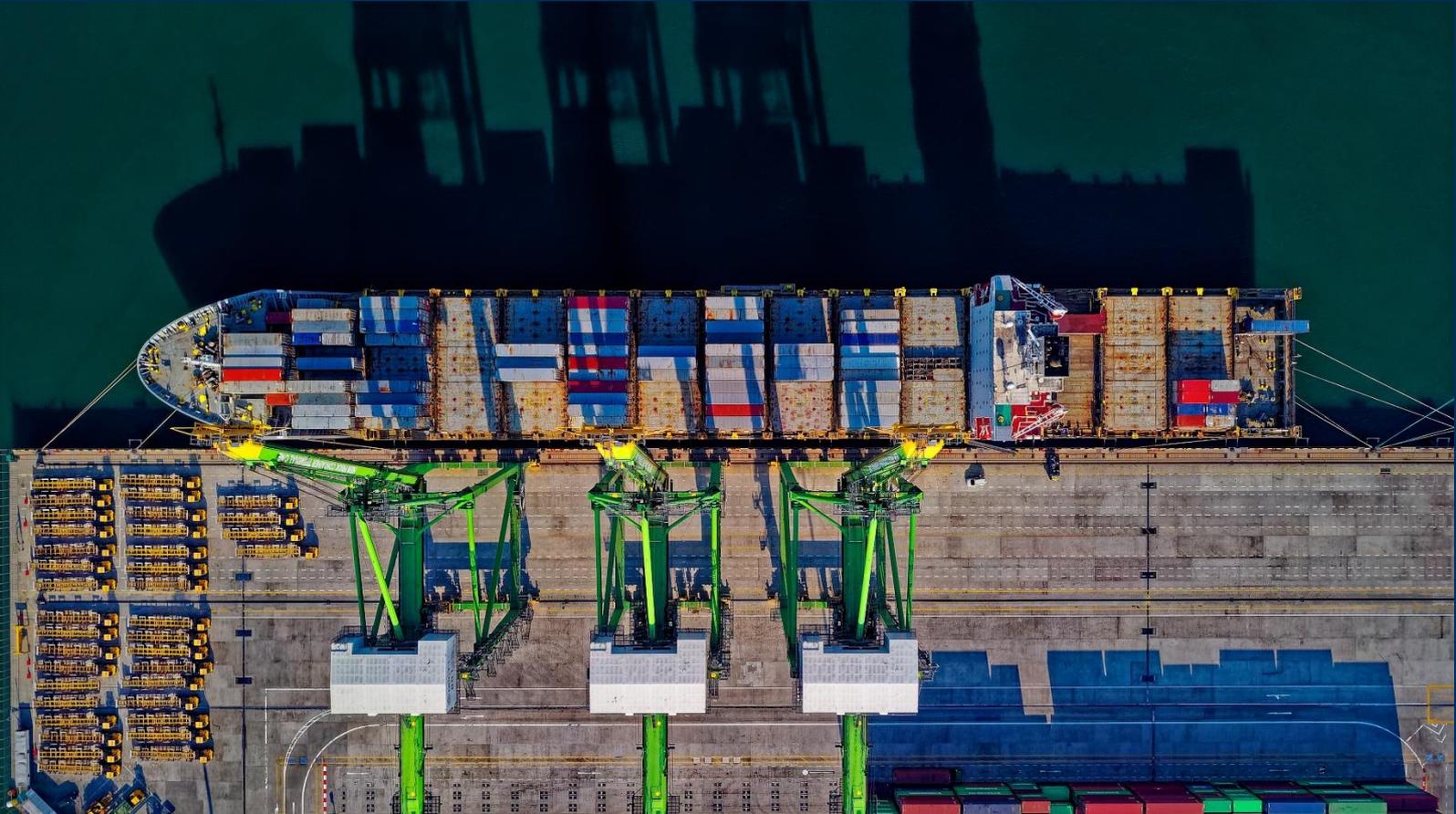
country-level impacts

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1   Introduction[1]

The landmark African Continental Free Trade Agreement (AfCFTA) between 54 African Union Member States will create a continental free trade zone with a combined GDP of $3.4 trillion.[2] AfCFTA not only emphasises the reduction of tariffs, but extends to addressing non-tariff barriers and facilitating the free movement of people. The Agreement and its protocols came into force on 30 May 2019 after Burkina Faso and the Saharawi Republic became the 21st and 22nd Member States to deposit their ratification instruments with the African Union in in April 2019.[3]

The overarching Agreement includes Protocols agreed during Phase I negotiations on Trade in Goods and Trade in Services, and on the Settlement of Disputes.[4] Phase II negotiations will cover Protocols on Investment, Intellectual Property Rights, Competition Policy, Rules and Procedures on the Settlement of Disputes. A related Protocol on the Free Movement of Persons, Right of Residence and Right of Establishment has been signed by 30 Member States.

Figure 1.   Components within AfCFTA
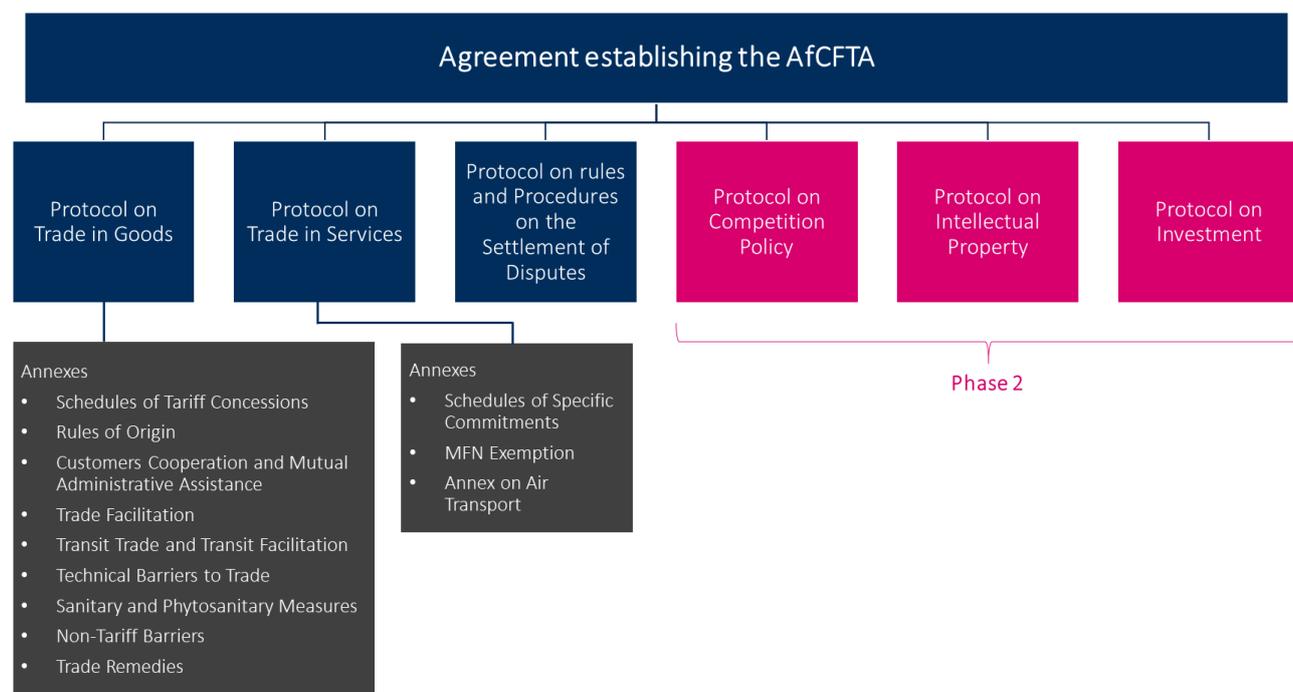
Source: Trade Law Centre (2018)

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[1] Authors: Ethan McCormac, Aaron Tam and Dan Aylward-Mills, Vivid Economics

[2] African Union (2019) CFTA – Continental Free Trade Area: https://au.int/en/ti/cfta/about

[3] The Gambia was the 22nd country to ratify the agreement on 2 April 2019 nationally, however the threshold of 22 ratification instruments registered with the African Union Commission was reached on 29 April 2019 when the Saharawi Republic and Sierra Leone (who had ratified the Agrement nationally) deposited their ratification instruments. In May 2019 Zimbabwe and Burkina Faso also deposited their ratification instruments with the AU, bringing the total number of countries where the Agreement is in force to 24.

[4] African Union (2018) Agreement Establishing the African Continental Free Trade Area: https://www.tralac.org/documents/resources/african-union/1964-agreement-establishing-the-afcfta-consolidated-text-signed-21-march-2018-1/file.html

Member States vary in their preparedness for implementing the requirements of the Agreement, its related Protocols and Annexes. In addition to ensuring compliance with the legal requirements, Member States need to assure that capabilities are in place around trade facilitation, infrastructure and supply chain strengthening and fiscal and monetary policy to ensure that the benefits of the Agreement are maximised and that any risks posed to the domestic economy are mitigated.

This briefing paper estimates the trade impacts of the AfCFTA on Member States. Using the Vivid Gravity Model (VGM), calibrated with historical data, we estimate the potential increase in bilateral trade when two countries join a common Regional Trade Agreement (RTA). The results of our analysis suggest that African countries are likely to experience greater benefits from RTAs than countries in other regions. This may reflect the high tariff and non-tariff barriers to trade between African countries that are not part of a common trade agreement. Overall, we estimate a potential increase in annual intra-African trade of $5.7 billion - 8.7 billion from the adoption of the AfCFTA in the long run. This may be a conservative estimate, based on the impact of past RTAs, which may underestimate the long run benefits given the ambitious plans of AfCFTA to go beyond historical RTAs. Our results suggest that, although South Africa and Nigeria are expected to see the highest absolute growth in intra-African trade, the biggest winners relative to the size of their domestic economies are concentrated in ECOWAS, with Mali, Togo and Mauritania each seeing potential increases in intra-regional trade of between 5% and 7% of GDP in the long run.

This is a working paper and we invite feedback on the indicative findings. The results contained in this paper are not forecasts, but illustrative of the potential impacts from the implementation of the AfCFTA. The actual impacts of AfCFTA on trade flows will depend on effective implementation of the provisions in the Agreement by Member State governments and on global macroeconomic trends not accounted for in our modelling. In our modelling, there are only 'winners' as all countries gain from trade. In practice, countries which do not increase competitiveness in response to heightened competition from trade may experience a decrease in exports. Accordingly, the results serve to highlight countries that could gain the most from the effective implementation of the AfCFTA. All figures are presented in 2019 US dollars.

2   History of the AfCFTA

The African Continental Free Trade Area was conceived at the 2012 African Union's 18th Session in Addis Ababa in recognition that 'the promotion of intra-African trade is a fundamental factor for sustainable economic development, employment generation and effective integration of Africa into the global economy'.[5] It was formally established in 2018 with the signing of the Agreement on the Establishment of the African Continental Free Trade Area by 44 Heads of State and Government of the 55 AU Member States. Since 2018, a further 10 Member States, including Nigeria (the largest African economy), have signed the Agreement. As a result, AfCFTA will create a free trade area with a combined GDP of $3.4 trillion,[6] approximately 17% - 18% the size of the USA and EU markets respectively. The AfCFTA targets doubling intra-African trade from 2012 levels by 2022.

Table 1 sets out the AfCFTA timeline from the signing of the Abuja Treaty in 1991 to the targeted doubling of intra-African trade in 2022.[7]

Table 1   Key dates in the history of the AfCFTA

Date	Event
1991	Signing of the Abuja Treaty setting out the vision of an African Economic Community
2012	Decision to establish the African Continental Free Trade Agreement at the 18th Session of the African Union in Addis Ababa
2012	African Union adopts the Action Plan on Boosting Intra-African Trade
2013	Agenda 2063 launched at the 50th Anniversary of the Organization of African Unity
2017	*Original (2012) target for the complete removal of trade barriers*
January 2018	Signing of the Protocol Free Movement of Persons, Right of Residence and Right of Establishment by 30 Member States
March 2018	Establishment of the African Continental Free Trade Area signed by 44 Heads of State and Government
April 2019	The Gambia becomes the 22nd Member State to ratify the Agreement
June 2019	Africa Free Trade Area expected to come into force
2022	*Original (2012) target for doubling of intra-African trade*

Source: Vivid Economics

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[5] AU (2011) Decision on Boosting Intra-African Trade and Fast Tracking the Continental Free Trade Area. Doc. Ex. CL/700(xx): http://archives.au.int/handle/123456789/1305

[6] African Union (2019) CFTA – Continental Free Trade Area: https://au.int/en/ti/cfta/about

[7] The doubling of intra-African trade flows is a target outlined by the UN Economic Commission for Africa and is defined relative to the base year of 2012. According to Mevel and Karingi (2012), the removal of both tariff and non-tariff barriers by 2017 has the potential to double the share of intra-continental trade by 2022, relative to the base year of 2010. See discussion from UNCTAD (2016): https://unctad.org/en/PublicationsLibrary/webditc2016d7_en.pdf

3   Expected economic impacts of the AfCFTA

The overarching objective of the AfCFTA is to stimulate intra-continental trade. It is expected that boosting intra-continental trade will contribute to the development of continental supply chains, the upgrading of production towards more complex and higher value goods and services, reductions in the cost of trade, improvements in competition and productivity and ultimately to stimulate economic growth and improved incomes.

Intra-regional trade is low in Africa, with various estimates placing the value of intra-African trade at around 13% – 15% of total trade flows. [8, 9,10] This compares to 25% in ASEAN countries, and 60% in the EU. [11] The expectation is that the adoption of AfCFTA will increase intra-African trade to 25% over the next decade. Intra-regional trade flows are particularly important for African industries that want to produce more complex products and move up the value chain of production. According to the IMF, "Intra-regional flows are relatively diversified, contain higher value-added goods than exports to the rest of the world, and include a sizable share of manufactured products (for example, motor vehicles and clothing)." [12]

The AfCFTA will support these goals by targeting the elimination of 90% of tariffs on intra-regional trade. It remains unclear, however, whether this target applies to the number of products or the value of tariffs. According to the UNECA, targeting individual tariff lines could yield tariff reductions as low as 15%.

The removal of tariffs is only one necessary element to support the doubling of intra-regional trade. Trade also faces non-tariff barriers, which AfCFTA aims to alleviate in order to achieve its long-term objectives. According to the IMF, residual tariffs, estimated between 10% and 20% on trade outside of existing RECS, are dwarfed by non-tariff trade costs across Africa, equivalent to between 250% and 300% tariffs.[13] This compares with equivalent tariff costs of between 100% and 150% in advanced economies. Non-tariff barriers include both the costs of transporting goods across Africa, which are exacerbated by inadequate infrastructure, and administrative and bureaucratic costs, such as licenses or complex rules of origin. Reducing these non-tariff barriers by improving trade facilitation services is the crucial to translating the significant benefits of tariff reductions into game-changing benefits for the continent. Historically, regional trade agreements have lowered tariffs and fostered policy cooperation in a number of areas capable of lowering non-tariff barriers.[14] Although RTAs are heterogenous in nature, they are usually adopted in combination with additional trade promoting reforms, such as reducing non-tariff barriers by simplifying rules of origin requirements or phytosanitary checks.

3.1   The impact of joining a regional trade agreement

Global historical experience suggests that when two countries join a regional trade agreement, they experience an average increase in bilateral trade of around 45%. Using the Vivid Gravity Model (VGM), we estimate the average increase in bilateral trade between two countries from joining a common regional

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[8] IMF (2019) Is the African Continental Free Trade Area A Game Changer for the Continent:
        https://www.imf.org/~/media/Files/Publications/REO/AFR/2019/April/English/ch3.ashx?la=en
[9] European Commission (2019) Africa Europe Alliance: EU supports the new African Union Trade Observatory: http://europa.eu/rapid/press-
        release_IP-19-890_en.htm
[10] Other figures have been quoted, see, for example https://trade4devnews.enhancedif.org/en/news/african-continental-free-trade-area-dawn-new-
        era.
[11] European Commission (2018) Africa-Europe Alliance: EU supports African Continental Free Trade Area with EUR 50 million:
        https://ec.europa.eu/europeaid/news-and-events/africa-europe-alliance-eu-supports-african-continental-free-trade-area-eu50-million_en
[12] IMF (2019)
[13] IMF (2019)
[14] WTO (2016) An Advanced Guide to Trade Policy Analysis: The Structural Gravity Model:
        https://www.wto.org/english/res_e/booksp_e/advancedwtounctad2016_e.pdf

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trade agreement (RTA).[15] Our global result, a 45% increase on average bilateral trade flows in the medium to long run, is based on the average increase in trade once both countries are party to an RTA. RTA membership is binary in our model, and therefore covers both tariff and non-tariff barriers, but does not explicitly consider the extent to which tariffs and NTBs are reduced by joining an RTA.

Our estimates suggest that RTAs in Africa may have a greater effect on bilateral trade flows than RTAs elsewhere. Using historical data, we estimate that RTAs in Africa have, on average, been associated with a 69% (Scenario 2) increase in bilateral trade flows, compared to 45% (Scenario 1) for all RTAs globally. The historical data used to calibrate the modelling includes the impact of existing African regional economic communities (RECs), such as AMU, COMESA, CEMAC, ECOWAS and SADAC, on bilateral trade flows. The higher estimate may be explained by the greater prevalence and the higher level of tariffs in African countries (suggesting that RTAs may have played a greater role in reducing tariffs in Africa than elsewhere) and the importance of NTBs. A recent IMF paper (discussed above) estimates that NTBs on intra-African trade may be equivalent to $2.5 - 3$ times the tariff barriers (compared to $1 - 1.5$ times in advanced economies). If past RTAs in Africa were effective at promoting trade facilitation or encouraging infrastructure investments, this may explain why they have had a greater relative impact on bilateral trade flows in Africa.

The higher estimate for Africa-specific RTAs indicates a higher resistance to trade in Africa, which equates to a lower willingness to import goods to begin with. The NTBs to trade in Africa, such as poor infrastructure, are well documented and could explain a large portion of the difference between the global and Africa-specific RTA estimates. At minimum, we can cautiously conclude that the higher estimate reflects a lower starting point for intra-African trade flows relative to other regions. While this points to structural challenges for the continent, it also points to great potential for increasing intra-African trade

Our estimates of the impact of RTA membership on bilateral trade flows are in-line with previous estimates. For example, Shepherd (2018) estimates that RTA membership increases bilateral trade flows by 28% before GE effects, while EU membership has increased bilateral trade flows by 88%.[16] Findings from other studies, such as Baier and Bergstrand (2007), estimate a doubling of bilateral trade from shared RTA membership.[17]

3.2 Estimated impacts of AfCFTA

Vivid Economics estimates that the introduction of AfCFTA could increase intra-African trade by $5.7 billion - $8.7 billion, or by 8-12% of total intra-African trade, before taking into account general equilibrium effects. In 2016, intra African trade flows reached nearly $73 billion, however, the majority of this was between countries within regional economic communities equivalent to an RTA. Applying the VGM estimate of the trade boost associated with African RTA membership to the $12.6 billion of intra-African trade not currently covered by these RTAs, implies an increase in intra-continental trade of $8.7 billion; equivalent to a 12% increase in total intra-African trade.[18] These estimates do not take into account general equilibrium effects, or changes in non-intra-African trade flows. This estimate is an average effect based on the impact of past RTAs and individual countries or regions may experience a greater increase in intra-African trade flows or, potentially, a decline.

Our approach supplements the IMF's assessment of AfCFTA by examining the impact of past regional trade agreements on bilateral trade flows at the country-level. IMF (2019) considers the impact of lowering tariffs and non-tariff barriers separately, both of which are likely to result from the introduction of the AfCFTA. In IMF (2019), which runs a similar econometric regression to the VGM, the tariff level is included as an explanatory variable.[19] IMF (2019) concludes that eliminating tariffs on 90% of existing intra-Africa trade

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[15] This is based on a partial equilibrium estimation of the structural gravity model that is commonly used in the literature. In line with best practice, the model is estimated using the Pseudo Poisson Maximum Likelihood (PPML) estimator. The underlying trade data is sourced from the IMF Direction of Trade Statistics, using 5-year intervals between 2000 and 2015.

[16] Ben Shepherd (2018) Can Anything Save Britain's Trade after Brexit? Evidence from Structural Gravity: https://developing-trade.com/wp-content/uploads/2018/03/Working-Paper-DTC-2018-2.pdf

[17] WTO (2016)

[18] Intra-African trade with Eritrea outside of existing RTAs is excluded as Eritrea is outside the AfCFTA.

[19] Some other minor differences exist in the selection of data sample and the inclusion of dummy variables.

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flows – the most ambitious target under the AfCFTA – would increase regional trade by about $16 billion. This is nearly double the estimate from the Vivid Gravity model, which assess the performance of past RTAs, and is dependent on AfCFTA achieving its ambitious tariff reduction target. If AfCFTA achieves this target, then AfCFTA could significantly outperform previous RTAs. Table 2 sets out various estimates of the impact AfCFTA on regional trade.
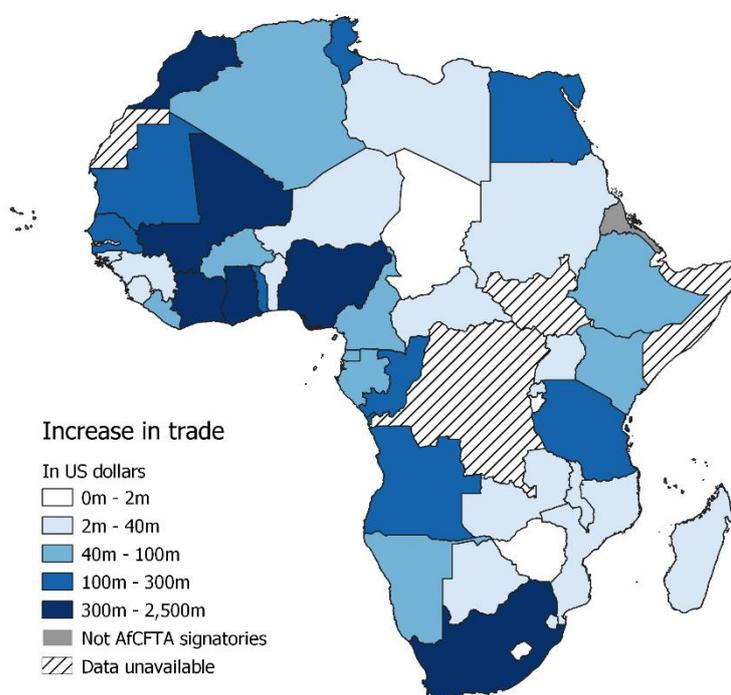
Table 2   Click here to enter title

Source	Estimated impact of AfCFTA on regional trade	Notes
Vivid Economics, Scenario 1, 2019	$5.7 billion	Global estimate of joining an RTA, before general equilibrium impacts, for countries joining AfCFTA
Vivid Economics, Scenario 2, 2019	$8.7 billion	African specific estimate of joining an RTA, before general equilibrium impacts, for countries joining AfCFTA
IMF, 2019	$16 billion	Considers both tariff and non-tariff barriers, and general equilibrium effects
AFDB, Scenario 1, 2019	$10.1 billion	Long-run effect assuming the removal of bilateral tariffs across all African countries
AfDB Scenario 2, 2019	$74.3 billion	Long-run effect assuming the removal of bilateral tariffs and removal of ad valorem tariff equivalents of non-tariff barriers on an MFN basis

Source: Vivid Economics; AfDB (2019) African Economic Outlook 2019, IMF (2019)

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3.3   Country level impacts

Large economies are expected to increase their intra-African trade significantly in absolute terms. For example, South Africa, despite already having most of its existing intra-African trade within RTAs ($19 billion of $22 billion of intra-African trade), could see its exports to other African countries increase by US$1.4 billion -2.2 billion. At the country level, South Africa, Nigeria, Mali, Morocco, the Ivory Coast and Ghana are expected to experience the largest absolute increases in intra-African trade. At the REC level, ECOWAS Member States could experience the largest absolute increase in intra-African trade. Figure 2 depicts the estimated increase in intra-African trade at the country level in million US dollars.

Figure 2   Increase in intra-African trade ($ million)

Increase in trade

In US dollars
- 0m - 2m
- 2m - 40m
- 40m - 100m
- 100m - 300m
- 300m - 2,500m
- Not AfCFTA signatories
- Data unavailable

Note: Map depicts results for scenario 2 (Africa-specific RTA)
Source: Vivid Economics

Countries which have a large share of exports outside of their regional economic communities could benefit the most from AfCFTA. Mali and Mauritania could experience the greatest gains from trade as exports to other African countries are expected to increase by 35-54% and 45-69% respectively. Countries with a large share of their intra-African exports inside regional economic communities, such as Mozambique (98.6%), Sudan (98.8%), Zambia (99.6%) and Zimbabwe (99.9%), are likely to see less impact without significantly restructuring their export-orientated sectors. Regionally, ECOWAS and AMU member states are expected to experience the largest relative increases in intra-African trade. Figure 3 depicts the estimated increase in intra-African trade as a percent of GDP.

Figure 3   Increase in intra-African trade as a percent of GDP
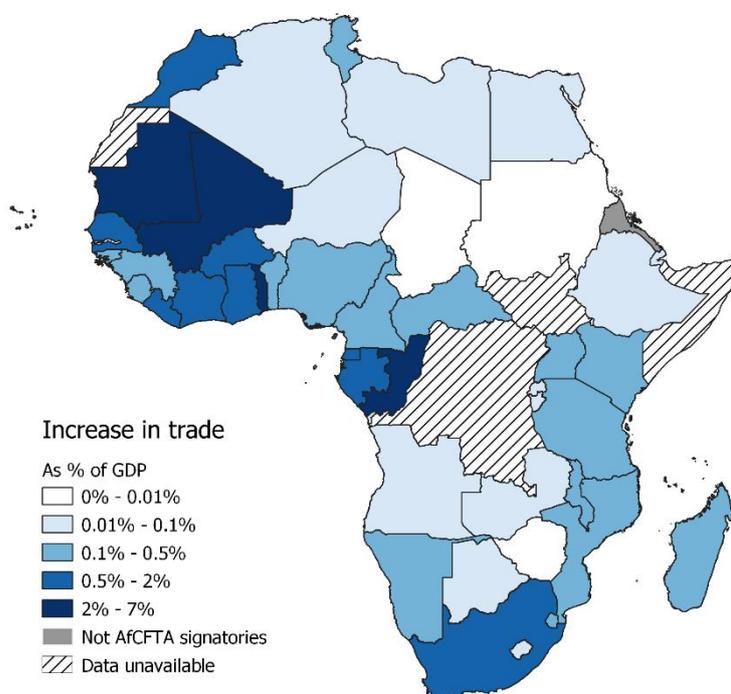
Note: Map depicts results for scenario 2 (Africa-specific RTA)
Source: Vivid Economics

4 Implications

4.1 Targeted regional support

Some of the biggest potential winners also have low income per capita and should be targeted for support. In order to achieve the benefits estimated in the previous section, countries need to effectively implement the provisions of the AfCFTA, including the systematic deconstruction of both tariff and non-tariff barriers. Countries with less competitive industries that were previously protected by these barriers will need to invest in improvements to hard and soft economic infrastructure and institutions to mitigate the potential negative consequences of heightened competition. Where government finances are constrained and capacity is low, there is a real risk that these opportunities will be missed. This necessitates targeted support to those countries which have the most to gain, but that lack the resources to capitalise on the opportunities AfCFTA presents.

At the same time, additional analysis, which uses forward looking reductions in tariff and non-tariff barriers, such as the IMF estimates, should be disaggregated by country. Our estimates only provide a partial answer to the likely impacts of the AfCFTA. The final patterns of trade which emerge may differ following the adjustment of prices and labour markets. Previous work, which has taken into account these general equilibrium effects, has not provided a breakdown of results by country. There may be a reluctance to do this, as once general equilibrium effects are taken into account, some countries may stand to gain less from trade than expected. Rather than shy away from these difficult conversations, these results should be used to justify additional support to ensure that any risks from AfCFTA are mitigated on a country by country basis.

Finally, studies of key value chains, such as agro-processing, automotive and textiles, should be undertaken. Our results show aggregate impacts, but sector level impacts may reveal which sectors and business have the most to gain (or lose). Although efficiency gains from greater competition and more complex value chains may create long term benefits for all, in the short term, support must be provided to less competitive sectors. This is especially important when these sectors are concentrated in countries and regions that lack the mechanisms to adjust without significant negative social consequences. In particular, national and subnational agricultural sectors warrant more focus given the large level of employment in agriculture in Africa.

Taken together, these considerations highlight the need for additional detailed analysis to pinpoint the 'winners' and 'losers' from trade on a sector and country basis, and to develop detailed national implementation strategies supported by international cooperation.

4.2 The need for national implementation strategies

Member States have a significant journey ahead in order to implement and adjust to the AfCFTA. The prescriptions of the AfCFTA itself will evolve over time, much as the EU has grown from a regional economic community into a $19.1 trillion harmonised single market with numerous complex sectors. However, in order to fully implement the spirit of the AfCFTA, these efforts will need to extend beyond the elimination of tariffs and the traditional non-tariff barriers such as easing of customs procedures and harmonisation and mutual recognition of quality and standards. States must invest in reducing the costs of trade through improvements to physical infrastructure and deepening of financial markets.

Further negotiations are needed to deliver the other five AfCFTA clusters. The Agreement, three accompanying Protocols and nine accompanying Annexes, and the three Phase 2 Protocols now being negotiated, only cover the first two 'Action Clusters' identified in the 2012 Action Plan on Boosting Intra-African Trade (trade policy and trade facilitation). The other five Clusters – covering productive capacity, infrastructure, finance, information and factor market integration - require equal attention to ensure that the benefits of the AfCFTA are maximised, while any adverse impacts on domestic economies are mitigated.

This calls for a consistent approach to the development of national implementation plans. These plans should assess each countries' preparedness against both the universal requirements of the Agreement and the country specific priorities under the Action Plan. National implementation plans are essential in order to monitor progress and to signal to the international community the most urgent capacity building and investment needs to ensure AfCFTA ultimately contributes to the 2063 Vision of a thriving Africa.

Annex

Table 3   Increase in intra-African trade by country (scenario 2)

Country[1]	2017 GDP ($ million)[2]	Estimated increase in exports ($ million)[3]	Estimated increase in exports (% of GDP)
South Africa	348,872	2,189	0.6%
Nigeria	375,745	1,519	0.4%
Mali	15,334	949	6.2%
Morocco	109,709	922	0.8%
Côte d'Ivoire	37,353	472	1.3%
Ghana	58,997	318	0.5%
Mauritania	5,025	288	5.7%
Togo	4,758	249	5.2%
Egypt	235,369	217	0.1%
Tunisia	39,952	191	0.5%
Republic of Congo	8,701	183	2.1%
Senegal	21,070	155	0.7%
United Republic of Tanzania	53,321	130	0.2%
Angola	122,124	104	0.1%
Kenya	79,263	97	0.1%
Burkina Faso	12,323	89	0.7%
Algeria	167,555	85	0.1%
Gabon	15,014	85	0.6%
Equatorial Guinea	12,294	73	0.6%
Cameroon	34,923	55	0.2%
Liberia	3,285	50	1.5%
Ethiopia	80,561	49	0.1%
Namibia	13,254	40	0.3%
Mauritius	13,266	33	0.2%
Uganda	25,995	29	0.1%
Guinea	10,473	24	0.2%
Benin	9,247	23	0.2%
Madagascar	11,500	14	0.1%
Mozambique	12,646	13	0.1%

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Country[1]	2017 GDP ($ million)[2]	Estimated increase in exports ($ million)[3]	Estimated increase in exports (% of GDP)
Swaziland	4,434	12	0.3%
Libyan Arab Jamahiriya	38,108	10	0.0%
Sierra Leone	3,775	8	0.2%
Malawi	6,303	7	0.1%
Niger	8,120	6	0.1%
Zambia	25,868	6	0.0%
Seychelles	1,498	6	0.4%
Sudan	117,488	4	0.0%
Botswana	17,407	4	0.0%
Comoros	1,068	3	0.3%
Central African Republic	1,949	3	0.2%
Rwanda	9,135	3	0.0%
Guinea-Bissau	1,347	3	0.2%
Cape Verde	1,773	2	0.1%
Gambia	1,489	1	0.1%
Lesotho	2,578	1	0.1%
Djibouti	1,845	1	0.1%
Chad	9,871	1	0.0%
Burundi	3,172	1	0.0%
Zimbabwe	22,041	1	0.0%
Sao Tome and Principe	393	0	0.1%
Eritrea	*Data unavailable*	Not an AfCFTA Signatory	

Note: [1] This list includes only 51 African countries. Four other African Union countries are excluded from the model due to the lack of trade data: Saharawi, the Democratic Republic of Congo, South Sudan, and Somalia.
[2] Measured in 2017 USD.
[3] Estimated with Vivid Economics' gravity model (partial equilibrium) using an Africa-specific RTA estimate.

Source: Trade data from Direction of Trade Statistics; GDP data from World Bank; standard gravity variables from CEPII; estimation performed by Vivid Economics. Trade data from Direction of Trade Statistics; GDP data from World Bank; standard gravity variables from CEPII; estimation performed by Vivid Economics

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Technical Appendix

The Vivid Gravity model is a structural gravity model (partial equilibrium) that follows standard procedures in the literature. The gravity equation specifies that trade flows from country i to country j at time t can be expressed as

$$X_{ijt} = \exp[\beta \mathbf{X}_{ijt} + \chi_{it} + \gamma_{jt}] \times \eta_{ijt},$$

where $\mathbf{X}_{ijt}$ is a vector of exporter-importer-time explanatory variables of bilateral trade costs, which includes a binary variable that indicates the presence of RTAs, log of bilateral distance, contiguity, common language and shared colonial history. χ_{it} and γ_{jt} are exporter-time and importer-time fixed effects respectively. These two terms are also called 'multilateral resistance terms' as they measure the country's propensity to export and import respectively. η_{ijt} is the error term. The model is estimated using the Poisson pseudo-maximum likelihood (PPML) estimator, which Santos Silva and Tenreyro (2011) identify as an effective method to address issues arising from zeros in trade data between country-pairs. The coefficient on the RTA variable represents the direct effect on trade flows when a country pair enters into a regional trade agreement. The estimated RTA parameter can be multiplied by current trade flows to estimate the impact of AfCFTA participation.

Data to calibrate the model is drawn from several common sources in the literature. The trade data is from the IMF Direction of Trade Statistics (DOTS) published in 2018. DOTS is preferred to alternative trade statistics as the IMF introduced a new methodology for DOTS in 2017 to account for missing observations in officially reported bilateral trade statistics. The DOTS data is treated following the procedures suggested by Head et al. (2010) and data on RTAs is taken from Mario Larch's database,[20] which includes all multilateral and bilateral trade agreements as notified to the World Trade Organization. The remaining explanatory variables are given by the CEPII gravity dataset. The model is estimated using data from years 2000, 2005, 2010 and 2015 to account for lagged policy response (Yotov et al, 2016), and contains country pair data for 187 countries and territories.

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[20] The exception is RTA data for Angola, where RTA data is from USITC.

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Company profile

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