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Uganda

# Beefing up: An analysis of Uganda's beef export competitiveness

TECHNICAL NOTE

MONITORING AND ANALYSING FOOD AND AGRICULTURAL POLICIES ◀ MAFAP

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# Abbreviations and acronyms

| | |
|---|---|
| BACI | Base pour l'analyse du commerce international |
| BOU | Bank of Uganda |
| CEPII | Centre d'études prospectives et d'informations internationales |
| FMD | foot-and-mouth disease |
| GDP | gross domestic product |
| HS | Harmonized System |
| ICBT | Informal cross-border trade data |
| MAFAP | Monitoring and Analysing Food and Agricultural Policies programme, FAO |
| MRT | Multilateral Resistance Terms |
| NTM | Non-tariff measures |
| MEC | Measuring Export Competitiveness |
| RCA-PR | Revealed comparative advantage - Proudman and Redding (2000) |
| PPML | Poisson pseudo maximum likelihood |
| RCA | Revealed comparative advantage |
| SSA | sub-Saharan Africa |
| TBI | Trade balance index |
| TUV | Trade unit value |
| UAA | Uganda Agribusiness Alliance |
| UBOS | Uganda Bureau of Statistics |
| URA | Uganda Revenue Authority |

# 1. Executive summary

Through consultations with the Uganda Beef Platform Secretariat, which includes members of the Uganda Agribusiness Alliance (UAA), the "Developing a market-oriented and environmentally sustainable beef meat industry in Uganda" Project (MOBIP) funded by the European Union, and of the Beef Policy and Advocacy Taskforce, beef export competitiveness and diversification were identified as two of the top agricultural policy reform priorities for the country. Indeed, the high concentration of Ugandan exports, with both relatively few exporting firms and markets served, coupled with the presence of the foot-and-mouth disease (FMD), which further restricted the access to export markets, put the beef and hides and skins exports on a decreasing trend.

Against this backdrop, the Uganda Beef Platform Secretariat addressed a formal request for technical assistance to FAO's Monitoring and Analysing Food and Agricultural Policies (MAFAP) programme, with a view to support policy reform analysis for Beef Export Competitiveness in Uganda. The results of the report can be used to inform the Government of Uganda's strategies and investments for growth and transformation through diversified and competitive exports that target more dynamic and high-value markets.

The main findings of the analysis show that:

- there is ample scope for **market diversification of beef and hides and skins exports**, to capture the most dynamic markets. As a matter of fact, Uganda's export structure is highly concentrated in a few buyer countries and its export flows are currently not reaching the most dynamic import markets.
- However, when assessing new potential destination markets, it is highly recommended to look not only at the import dynamics but also at the non-tariff measures (NTM) imposed by the importing countries as **both fresh and frozen beef exports face a relatively high number of regulatory requirements.**[1]
- Moreover, on average, **exports from Uganda seem to be priced relatively higher** than most of competitors, suggesting **relatively costlier production processes**.
- There are on average 2.5 and 4 fresh and frozen beef and hides and skins exporting firms per year, respectively. As a result, the **beef export industry in Uganda is highly concentrated**.
- Most **trade flows occur via informal exports to nearby markets**. Since these transactions mainly take place by foot, bicycle, car, motorcycle, or on the backs of livestock, the average value of informal trade shipments is much lower than the formal one.

These results suggest the need for the government to promote diversification towards more dynamic markets, which will be critical for sustainable export growth, and to promote higher quality, the adoption of standards, and support the negotiation of better prices with international buyers, among others.

The results also suggest the need to incentivize more exporting firms to enter into the sector, as the reliance on few exporters makes the country highly vulnerable to both local and foreign shocks. Finally, as the bulk of cross-border trade is informal, more should be done to support smaller informal traders to grow and integrate into the formal export market – e.g. by reducing trade costs, mainly NTMs but also tariffs - and to guarantee more enforcement at customs.

Building on these findings and analysis, the following value-chain-specific policy recommendations can contribute to advance the objectives of export competitiveness and diversification (see Conclusions for more details).

[1] Non-tariff measures in agrifood markets are policy measures, other than ordinary customs tariffs, that can affect international trade by changing quantities traded or prices, or both. Governments use NTMs to address public concerns. For example, they are used to protect human, animal and plant health (sanitary and phytosanitary measures, or SPS). They are also used to regulate the technical characteristics of products, such as labelling and marketing standards, traceability of material, and the related conformity assessment and certification (technical barriers to trade, or TBT). SPS-related NTMs are more prominent for animal products, fruits and vegetables, and fats and oils, while TBT-related measures play a more important role when it comes to processed food.

Fresh beef (HS 020130):

- *Accelerate progress towards achieving the FMD-free zone status*: Foot-and-mouth disease has significant economic impact on the livestock sector. With the support of the World Organisation for Animal Health (WOAH) and other technical partners, Uganda is currently at Stage 2 along the Progressive Control Pathway for FMD control (PCP-FMD) and its objective is to reach Stage 5 and eligibility for application to the FMD-free status by 2025. Progress along the PCP-FMD is constrained by several factors including inadequate resources to procure imported vaccines and FMD drugs, limited capacity of veterinary laboratory services, insufficient awareness on livestock disease control among value chain participants, and uncontrolled movements of susceptible wildlife species across borders. Recommendations focus on mobilizing and prioritizing financial resources, including donor support, to sustain FMD surveillance, control and vaccination, enforcing stricter control on wildlife and cattle border movements and quality control of FMD vaccines and drugs distributed in the country, and promoting FMD control awareness among value chain participants.
- *Formalize existing trade flows:* Estimates indicate that informal cross-border trade (ICBT) represents a non-negligible share of Uganda's fresh beef exports. Trade flows with immediate neighbours are particularly prone to being un-declared or not declared at all to customs authorities. A first set of recommendations focuses on reviewing customs and administrative procedures to simplify those considered most cumbersome, lengthy and complex by informal traders, and facilitate compliance with formal business registration and trade consignment clearance. Another set of recommendations focuses on incentivizing formalization by providing specific business-support services to compliant firms.

Frozen beef (HS 020230):

- *Facilitate compliance with NTM and private standards in targeted foreign markets*: Compliance with non-tariff measures (NTMs) and private sector standards can present major obstacles to trade. A first set of recommendations consists in developing an NTM and private standards monitoring service to provide exporters with comprehensive information on applicable requirements (e.g. minimum quality and food safety standards) and related conformity assessment procedures (e.g. certification, testing, inspection) for the targeted markets. A second set of recommendations consists in assessing the capacity of Uganda's national quality infrastructure (NQI), to meet the needs exporters seeking to serve the most dynamic foreign markets, identify capacity gaps, and address them. A third set of recommendations consists in helping exporters' bear the costs of conformity assessment through targeted subsidies (see above, formalize existing flows).
- *Promote Ugandan exporters abroad:* Re-direct Ugandan exports towards new, more dynamic foreign markets requires developing and nurturing business relationships with potential buyers from these countries. The Government can support these objectives by organizing specialized trade fairs to introduce Ugandan suppliers and their products to visitors, supporting the participation of Ugandan exporters to trade missions and specialized trade fairs and exhibitions abroad (e.g. IFFA; Meat Pro Asia; Halal World Food), and mobilizing the Economic and Commercial Sections of its embassies and business-oriented members of the diaspora.

Hides and skins (HS 410110; HS 410190):

- Policy recommendations are similar those for the frozen beef sub-sector (see above). Efforts should focus on facilitating the compliance of Ugandan exports with Non-Trade Measures and private standards applicable to skins and hides products in the targeted markets. They should also seek to develop trade and business relations with Ugandan exporters and potential buyers in the targeted markets, for example through the participation in specialized trade fairs (e.g. Lineapelle). Finally, current trade with leather product manufacturers, both long-standing (e.g. India, Italy, Pakistan) or emerging (e.g. Rwanda), indicates that Ugandan skins and hides meet the quality requirements demanded by the leather processing industry. In this context, and in concertation with private sector stakeholders, the Government could organize a formal consultation to explore the potential for manufacturing and exporting higher-value leather products (e.g. handbags, belts).

# 2. Introduction

The development prospects of many low and middle-income countries are strictly related to their ability to leverage international markets. Integration into the global marketplace is indeed a powerful vehicle for productivity growth, and with it, for increased income per capita (Frankel and Romer, 1999; Dollar and Kraay, 2004). International trade, in general, and export diversification, in particular, are often seen as the main drivers of output growth. However, as recently shown by Daruich *et al.* (2019), the explanations for export success that focus only on industry competitiveness in the source country (and the policies that affect this) may be missing much of the origins of success, as the bulk of the variation in export growth is accounted for by international market factors.

Against this background, many developing countries have started looking at the international demand and promoting export diversification through direct policy incentives and export institutions. Over the last years, through the Agriculture Sector Strategic Plan (ASSP) 2015/16–2019/20, i.e. the overarching framework for developing the agricultural sector, the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) in Uganda has envisaged a variety of investments for the production and exports of the livestock, hides and skins products, totalling about USD 225 million. These include, for instance, the establishment of mobile and regional laboratories; control of vectors and diseases through vaccination, disease surveillance and construction of infrastructure for disease control; pasture development; provision of high genetic materials; promotion of labour-saving technologies; creating a buffer stock/animal handling grounds to support beef processing. Despite these efforts, however, Ugandan exports of frozen meat of bovine animals, i.e. the most exported beef product, from a peak of USD 804 000 in 2018 have decreased to USD 140 000 in 2019 and USD 510 000 in 2020.

Consequently, the aim of this report, which has been produced under the umbrella of the partnership between AgrInvest Project in Uganda and the FAO's Monitoring and Analysing Food and Agricultural Policies (MAFAP) programme, is to support the Beef Platform Secretariat[2] to identify policy issues and solutions in Uganda's beef sub-sector. The Beef Platform Secretariat, AgrInvest, and MAFAP met in July 2021 to discuss a series of policy issues related to the beef sector in Uganda, weighing out where MAFAP support was most needed and could lead to impactful reforms. Following the meeting, taskforce members voted from a list of 9 possible areas for collaboration and gave priority to a MAFAP analysis of Uganda's beef meat export competitiveness and export potential to new markets.

The livestock sector accounts for about 17 percent of agricultural value added and 4.3 percent of GDP. Among the livestock sub-sectors, cattle is the most important one, as Uganda has 14.2 million cattle, of which 11.9 million are raised for meat (FAO, 2019). Most cattle are in the 'Cattle Corridor', which extends diagonally across Uganda from the pastoralist Ankole area in the Southwest to the Karamoja region in the Northeast (Egeru *et al*. 2014). The highest concentration of cattle (head/km2) is found in the pastoral areas of Karamoja, where cattle is the main source of livelihoods and the backbone of the local economy (Gradé *et al.* 2009).

The cattle sector contributes to over 40 percent to the value of livestock production and to about 7 percent to the value of agricultural production (UBOS, 2017). Beyond providing food and other goods and services to the population – such as manure and draft power – the livestock sector contributes between 1 and 1.5 percent to Uganda's export trade value. Uganda's exports of livestock and meat products are currently limited by the presence of foot-and-mouth disease (FMD), which restricts access to export markets under guidelines set by the World Organisation for Animal Health. Despite this, consignments of meat and livestock for export do appear in formal trade data.[3] Uganda is net exporter of livestock products while few live animals are exported. Animal products exports are dominated by dairy products and eggs (USD 80 million), with meat and meat products (USD 6.2 million) playing a minor role.

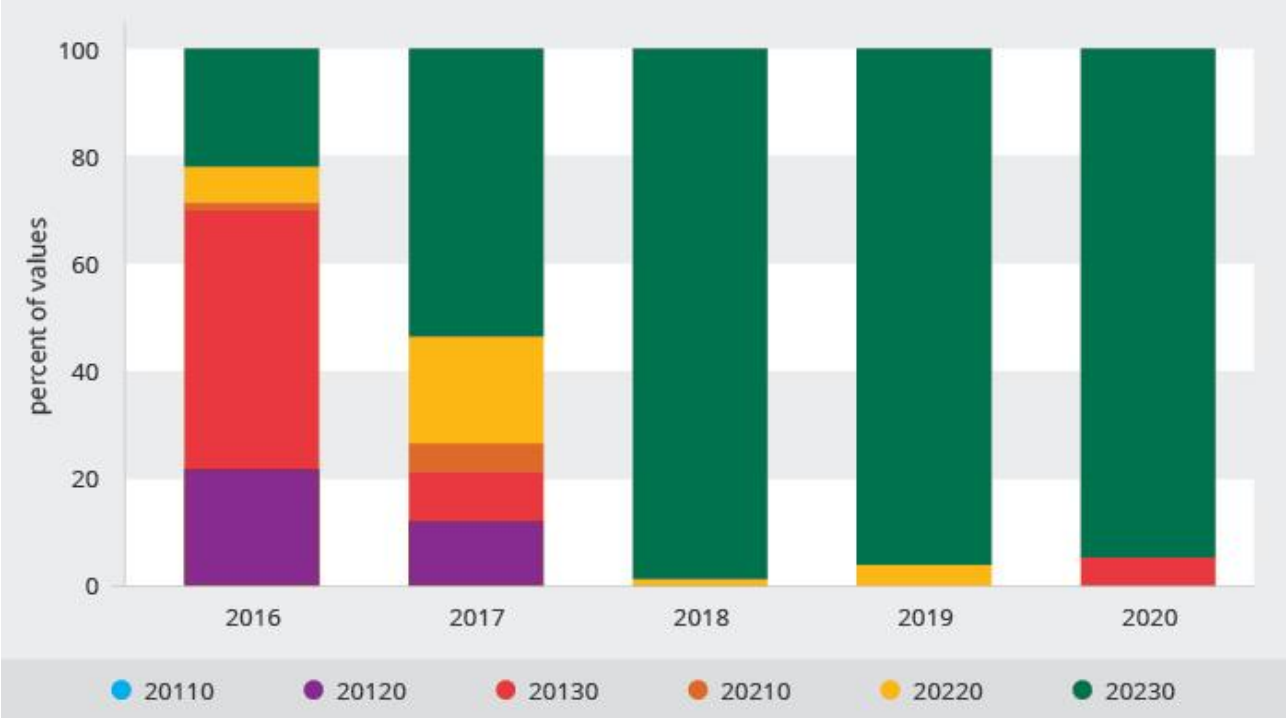
This report focuses on meat of bovine animals and hides and skins exports. Following the Harmonised System (HS) of customs classification codes developed by the World Customs Organization, in other words, the international standard for classifying tradeable goods, beef is first grouped by its preparation – fresh or frozen, and then into three subcategories

[2] This includes members of the Uganda Agri-Business Alliance, of the Developing a market-oriented and environmentally sustainable beef meat industry in Uganda Project (MOBIP)" funded by the European Union, and of the Beef Policy/Advocacy Taskforce.

[3] This may be the result of three recently certified abattoirs which meet international standards, or simply trading partners not following the World Organisation for Animal Health guidelines.

– carcasses and half-carcasses, cuts with bone in, and boneless (mince). As shown in Figure 1, about 70 percent of meat is exported as frozen boneless (HS 020230), followed by 20 percent of fresh boneless meat (HS 020130) and 10 percent of fresh cuts with bon in meat (HS 020120).

**Figure 1. Composition of beef exports**




Source: Authors' own calculation based on United Nations. 2021. *UN Comtrade.* New York, USA. Cited 3 December 2021. https://comtrade.un.org

With this considered and the consultations held with the Beef Platform Secretariat, led us to focus on the remainder of this report on the two following meat products:

i) Meat of bovine animals, fresh or chilled, boneless – HS 020130.

ii) Meat of bovine animals, frozen, boneless – HS 020230.

And their by-products:[4]

i) Whole hides and skins – HS 410110.

ii) Whole hides and skins (other) – HS 410190.

The rest of the report is organized as follows: Section 3 provides an analysis of the export competitiveness, Section 4 describes the importing activities in Uganda, Section 5 assesses the characteristics of the exporting firms, while Section 6 deals with the degree of trade informality, and finally Section 7 concludes and provide policy recommendations.

[4] It is important to note that tanned hides (in preparation for making leather products) account for 85 percent of the value Uganda's exports of skins and hides – and tanned cattle hides are the largest product in this category.

# 3. Export competitiveness

## 3.1. Export specialization patterns

In this section we study whether Uganda has any specialization patterns in these four products, relying on the well-known concept of the revealed comparative advantages (RCA). The cross-sectional and dynamic analysis of the latter allows us to draw a picture of country's relative productivity and its evolution over time. Specifically, we make use of the Proudman and Redding (2000) version of RCA (PRA-PR) as it eases comparison across sectors and over time (see Annex 2).[5] A country will have a comparative advantage in a product if the ratio is higher than 1.

In what follows, we present the evolution of the export specialization patterns of Uganda, evaluated using RCA-PR, over the period 2007-2019 for the four selected products (defined using HS1996 at 6-digit). Trade data are from the BACI dataset, compiled from Comtrade by the CEPII (*Centre d'Études Prospectives et d'Informations Internationales*).[6]

We first show that both beef and hides and skins products under analysis reduced their export shares over time (Table 1). For instance, beef meat fresh exports decreased from about 0.2 percent of total exports in 2007 to 0.001 percent in 2019 (columns 1 and 2). More interestingly, beef products both fresh and frozen do not have a revealed comparative advantage, neither in 2007 nor in 2019, while whole hides and skins (HS 410110) lost its comparative advantage in 2019 (columns 3 and 4). The only product with a comparative advantage over the period under analysis is whole hides and skins (other) (HS 410190), although with a decreasing trend, i.e. from 3.4 in 2007 to 1.7 in 2019.

To complement the information given by the comparative advantage index, we also report the Trade Balance Index (TBI, also known as Lafay index).[7] The TBI index ranges from -1 to 1. A TBI < 0 means that a country is a net importer; whereas TBI>0 means that the country is net exporter. At the limit, a TBI of -1 indicates the country does not produce the good and that the domestic consumption relies entirely on import. On the other hand, a TBI of 1 indicates that the country is producing only for export. Combining the information from RCA-PR with the one from TBI is helpful also to have a first assessment on the stability of production at the industry level.

When computed on the selected four products, the average TBI is positive, with a level of 0.27, but highly heterogeneous, suggesting that exports tend to slightly dominate. Interestingly, beef frozen had a negative trade balance in year 2007 (i.e. TBI < 0) but managed to move towards parity and even develop a significant trade surplus in 2019, while the opposite is true for whole hides and skins (HS 410110) (columns 5 and 6).

[5] It is worth mentioning that any RCA analysis, since it is based on observed trade patterns, can be influenced for example by government policies, resulting in a misrepresentation of the comparative advantage pattern. As point out by Timmer *et al.* (2015) RCA measures remain a useful proxy in determining whether an economy has a comparative advantage, even if they are less useful in quantifying the extent of such comparative advantage.

[6] BACI is constructed using an original procedure that reconciles the declarations of the exporter and the importer. This harmonization procedure enables to extend considerably the number of countries for which trade data are available, as compared to the original dataset. BACI provides bilateral values and quantities of exports at the HS 6-digit product disaggregation, for more than 200 countries since 1995. It is updated every year.

[7] See Lafay (1992) in Annex 2.

**Table 1. Export specialization patters**

| HS code | Description | Export share 2007 (1) | Export share 2019 (2) | RCA-PR 2007 (3) | RCA-PR 2019 (4) | Trade balance index 2007 (5) | Trade balance index 2019 (6) |
|---|---|---|---|---|---|---|---|
| 020130 | Meat of bovine animals, fresh or chilled, boneless | .197 | .001 | .051 | .007 | .976 | .271 |
| 020230 | Meat of bovine animals, frozen, boneless | .013 | .008 | .042 | .023 | -.031 | .273 |
| 410110 | Whole hides and skins | .201 | .001 | 4.927 | .134 | .856 | -.992 |
| 410190 | Whole hides and skins (other) | .456 | .013 | 3.403 | 1.729 | .982 | .992 |

Note: Export shares computed on total exports. HS 1996 codes at 6-digit level.
Source: Authors' own calculation based on Centre d'études prospectives et d'informations internationales. 2021. BACI. *In*: *CEPII.* Paris. Cited 6 December 2021. www.cepii.fr/CEPII/en/bdd_modele/bdd_modele_item.asp?id=37

## 3.2. Decomposing export growth

Here we focus on Uganda's export performance through the analysis of the decomposition of market shares growth. We rely on the methodology developed by Gaulier *et al.* (2013) for the World Bank Measuring Export Competitiveness (MEC) database which analyses changes in world market shares adjusted by compositional effects. The general methodology allows to disentangle from the observed export growth: i) a compositional effect due to market orientation (geography); ii) an industrial specialization (sector); and iii) a country-specific supply side competitiveness shock (supply side). For more details, see Annex.

Looking at the evolution of market shares alone, may indeed result in a flawed picture of a country external competitiveness. Market shares may contract even if exports are expanding, providing that they are growing at a slower pace than world average. On the opposite, an economy may improve its global market position only because it is serving the most dynamic importers or supplying most demanded goods. Then, a key question for policy makers would be: how much such (gains) losses are due to external factors, in terms of markets and sectors, and how much are related to country competitiveness?

We start from a world trade matrix of exports at HS-6-digit level of disaggregation over the period 2010q1-2019q4 and considering only the sub-set of selected commodities. Trade flows are recorded quarterly to control for the timing of any external shocks and the focus on year-on-year growth rates allows to get rid of any time-invariant export determinant as well as seasonality. Each table reports, along with Uganda, the scores for the comparator countries which are computed using a methodology, developed at the World Bank, aimed at identifying countries that are similar in economic development and/or size, competitors with a similar position of the export basket. Specifically, the methodology considers country "distance" in a 5-dimensional space, by using the following indicators as coordinates: export basket composition; GDP per capita; population; human capital; and physical capital. Countries are then ranked by degree of similarity. We report the world export market shares in the last column.

Table 2 shows that, in product HS020130, Uganda decreased its market share substantially, -24.7 percent, mostly due to a negative contribution of the competitiveness supply side factor (-15.2 percent) and the residual sectoral term of the decomposition (-23.7 percent). Interestingly, Geography contributed positively for Uganda product exports (14.1 percent), highlighting the fact that the market served by this product have been relatively dynamic over the period 2010-2019. That is, the decrease in export market share is driven mostly by sector performance and supply-side factors and not by the dynamics of markets served.

Among its regional competitors, the United Republic of Tanzania shows a remarkable increase in market shares (155,4), entirely driven by supply side factors, while Kenya export market growth were affected by a strong negative supply side component (-58.8 percent) that coupled with an unfavourable sector component (-26.9 percent) more than offset the positive market orientation component (+72.9 percent).

**Table 2. Decomposition of export growth for HS 020130, 2010q1–2019q4, in percentage change**

| Country | Description | | Pull factors | | Supply-side factors | | Market shares |
|---|---|---|---|---|---|---|---|
| | Δ Export | Δ Export market share | Geography | Sector (residual) | Values | Prices | 2010q1—2019q4 |
| | | (a+b+c) | a | b | c | | |
| **Uganda** | **-19.34** | **-24.68** | **14.14** | **-23.66** | **-15.21** | **-14.38** | **0.0002** |
| United Republic of Tanzania | 160.77 | 155.43 | -7.54 | 0.00 | 162.97 | -3.95 | 0.0078 |
| Kenya | -8.39 | -13.73 | 72.09 | -26.93 | -58.87 | -22.70 | 0.0008 |
| Côte D'Ivoire | -43.27 | -48.61 | 0.00 | 0.00 | -25.94 | 7.65 | 0.0001 |
| United States of America | 7.32 | 1.98 | -5.49 | 0.00 | 7.46 | 1.49 | 18.0899 |
| Australia | 6.27 | 0.93 | 2.63 | 0.00 | -1.70 | 1.90 | 15.0896 |
| Ireland | 1.79 | -3.55 | -1.59 | 0.00 | -1.96 | -1.41 | 9.9783 |
| Netherlands | 2.01 | -3.33 | -0.29 | 0.00 | -3.04 | -2.33 | 9.7506 |
| Canada | 6.76 | 1.42 | 1.54 | 0.00 | -0.12 | 2.43 | 7.3270 |
| Brazil | 8.83 | 3.49 | -0.52 | 0.00 | 4.01 | -2.66 | 5.2732 |
| *World* | *5.34* | | | | | | *100* |

Note: The underlying econometric decomposition considers only the HS commodity indicated in the title. The annualized growth rate in market shares is exactly decomposed in 2 pull factors (Geography, Sector) and 1 push factor (Overall) so that Δ Market Share = Geography + Residual + Competitiveness. Competitiveness Δ Exp Mkt Share stands for change in a country export market shares. All the values are annualized percentage changes.

Source: Authors' own computation based on the World Bank. 2021. *Measuring Export Competitiveness*. Washington, DC. Cited 7 December 2021. https://mec.worldbank.org

Despite Uganda's positive contribution of geography to export market share growth, the Government may seek to further strengthen its performance by identifying and targeting the most dynamic importing market for such commodities. To this aim, we apply the methodology defined above to the import flows, now capturing any country-specific demand factor affecting international trade dynamics. It is therefore possible to compare the observed market orientation of Uganda's exports to the benchmark in order to assess market potentials for Uganda's export products.

The first column in Table 3 shows the most dynamic markets in terms of beef fresh imports (HS 020130), ranked according to their demand side attractiveness index (values). Uganda's market orientation has been positive (see Table 2) thanks to the increasing attractiveness of the Sudan (21.8 percent), while the Congo – the other destination market reached by Ugandan exporters of product HS020130 – decreased its demand by -28.9 percent. Overall, Ugandan beef fresh exports are able to serve only one country, i.e. the Sudan, of the top 10 most dynamic import markets. However, given the highly perishable nature of the product, market re-orientation towards some of the most dynamic importers farther located, such as Uruguay, China, and Israel, may not be feasible. Rather, it is advisable to consolidate exports to nearby relatively dynamic markets (the Sudan, the Democratic Republic of the Congo, at most Algeria).

**Table 3. Decomposition of Import growth for HS 020130, 2010q1–2019q4, percentage change**

| Country | | | Demand-side factors: attractiveness | | World market shares | Uganda market shares |
|---|---|---|---|---|---|---|
| | Δ Import | Δ Import market share | Values | Prices | 2010q1--2019q4 | 2010q1--2019q4 |
| Uruguay | 54.26 | 48.93 | 48.38 | 1.90 | 0.15 | |
| China | 31.31 | 25.98 | 27.47 | -0.03 | 0.35 | |
| Israel | 35.99 | 30.67 | 26.02 | -0.13 | 0.33 | |
| Sudan | -23.79 | -29.11 | 21.80 | -35.57 | 0.00 | 50.0 |
| Algeria | 21.83 | 16.51 | 15.47 | 1.11 | 0.33 | |
| Indonesia | 14.73 | 9.41 | 11.09 | 2.18 | 0.15 | |
| Costa Rica | 18.21 | 12.88 | 10.68 | 4.14 | 0.10 | |
| Norway | 15.58 | 10.25 | 10.48 | 0.52 | 0.25 | |
| Korea | 16.42 | 11.10 | 10.22 | 1.55 | 2.87 | |
| Slovakia | 16.33 | 11.01 | 10.07 | -0.46 | 0.18 | |
| Democratic Republic of the Congo | -9.18 | -14.50 | -28.29 | -6.68 | 0.00 | 50.0 |

Source: Authors' own computation based on the World Bank. 2021. *Measuring Export Competitiveness*. Washington, DC. Cited 7 December 2021. https://mec.worldbank.org

Note: The underlying econometric decomposition considers only the HS commodity indicated in the title. Δ Imp Mkt Share stands for change in a country import market shares. All the values are annualized percentage changes.

In product HS020230 Uganda market share also shrank significantly, -36.8 percent (Table 4). This is the mainly due to the strong negative contribution of the geography component, -60.8 percent, only partially offset by a positive supply side factor, 6.2 percent, and positive residual covariance factor 17.8 percent (sector). The associated import side decomposition in Table 5 reveals that the Sudan, the Congo, and Vietnam (adsorbing each one around one quarter of Uganda exports) reduced their attractiveness over the same period by -28, -3 and -0.16 percent respectively. The other foreign market served by Uganda exporters shows a positive development of global import demand, Rwanda by 91.8 percent. The fact that we observe a strong negative geography contribution for Uganda seems to suggest a substitution effect in Rwanda with the Congo and the Sudan.

Overall, while the performance of the supply (domestic) side of the sector improved over time, the import side, i.e. the performances of markets served, is severely limiting, as only Rwanda's attractiveness is increasing. Therefore, re-orienting exports towards most dynamic importers, such as China, Myanmar, Iraq, UEA, and Thailand, is highly recommended. For instance, trade missions or participation in trade fairs could be organized to facilitate contacts between Uganda exporters and buyers from these markets.

**Table 4. Decomposition of export growth for HS 020230, 2010q1–2019q4, in percentage change**

| Country | | | Pull factors | | Supply-side factors | | Market shares |
|---|---|---|---|---|---|---|---|
| | Δ Export | Δ Export market share | Geography | Sector (residual) | Values | Prices | 2010q1—2019q4 |
| | | (a+b+c) | a | b | c | | |
| **Uganda** | **-28.94** | **-36.78** | **-60.84** | **17.85** | **6.25** | **-3.17** | **0.001** |
| Kenya | -7.81 | -15.65 | 2.06 | -1.33 | -16.34 | -3.67 | 0.008 |
| United Republic of Tanzania | -53.50 | -61.34 | 3.61 | 0.00 | -64.94 | -9.50 | 0.007 |
| Brazil | 5.54 | -2.30 | -3.22 | 0.00 | 0.92 | -1.63 | 20.850 |
| Australia | 8.46 | 0.62 | 3.91 | 0.00 | -3.29 | 1.64 | 17.851 |
| India | 8.74 | 0.91 | -1.53 | 0.00 | 2.44 | -1.70 | 16.509 |
| United States of America | 14.67 | 6.83 | -1.14 | 0.00 | 7.98 | 0.83 | 8.864 |
| New Zealand | 6.47 | -1.36 | 3.17 | 0.00 | -4.54 | 1.17 | 8.642 |
| Uruguay | 6.12 | -1.72 | 8.82 | 0.00 | -10.54 | 0.77 | 5.374 |
| Argentina | 9.36 | 1.52 | 11.40 | 0.00 | -9.87 | -0.50 | 3.109 |
| *World* | *7.84* | | | | | | *100* |

Note: The underlying econometric decomposition considers only the HS commodity indicated in the title. The annualized growth rate in market shares is exactly decomposed in 2 pull factors (Geography, Sector) and 1 push factor (Overall) so that Δ Market Share = Geography + Residual + Competitiveness. Competitiveness Δ Exp Mkt Share stands for change in a country export market share. All the values are annualized percentage changes.

Source: Authors' own computation based on World Bank. 2021. *Measuring Export Competitiveness*. Washington, DC. Cited 7 December 2021. https://mec.worldbank.org

**Table 5. Decomposition of Import growth for HS 020230, 2010q1–2019q4, percentage changes**

| Country | | | Demand-side factors: attractiveness | | World market shares | Uganda market share |
|---|---|---|---|---|---|---|
| | Δ Import | Δ Import market share | Values | Prices | 2010q1--2019q4 | 2010q1--2019q4 |
| Rwanda | 29.46 | 21.62 | 91.80 | -6.14 | 0.00 | 25.23 |
| China | 44.64 | 36.81 | 39.87 | 2.85 | 8.13 | |
| Chile | 25.41 | 17.57 | 18.88 | -4.43 | 0.25 | |
| Myanmar | 10.57 | 2.73 | 12.97 | -7.30 | 0.10 | |
| Iraq | 17.08 | 9.24 | 10.84 | -0.29 | 0.62 | |
| Brazil | 7.80 | -0.04 | 9.49 | 1.08 | 0.55 | |
| Thailand | 17.34 | 9.50 | 5.95 | -2.00 | 0.31 | |
| Indonesia | 10.64 | 2.80 | 4.69 | -0.96 | 1.66 | |
| United Arab Emirates | 14.15 | 6.31 | 4.18 | -0.14 | 1.04 | |
| Israel | 5.62 | -2.21 | 3.85 | 2.17 | 2.34 | |
| Viet Nam | 10.85 | 3.02 | -0.16 | 0.11 | 7.78 | 24.32 |
| Democratic Republic of the Congo | 1.33 | -6.51 | -2.98 | -4.53 | 0.03 | 25.23 |
| Sudan | -23.85 | -31.69 | -28.08 | -5.19 | 0.01 | 25.23 |

Note: The underlying econometric decomposition considers only the HS commodity indicated in the title. Δ Imp Mkt Share stands for change in a country import market share. All the values are annualized percentage changes.

Source: Authors' own computation based on the World Bank. 2021. *Measuring Export Competitiveness*. Washington, DC. Cited 7 December 2021. https://mec.worldbank.org

Table 6 shows that in product HS410110 the export market share of Uganda improved slightly, +2.9 percent, particularly due to a positive supply side factor and a residual sector component (+11.1 percent). Table 7 further shows that the negative geography component is due to the fact that Uganda hides and skins exports are able to serve only one, i.e. Rwanda, of the most dynamic import markets.

**Table 6. Decomposition of export growth for HS 410110, 2010q1–2019q4, in percentage change**

| Country | | | Pull factors | | Supply-side factors | | Market shares |
|---|---|---|---|---|---|---|---|
| | Δ Export | Δ Export market share | Geography | Sector (residual) | Values | Prices | 2010q1—2019q4 |
| | | (a+b+c) | a | b | c | | |
| **Uganda** | **-6.80** | **2.89** | **-10.70** | **11.13** | **2.47** | **-3.74** | **0.008** |
| Rwanda | 15.18 | 24.87 | -7.61 | -11.85 | 44.34 | -19.28 | 2.476 |
| Kenya | -1.87 | 7.82 | 26.39 | -10.20 | -8.40 | -4.58 | 2.457 |
| United Republic of Tanzania | 7.70 | 17.40 | -23.24 | 0.63 | 39.96 | -10.35 | 0.354 |
| Cameroon | 29.57 | 39.26 | -0.87 | 7.94 | 32.20 | 0.52 | 0.071 |
| Malawi | 10.83 | 20.53 | -10.69 | -12.25 | 43.44 | 3.36 | 0.038 |
| Ghana | 0.00 | 9.69 | 253.94 | 0.00 | -244.25 | | 0.005 |
| Côte d'Ivoire | 100.00 | 109.69 | -12.35 | 0.00 | 122.04 | 36.36 | 0.002 |
| United States of America | -12.76 | -3.07 | -10.40 | 0.00 | 7.35 | -1.23 | 27.417 |
| Mexico | 13.40 | 23.09 | -12.54 | -0.50 | 36.17 | 1875 | 12.180 |
| *World* | *-9.69* | | | | | | *100* |

Note: The underlying econometric decomposition considers only the HS commodity indicated in the title. The annualized growth rate in market shares is exactly decomposed in 2 pull factors (Geography, Sector) and 1 push factor (Overall) so that Δ Market Share = Geography + Residual + Competitiveness. Competitiveness Δ Exp Mkt Share stands for change in a country export market share. All the values are annualized percentage changes.

Source: Authors' own computation based on the World Bank. 2021. *Measuring Export Competitiveness*. Washington, DC. Cited 7 December 2021. https://mec.worldbank.org

**Table 7. Decomposition of Import growth: HS 410110, 2010q1–2019q4, percentage changes**

| Country | | | Demand-side factors: attractiveness | | World market shares | Uganda market share |
|---|---|---|---|---|---|---|
| | Δ Import | Δ Import market share | Values | Prices | 2010q1--2019q4 | 2010q1--2019q4 |
| Mexico | -7.02 | -2.29 | 153.26 | -1.29 | 3.71 | |
| Rwanda | 25.27 | 30.00 | 94.98 | 33.12 | 0.01 | 44.96 |
| China | -16.57 | -11.84 | 49.55 | 11.44 | 19.98 | |
| Austria | 29.16 | 33.89 | 39.19 | 7.52 | 0.40 | |
| Greece | 20.94 | 25.66 | 35.51 | 2.97 | 0.13 | |
| Ghana | 13.13 | 17.86 | 28.26 | -1.13 | 0.16 | |
| Serbia | 1.94 | 6.67 | 26.53 | 6.79 | 0.21 | |
| Croatia | -1.35 | 3.38 | 22.13 | 1.11 | 0.36 | |
| Denmark | 8.17 | 12.89 | 20.79 | 2.76 | 0.13 | |
| Israel | 5.30 | 10.03 | 17.25 | -22.97 | 0.18 | |
| Italy | 7.82 | 12.55 | 15.14 | -0.84 | 31.15 | 15.70 |
| India | -0.74 | 3.99 | 3.05 | -0.54 | 1.70 | 4.46 |
| Pakistan | -17.85 | -13.12 | -19.60 | 6.74 | 0.08 | 34.88 |

Note: The underlying econometric decomposition considers only the HS commodity indicated in the title. Δ Imp Mkt Share stands for change in a country import market share. All the values are annualized percentage changes.

Source: Authors' own computation based on the World Bank. 2021. *Measuring Export Competitiveness*. Washington, DC. Cited 7 December 2021. https://mec.worldbank.org

Finally, in the case of product HS410190 the decline in the supply side factor (-10 percent) paired with an unfavorable geographic composition (-45.8 percent) induced a severe decline in the country export market share, -55.9 percent (Table 8) The negative geography contribution is not surprising considering that the only foreign market for Ugandan exports is Pakistan, whose global import market share declined of about 18 percent over the period (Table 9).

**Table 8. Decomposition of export growth for HS 410190, 2010q1–2019q4, in percentage change**

| Country | | | Pull factors | | Supply-side factors | | Market shares |
|---|---|---|---|---|---|---|---|
| | Δ Export | Δ Export market share | Geography | Sector (residual) | Values | Prices | 2010q1—2019q4 |
| | | (a+b+c) | a | b | c | | |
| **Uganda** | **-53.29** | **-55.91** | **-45.84** | **0.00** | **-10.07** | **-13.06** | **0.009** |
| United Republic of Tanzania | -14.45 | -17.07 | -18.63 | 0.00 | 1.56 | -17.96 | 0.043 |
| Cameroon | 10.85 | 8.24 | -14.97 | 0.00 | 23.21 | -24.70 | 0.028 |
| Kenya | -19.14 | -21.76 | -24.03 | 0.00 | 2.27 | -2.22 | 0.014 |
| Malawi | -28.86 | -31.48 | -9.92 | 32.85 | -54.41 | -12.07 | 0.011 |
| Rwanda | 60.97 | 58.35 | -240.45 | 102.43 | 196.39 | -33.76 | 0.004 |
| United States of America | 0.07 | -2.55 | -6.00 | 0.14 | 3.36 | 0.59 | 41.027 |
| Australia | 12.36 | 9.75 | -3.95 | 0.00 | 13.70 | 4.00 | 7.004 |
| Germany | -2.75 | -5.37 | 5.72 | 0.00 | -11.09 | 1.34 | 6.839 |
| France | 5.30 | 2.68 | 4.65 | 0.00 | -1.98 | 3.32 | 5.511 |
| *World* | *2.62* | | | | | | *100* |

Note: The underlying econometric decomposition considers only the HS commodity indicated in the title. The annualized growth rate in market shares is exactly decomposed in 2 pull factors (Geography, Sector) and 1 push factor (Overall) so that Δ Market Share = Geography + Residual + Competitiveness. Competitiveness Δ Exp Mkt Share stands for change in a country export market share. All the values are annualized percentage changes.

Source: Authors' own computation based on the World Bank. 2021. *Measuring Export Competitiveness*. Washington, DC. Cited 7 December 2021. https://mec.worldbank.org

**Table 9. Decomposition of Import growth for HS 410190, 2010q1–2019q4, percentage changes**

| Country | | | Demand-side factors: attractiveness | | World market shares | Uganda market share |
|---|---|---|---|---|---|---|
| | Δ Import | Δ Import market share | Values | Prices | 2010q1--2019q4 | 2010q1--2019q4 |
| Uruguay | 35.62 | 33.08 | 35.27 | -11.39 | 0.17 | |
| Croatia | 32.79 | 30.25 | 31.09 | 3.28 | 0.17 | |
| Slovakia | 16.42 | 13.88 | 24.88 | -7.07 | 1.18 | |
| Romania | 11.58 | 9.04 | 24.40 | 12.69 | 0.22 | |
| Poland | 15.38 | 12.83 | 21.58 | 0.14 | 0.99 | |
| France | 18.19 | 15.65 | 19.86 | -8.74 | 0.85 | |
| Sweden | 19.69 | 17.15 | 19.70 | -1.36 | 0.53 | |
| Netherlands | 16.94 | 14.40 | 19.06 | 2.27 | 2.36 | |
| Denmark | 8.44 | 5.90 | 18.45 | 4.79 | 0.68 | |
| Togo | 19.87 | 17.33 | 16.20 | 7.55 | 0.50 | |
| Pakistan | -15.46 | -18.00 | -24.15 | -1.64 | 0.07 | 100.00 |

Note: The underlying econometric decomposition considers only the HS commodity indicated in the title. Δ Imp Mkt Share stands for change in a country import market share. All the values are annualized percentage changes.

Source: Authors' own computation based on the World Bank. 2021. *Measuring Export Competitiveness*. Washington, DC. Cited 7 December 2021. https://mec.worldbank.org

The results for both HS 410110 and HS 410190 highlight the fact that the geography is a limiting factor of exports performance. Therefore, re-orienting exports towards some of the most dynamic markets, such as Mexico, Uruguay, Croatia, Austria, and Slovakia, may result in improved performances.

Moreover, there is the need to assess the potential for upgrading to higher-value products, such as handbags (HS 420229) and belts of leather (HS 420330) - two products that Uganda is already exporting, with about 605 000 USD and 49 000 USD export values in 2019, respectively - or learning new trade opportunities from current importers, like Pakistan and India, that may be one or two value-addition steps above in the leather product value chain.

Overall, the import decomposition reveals how the lack of diversification of Uganda exports is likely to expose the selected industries to significant external demand shocks. Therefore, this evidence from the demand-side, coupled with the results from the supply-side (export) decomposition, suggests that market diversification and synchronization with international demand development will be key factors to meet the defined targets for the selected products.

## 3.3. Position along the competitiveness ladder

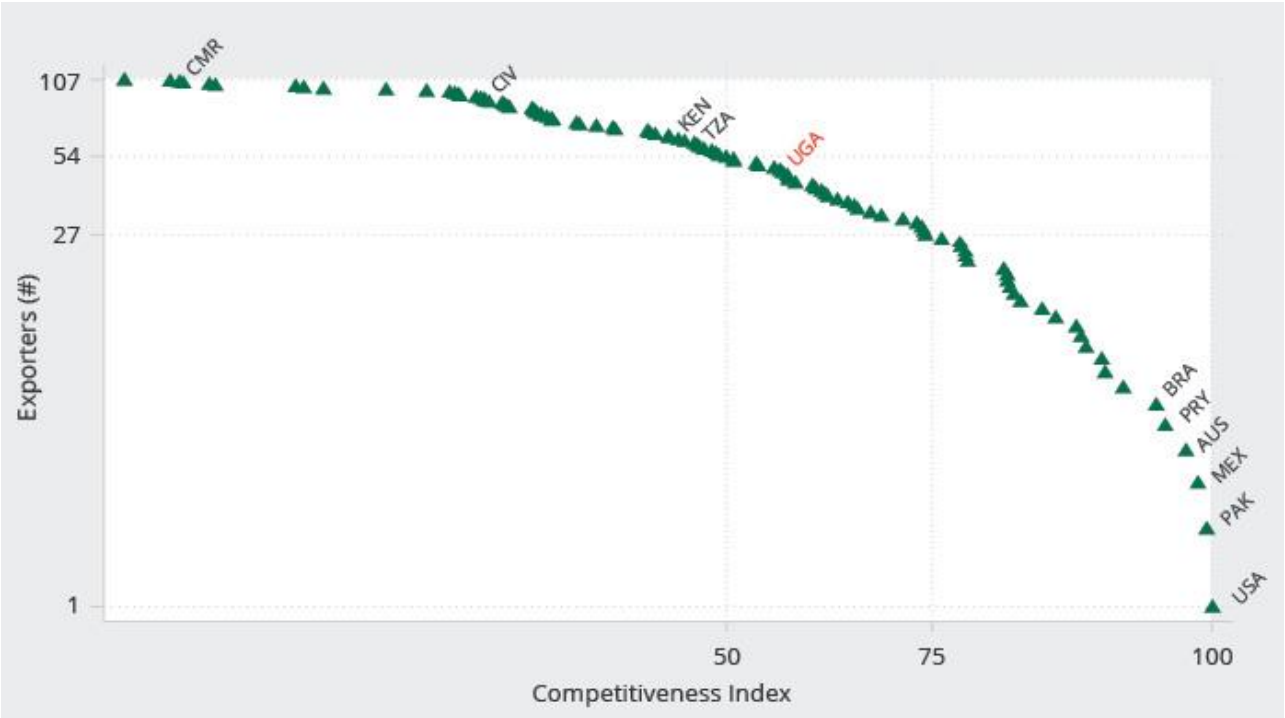
In this section we evaluate the relative position of Ugandan firms along the competitiveness ladder for each of the key products, relying on the so-called workhorse of international trade analysis, the gravity model (Yotov *et al.* 2017, Head and Mayer 2014). Building on this, we can write (for additional details, see Annex):

$$Exports_{ijk,t} = e^{\delta_{ik,t} + \gamma_{jk,t} + \text{Gravity Controls} + \varepsilon_{ijk,t}}$$

where the $Exports_{ijk,t}$ refers to the volume of exports from origin *i* towards market *j* in year *t* for the 6-digit variety *k*. The right-hand side of the equation includes the theoretical consistent determinant of bilateral trade flows as prescribed by the structural gravity approach. The Gravity Controls matrix includes variables aiming to capture country-pair trade frictions determined by: geography and history (as the -log- of bilateral distance, a dummy variable for common language, historical ties and common border); as well as trade policy such as a dummy variable for Regional trade agreement and the (log) of the applied $Tariff_{ijk,t}$. $\delta_{ik,t}$ measuring the export performance of country *i* in variety *k* and year *t*. As shown in Costinot *et al.* (2010), $\delta_{ik,t}$ can be interpreted as a theoretically consistent index of revealed competitiveness.[8] Finally, $\gamma_{jk,t}$ captures the demand components (such as preferences) at the destination market j; and $\varepsilon_{ijk,t}$ represents an idiosyncratic error term. The estimation of the above equation is performed at the HS 4-digit commodity level. The sample period covers two decades from 1996 to 2019. Data wise, bilateral exports at 6-digit HS classification are from the BACI dataset (CEPII) whereas tariffs are from WITS database (World Bank, 2021).

The Figures below report the relative position of Ugandan exports across the competitiveness index, $\delta_{ik,t}$, measured from the above equation. Considering products HS0201, Uganda position itself in the mid-range of the competitiveness distribution (i.e. between the 50th end 75th percentile), higher than regional comparator countries like Kenya and the United Republic of Tanzania, but well below the most competitive exporters like United States of America and Mexico (Figure 2).

**Figure 2. Competitiveness ladder, HS0201, 2015–2019**




Note: Calculation based on a structural gravity equation estimated with PPML on yearly data for the individual HS 4-digit commodity indicated in the title controlling for bilateral gravity forces, applied tariffs and destination country-year fixed effects.
Source: Authors' own calculation based on Centre d'études prospectives et d'informations internationales. 2021. BACI. *In*: *CEPII.* Paris. Cited 6 December 2021. www.cepii.fr/CEPII/en/bdd_modele/bdd_modele_item.asp?id=37

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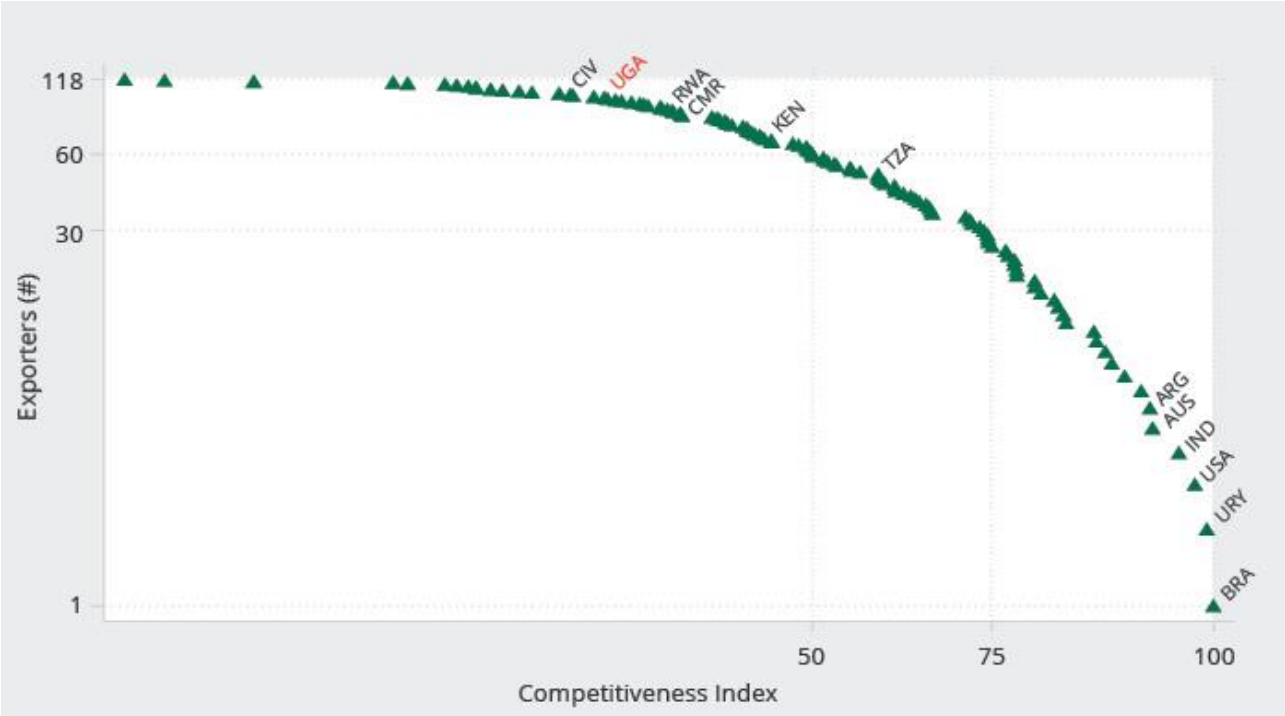
[8] In a similar vein, Hanson *et al.* (2015) provide a comparative analysis of revealed competitiveness.

In product HS0202 Uganda falls below the 50th percentile of the competitiveness distribution, slightly higher than Côte d'Ivoire (CIV) but well below Rwanda, Kenya, and the United Republic of Tanzania (Figure 3).

**Figure 3. Competitiveness ladder, HS0202, 2015–2019**

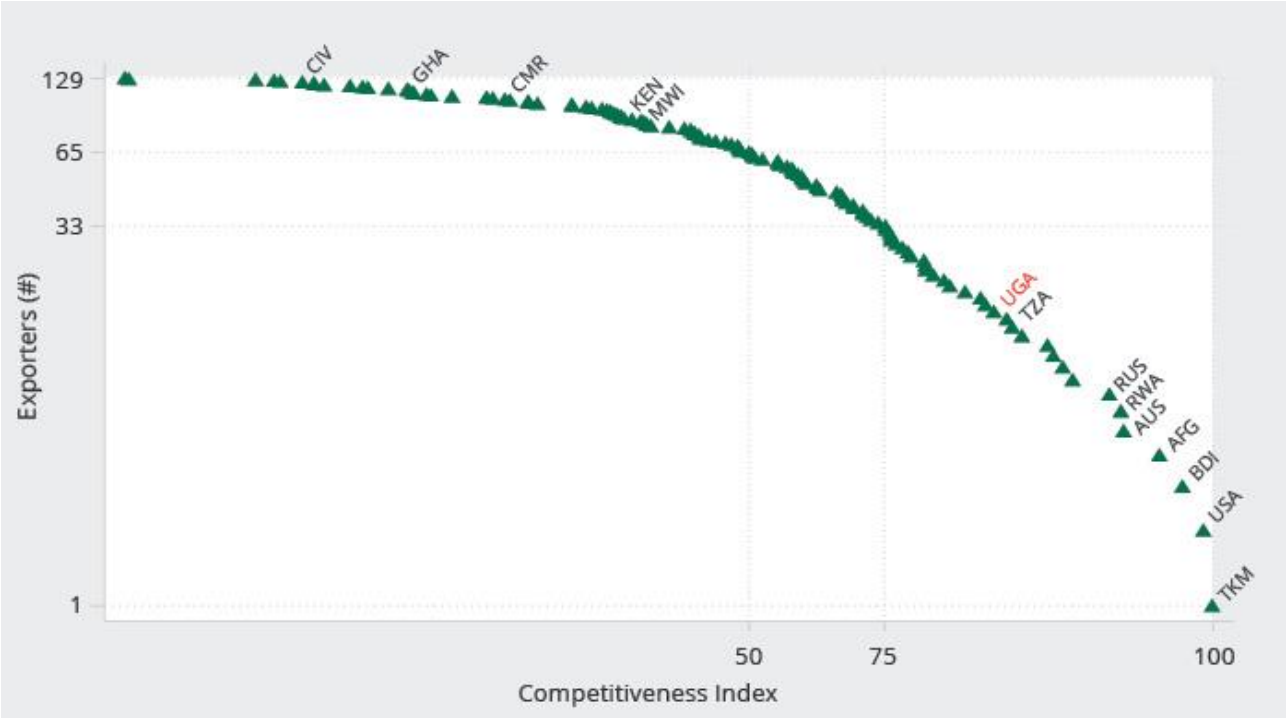



Source: Authors' own calculation based on Centre d'études prospectives et d'informations internationales. 2021. BACI. In: *CEPII*. Paris. Cited 6 December 2021. www.cepii.fr/CEPII/en/bdd_modele/bdd_modele_item.asp?id=37

Note: Calculation based on a structural gravity equation estimated with PPML on yearly data for the individual HS 4-digit commodity indicated in the title controlling for bilateral gravity forces, applied tariffs and destination country-year fixed effects.

Finally, in HS4101 Ugandan exports fall into the top quartile of the distribution (above the 75th percentile), still below regional comparator economies like Rwanda, the United Republic of Tanzania or Burundi (Figure 4).

**Figure 4. Competitiveness ladder, HS4101, 2015–2019**




Note: Calculation based on a structural gravity equation estimated with PPML on yearly data for the individual HS 4-digit commodity indicated in the title controlling for bilateral gravity forces, applied tariffs and destination country-year fixed effects.
Source: Authors' own calculation based on Centre d'études prospectives et d'informations internationales. 2021. BACI. In: *CEPII*. Paris. Cited 6 December 2021. www.cepii.fr/CEPII/en/bdd_modele/bdd_modele_item.asp?id=37

These results confirm that Uganda still lags behind in the competitiveness ladder of these products and, more specifically, that there is a lot that can be learned from the best practices of the more successful regional exporters.

## 3.4. Export relative prices

Recent empirical works on trade patterns (Schott, 2004) document a significant heterogeneity in the price of traded commodities. According to classical trade theory countries should specialize according to their factor endowments and, as a result, different economies should export different products. However, empirical evidence confirms that countries tend to sell similar varieties of a given commodity with highly heterogeneous prices across different producers. Knowing the market segment in which a country operate in each destination has important policy implications since exporters tend to compete directly only with those positioned in the same market segment and it is therefore crucial to design sound and effective export promotion policies.

From a methodological perspective, we start from the "Trade in Unit Value" (TUV) database from the CEPII, reporting information on traded values and volumes for a wide range of markets and commodities.[9] We use the "import" version of the TUV dataset, which is constructed from importing country custom declarations and include in the exchanged values all the trade costs (CIF, Cost of Insurance and Freight). Since real import prices are generally not available, we rely on traded unit values (unit values = traded value/ traded volume) as a proxy (see Annex 2).

Table 10 details, for each destination market, the relative price (unit value) of Ugandan products against its five main regional and international competitors[10]: values greater than 1 indicates that Ugandan varieties are sold at higher price than competitor (over columns) in a given destination market (over rows). The first row looks at the exports in the

[9] The "Trade Unit Value Database" (Berthou and Emlinger (2011) reports bilateral exports and imports unit values (USD per thousand kg) for all the UN countries over the period 2000–2019 at 6-digit HS classification (approx. 5 000 commodities).
[10] See Section 2.2. for the selection of comparator countries.

Democratic Republic of the Congo, the main destination of Ugandan exports of fresh meats with a share of 55 percent.[11] For the first row, each column depicts the relative price of Ugandan exports in the Democratic Republic of the Congo vis-à-vis the competitor (in column) for the product exported jointly by the two countries. As an example, consider column 1, where Kenya is the competitor. The Ugandan fresh meat exports relative price (Uganda/Kenya) in the Democratic Republic of the Congo are sold at 16 percent lower price (1/0.86=1.16) than Kenyan products. On the contrary, the Ugandan goods relative price (Uganda/Netherlands) in the Democratic Republic of the Congo is 1.74 suggesting that for the same set of products, Ugandan prices are 74 percent higher than Dutch products. On average, exports from Uganda seem to be priced relatively higher than all the other exporters in the sample, about two times higher (1.99).

**Table 10. Relative unit values of HS 020130 between Uganda and main competitors**

| Uganda export market shares 2010–2019 | Comparator - markets: | Kenya (1) | United States of America (2) | Australia (3) | Ireland (4) | Netherlands (5) |
|---|---|---|---|---|---|---|
| 55.3 | COD | 0.86 | | | 2.33 | 1.74 |
| 38.5 | AUT | | 0.90 | 0.87 | | 2.15 |
| 2.7 | SEN | | 0.67 | 0.52 | 1.19 | 1.37 |
| 2.4 | CZE | | 0.80 | 1.09 | | |
| 1.1 | RWA | 0.45 | | | 1.76 | 1.75 |
| | *Average* | *-15.46* | *-18.00* | *-1.64* | *0.07* | *100.00* |

Note: HS 1996 at 6-digit. The table reports the relative prices for the selected commodity.

Source: Authors' own calculation based on Centre d'études prospectives et d'informations internationales (CEPII). 2021. Trade Unit Value. In: *CEPII.* Paris. Cited 6 December 2021. http://www.cepii.fr/CEPII/en/bdd_modele/bdd_modele_item.asp?id=37

[11] Note that Uganda export shares in destination markets may differ from those reported in Section 2.2 for two main reasons. First, the underlying database is different. Second, here we report destination markets to which at least two producers in the TUV database have exported.

Similarly, Table 11 reports the export relative prices of frozen meat exports (HS 020230) between Uganda and the main competitors. Export prices are relatively similar in the selected destination markets when compared with Kenya (1.01) and the United Republic of Tanzania (1.01). However, Uganda sells on average at 42 percent higher prices than all other countries in the sample (1.42).

**Table 11. Relative Unit Values HS 020230 between Uganda and main competitors**

| Uganda export market shares 2010–2019 | Comparator - markets: | Kenya (1) | United Republic of Tanzania (2) | Brazil (3) | Australia (4) | India (5) |
|---|---|---|---|---|---|---|
| 34.0 | VNM | 1.08 | 1.01 | 0.59 | 0.41 | 0.67 |
| 16.4 | COD | 1.47 | | 1.77 | | 2.35 |
| 16.1 | EGY | 0.93 | | 1.03 | 0.84 | 0.62 |
| 14.5 | ISR | | | 1.55 | 0.73 | |
| 6.5 | CIV | | | 1.00 | 0.28 | 1.22 |
| 4.6 | RWA | 0.64 | | | | |
| 3.8 | SDN | 0.96 | | 0.58 | 0.97 | 1.59 |
| 3.6 | GBR | | | 2.11 | 1.62 | 5.74 |
| | *Average* | *1.01* | *1.01* | *1.23* | *0.81* | *2.03* |

Note: HS 1996 at 6-digit. The table reports the relative prices for the selected commodity.

Source: Authors' own calculation based on Centre d'études prospectives et d'informations internationales (CEPII). 2021. Trade Unit Value. In: *CEPII.* Paris. Cited 6 December 2021. http://www.cepii.fr/CEPII/en/bdd_modele/bdd_modele_item.asp?id=37

Finally, for both hides and skins products, relative prices are higher than those recorded in the other countries in the sample, 2.31 and 1.52, respectively (Table 12 and Table 13).

**Table 12. Relative unit values of HS 410110 between Uganda and main competitors**

| Uganda export market shares 2010–2019 | Comparator - markets: | Rwanda (1) | Kenya (2) | United Republic of Tanzania (3) | United States of America (4) | Mexico (5) |
|---|---|---|---|---|---|---|
| 44.8 | HKG | 0.81 | 0.96 | 0.91 | 0.45 | 0.46 |
| 25.9 | CHE | 2.24 | | 1.82 | 0.04 | |
| 8.5 | KEN | 0.88 | | 0.46 | 0.11 | |
| 7.2 | CHN | 0.62 | 0.76 | 0.24 | 0.14 | 0.08 |
| 4.3 | PAK | 1.47 | | 1.28 | 0.20 | |
| 3.1 | IND | | 0.72 | 1.48 | 0.28 | 0.09 |
| 2.6 | ITA | 1.15 | 0.61 | 0.71 | 0.54 | 0.49 |
| 1.2 | EGY | 1.00 | | 13.78 | | |
| | *Average* | *1.17* | *0.76* | *2.58* | *0.25* | *0.28* |

Note: HS 1996 at 6-digit. The table reports the relative prices for the selected commodity.

Source: Authors' own calculation based on Centre d'études prospectives et d'informations internationales (CEPII). 2021. Trade Unit Value. In: *CEPII.* Paris. Cited 6 December 2021. http://www.cepii.fr/CEPII/en/bdd_modele/bdd_modele_item.asp?id=37

**Table 13. Relative Unit Values of HS 410190 between Uganda and main competitors**

| Uganda export market shares 2010–2019 | Comparator - markets: | United Republic of Tanzania (1) | Cameroon (2) | Kenya (3) | United States of America (4) | Australia (5) |
|---|---|---|---|---|---|---|
| 28.4 | PAK | 0.85 | | 0.83 | 0.56 | 0.62 |
| 16.1 | HKG | 1.17 | | 1.25 | 0.82 | 0.84 |
| 14.4 | ZAF | 0.02 | | 1.07 | 0.20 | 0.19 |
| 11.9 | CHN | 0.41 | | 2.67 | 0.40 | 0.54 |
| 8.7 | TUR | 1.34 | | 2.52 | 0.61 | 0.58 |
| 8.5 | EGY | 1.36 | | 2.58 | 0.40 | 0.75 |
| 8.2 | IND | 1.42 | | 1.15 | 0.60 | 0.40 |
| 1.3 | NGA | 1.07 | 1.64 | 0.77 | 0.73 | 8.46 |
| | *Average* | *0.96* | *1.64* | *1.60* | *0.54* | *1.55* |

Note: HS 1996 at 6-digit. The table reports the relative prices for the selected commodity.

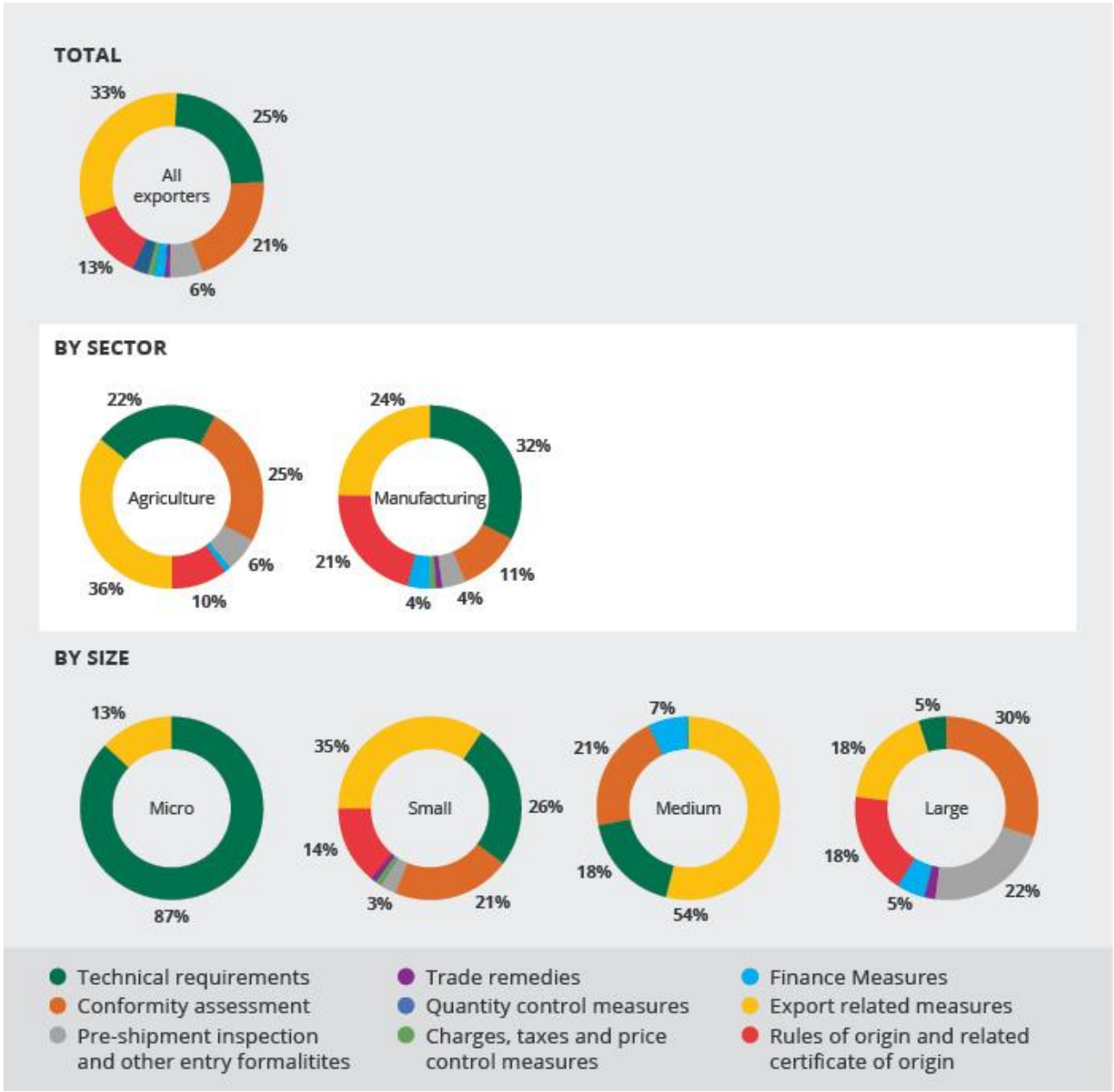
Source: Authors' own calculation based on Centre d'études prospectives et d'informations internationales (CEPII). 2021. Trade Unit Value. In: *CEPII.* Paris. Cited 6 December 2021. http://www.cepii.fr/CEPII/en/bdd_modele/bdd_modele_item.asp?id=37

## 3.5. Non-tariff measures

Ugandan exporters face a host of non-tariff measures (NTMs) that hamper improved export performance and the entry of new firms into export activities. NTMs are policy measures, other than ordinary customs tariffs, that range from technical regulations aiming to protect food and beverage supply, consumers, workers, and the environment to more trade-related measures traditionally used as instruments of commercial policy such as quotas, trade remedies, or rules of origin. In any cases, they are a prevalent part of the day-to-day conducts of trade businesses.

A 2016 survey of Ugandan companies revealed that NTMs to trade affect 40 percent of exporting companies. The survey found that NTMs hamper exporters of agrifood goods (42 percent) more than exporters of manufacturing products (35 percent), and that the "Exporters of coffee (62 percent) and processed foods (55 percent) are among the most affected" (ITC, 2018). More importantly, about two-thirds of these NTM cases concern regulations applied by partner countries (technical requirements and conformity assessment), with the rest relating to NTMs applied by Uganda and a few by transit countries (export related measures) see Figure 5.

**Figure 5. Non-tariff measures faced by Uganda exporters**




Source: ITC (International Trade Centre). 2018. *Uganda: company perspectives. ITC Series on Non-Tariff Measures*. Geneva, Switzerland.

Against this background, this section analyses the regulatory requirements imposed by partner countries on selected products. For each of the selected products, we report the number of regulatory requirements required by the three most dynamic importing countries, as identified by their demand side attractiveness index.

Table 14 shows that, as expected, both fresh and frozen beef exports face a relatively higher number of regulatory requirements with respect to hides and skins products. On the other side, China seems a complicated export destination country, as the number of requirements is always well above the mean. These include, among others, for both beef and hides and skins exports, different prohibitions for SPS reasons, testing, certification, and inspection requirements, requirements on the disclosure of information on the origin of materials and parts used, labelling and packaging requirements.

Therefore, when assessing new potential destination markets, it is highly recommended to look not only at the import dynamics but also at the NTMs required by the market. For frozen meat (HS 020230) and hides and skins (HS 410110; HS 410190) exports, it is then recommended to assist exporters with NTM-intelligence and compliance assistance.

**Table 14. Number of regulatory requirements faced by Ugandan products by trading partner**

| HS 020130 | | HS 020230 | | HS 410110 | | HS 410190 | |
|---|---|---|---|---|---|---|---|
| Destination country | No. regulatory requirements | Destination country | No. regulatory requirements | Destination country | No. regulatory requirements | Destination country | No. regulatory requirements |
| Uruguay | 10 | China | 144 | Mexico | 7 | Uruguay | 6 |
| China | 139 | Chile | 20 | China | 63 | Croatia | 8 |
| Israel | 67 | Brazil | 45 | Austria | 8 | Slovakia | 8 |

Note: destination countries are selected according to the demand attractiveness index of section 2.2. Destination countries not available in the ITC database, are substitute with the following country in the rank. Regulatory requirements can be found at the following link: https://www.macmap.org/en/query/regulatory-requirement

Source: Authors' own computation based on International Trade Center (ITC). 2021. *Market Access Map.* Geneva, Switzerland. Cited 2 December 2021. www.macmap.org

# 4. Ugandan imports

## 4.1. Import volumes

In this paragraph, we analyse the relative strength of Uganda demand for foreign varieties with respect to the world average. Thus, the Inward Multilateral Resistance Terms (MRTs), being a structural measure of the attractiveness of each destination in the world market, inform on any pattern of excess imports for the country: i.e. when a commodity reveals an Inward MRT scores above the average, it implies that Uganda is a relatively more attractive destination of imports, or that the volume of imports in that variety is higher than what the gravity benchmark would predict.

To evaluate developments in relative demand for foreign varieties in Uganda, we build an index of relative attractiveness relying on a structural gravity decomposition of trade flows (see Annex 2), for variety *k* in year *t*, as $Demand_{k,t}^{UGA,WLD} = \hat{\delta}_{k,t}^{UGA} / \hat{\delta}_{k,t}^{world}$. Where $\hat{\delta}_{k,t}^{world}$ . Values above 1 of $Demand_{k,t}^{UGA}$ reveals that Uganda is a relatively more attractive destination for exports than the world average. For comparison, we also report the relative demand vis-à-vis two set of countries: i) low-income Sub-Saharan Africa peers (SSA): $Demand_{k,t}^{UGA,SSA} = \hat{\delta}_{k,t}^{UGA} / \hat{\delta}_{k,t}^{ssa}$, ii) MEC regional peers (Benin, Cameroon, Côte d'Ivoire, Ghana, Kenya, Malawi, Rwanda, the United Republic of Tanzania): $Demand_{k,t}^{UGA,MEC} = \hat{\delta}_{k,t}^{UGA} / \hat{\delta}_{k,t}^{MEC}$.

Table 15 below reports the aggregate evolution of the relative demand in Uganda with respect to both the world (top panel), the SSA average (middle panel) and the MEC benchmark countries average (bottom panel). In general, the level of "conditional" demand for foreign varieties in Uganda has been substantially below the world average for products in the HS0201 and HS0202, while has been increasing steadily for commodities in the HS4101. Interestingly when compared to either SSA low-income economies (mid panel) or the narrower set of MEC benchmark countries (bottom panel), Uganda conditional demand for HS4101 in 2019 had been higher than the control average (1.037 and 1.65 respectively).

**Table 15. Relative Demand (in volumes), key commodities at HS 4-digit**

| Country Demand over World Average ($Demand_{.,t}^{UGA,WLD}$) | | |
|---|---|---|
| Year | 0201/0202 | 4101pc |
| 2000 | 0.008 | 0.013 |
| 2007 | 0.014 | 0.014 |
| 2019 | 0.013 | 0.494 |
| **Country Demand over sub-Saharan Africa average ($Demand_{.,t}^{UGA,SSA}$)** | | |
| Year | 0201/0202 | 4101pc |
| 2000 | 0.083 | 0.036 |
| 2007 | 0.116 | 0.369 |
| 2019 | 0.080 | 1.037 |
| **Country Demand over MEC average $Demand_{.,t}^{UGA,MEC}$)** | | |
| Year | 0201/0202 | 4101pc |
| 2000 | 0.105 | 0.329 |
| 2007 | 0.151 | 0.519 |
| 2019 | 0.175 | 1.065 |

Note: HS 1996 at 6-digit. The table reports the average relative demand estimated using Equation (1). The estimated regressions are performed at the HS 4-digit level.

Source: Authors' own calculation based on Centre d'études prospectives et d'informations internationales (CEPII). 2021. *BACI.* In: *CEPII.* Paris. Cited 6 December 2021. http://www.cepii.fr/CEPII/en/bdd_modele/bdd_modele_item.asp?id=37

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## 4.2. Import prices

In this section, we analyse the price dynamics of the Uganda imported commodities. Leveraging on the properties of the gravity equation we fit a gravity model for import prices, explicitly controlling for Tariffs and trade costs (i.e. distance) and study the distribution of import prices with respect to the gravity predictions: again, thanks to the close link with theory, the structural gravity prediction provides a natural benchmark (Arkolakis *et al*. 2012). To complement the analysis on the import demand dynamics, we now move to the Trade Unit Value database (TUV) and analyse the relative price dynamics of Uganda imports of the selected commodities with respect to a group of benchmark countries. As benchmark countries we use the other low-income sub-Saharan African countries (SSA) or a sub-sample of comparable neighbor economies as identified from the MEC database (namely: Benin, Cameroon, Côte d'Ivoire, Ghana, Kenya, Malawi, Rwanda, the United Republic of Tanzania).[12] The estimation period covers two decades from year 2000 to 2019.

Table A1 in Annex 1 reports the results for an estimated equation of import prices in Uganda, where Treatment=1 if the destination of exports is Uganda, for different specifications of the reference groups and control variable vector.[13] We observe that, for the same variety, the average price is 9.8 percent higher with respect to the counterpart variety imported in neighboring SSA countries (conditional on exchange rate, distance, and regional trade agreement and common currency – column 2).[14] This differential increase substantially when we restrict the sample to the MEC benchmark countries (around 21.5 percent) and to the key commodities only (24.1 percent).

In Figure 6 we report the estimated coefficients of Ugandan price differential obtained from separate regressions for the different selected products. We find that frozen beef imports into Uganda (HS4 0202) are 33.5 percent more expensive than imports in other SSA countries and 57 percent when compared to MEC benchmark countries; for hides and skins products (HS4101) the price differential is equal to 33.2 percent when compared with MEC benchmark, while not significant for the rest of the estimates.

[12] We rely on World Bank classifications for both regions and income level.

[13] Column 1 and column 2 the control group is defined with SSA, while in column 3 to column 6 we restrict the sample to a group of Uganda comparator countries and defined by the MEC procedure (i.e. Benin, Cameroon, Côte d'Ivoire, Ghana, Kenya, Malawi, Rwanda, United Republic of Tanzania). In column 4 we include an interaction term between the Treatment and the variable, Concentration, taking the value of 1 if the product is "monopolized" (i.e. there is only one supplier in Uganda). Furthermore, in columns 5 and 6 we include an interaction between the Treatment and an indicator variable, Key Prods, taking the value of 1 for the 4 selected key commodities. In both cases the Treatment indicator is defined as the rest of the goods imported in Uganda.

[14] The percentage difference is computed as [exp(β Treatment)-1]*100.

**Figure 6. Price differential by products**


Notes: Price is Unit Value expressed in log. The graph reports the estimated coefficient of Ugandan price differential obtained from separate regressions; the set of control includes the same covariates as the baseline regression reported in column 2 and 3 of Table A1. Standard errors are clustered by destination-year level.

Source: Authors' own calculation based on Centre d'études prospectives et d'informations internationales (CEPII). 2021. Trade Unit Value. In: *CEPII*. Paris. Cited 6 December 2021. http://www.cepii.fr/CEPII/en/bdd_modele/bdd_modele_item.asp?id=37

Finally, in Table A2 we inspect closer the time dimension of the import price differentials. Interestingly, the wedge between Ugandan and the benchmark group is not significant in the early 2000s while started building up during the period 2007-2014 and increasing in the last period 2015-2019. From column 3 to column 6, we further control for the purchase power at destination by including the (log) of GDP or the (log) of per-capita GDP. In column 5 and 6 we interact the Treatment with a linear trend and evaluate the price gap to be approximately 5 and 4 percent on an average year, with respect to SSA countries and MEC countries, respectively. These results confirm that Ugandan import prices have been significantly higher than the benchmark countries, especially for the selected key products.

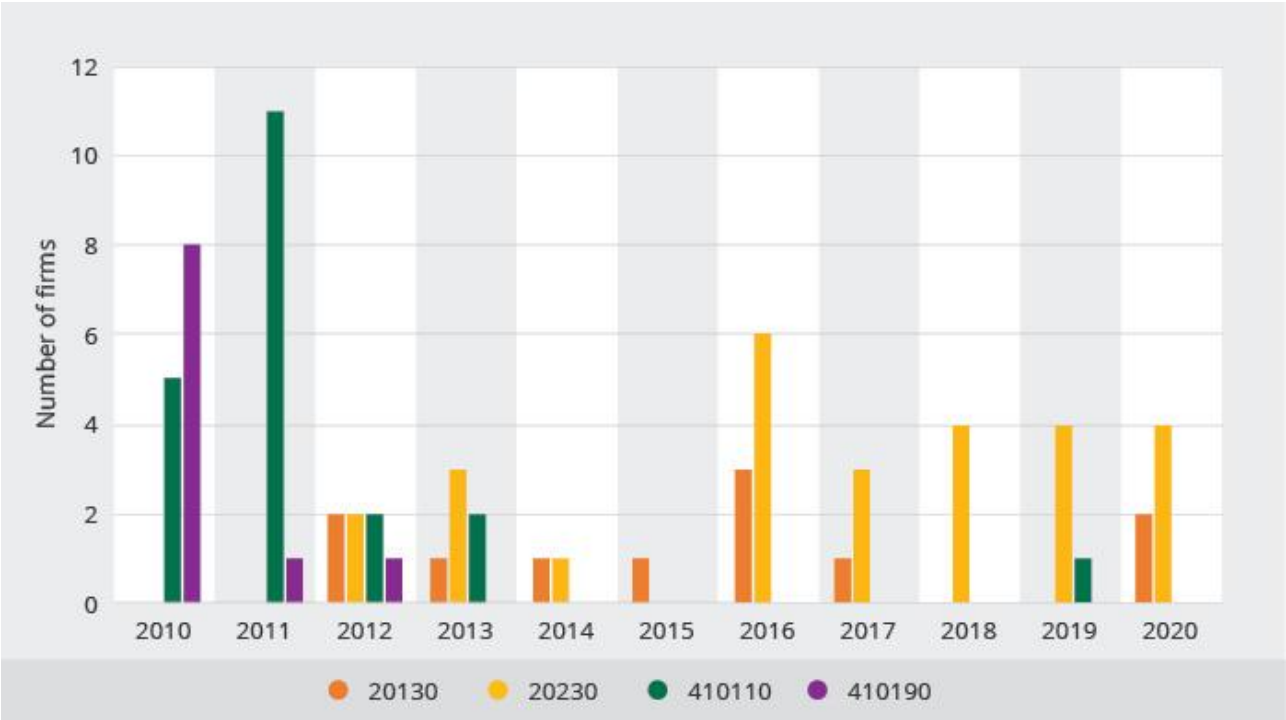
# 5. Characteristics of Ugandan export and importing beef firms

This section uses customs data collected by the Uganda Revenue Authority to describe exporting and importing firms' characteristics. The URA data (henceforth 'customs data') span from 2010 to 2020 and provide detailed information on individual consignments leaving, entering, or transiting through Uganda's ports.

Using masked taxpayer identification numbers (TINs) provided at customs checkpoints, we can identify the individual firms sending and receiving consignments of beef, skins, and hides to analyse firms' characteristics at the product level.[15]

Figure 7 shows that there are only a very small number of identifiable firms engaging in trade of beef and raw skins and hides. More specifically, there are on average 2.5 and 4 fresh and frozen beef and hides and skins exporters per year, respectively. Given the disease-related restrictions on trade in meat products, it is perhaps not surprising that the beef industry in Uganda is highly concentrated.

**Figure 7. Number of exporters by product, 2010–2020**

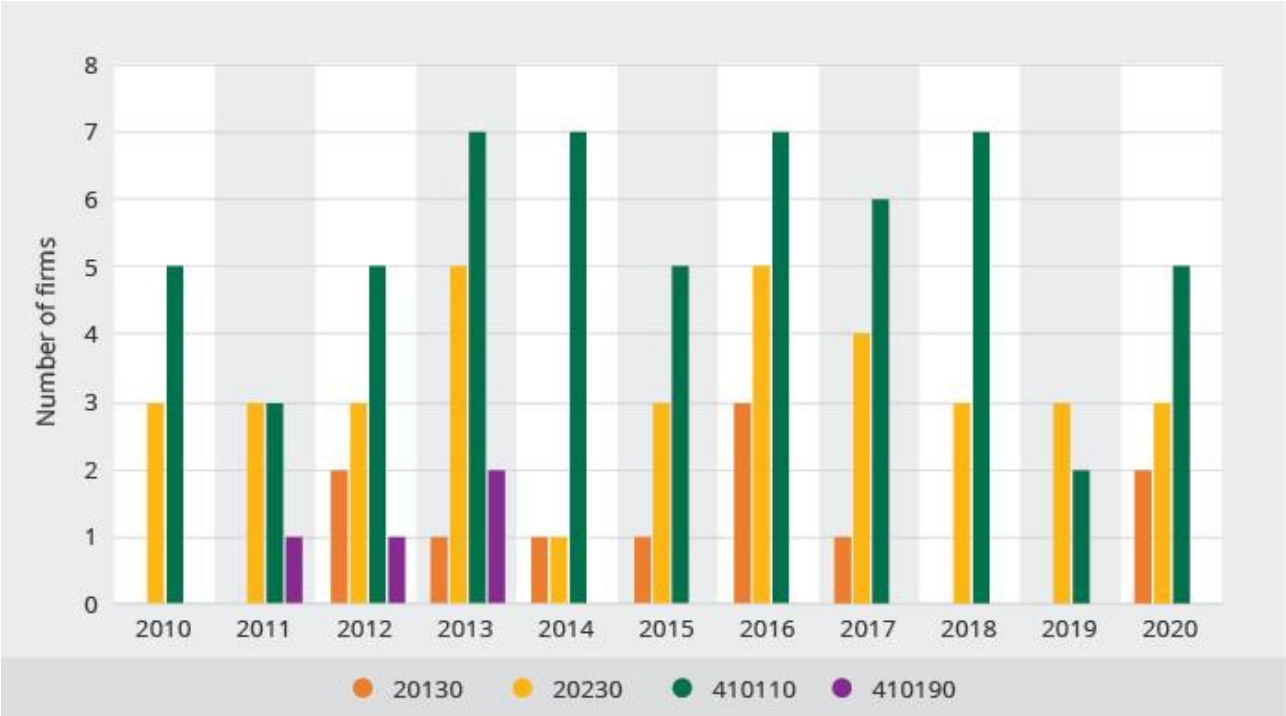



Source: Authors' own calculation based on Uganda Revenue Authority (URA) customs data.

Most firms which export beef and hides and skins in the customs data also import these products into Uganda. Figure 8 reports the number of importing firms by product over the period 2010–2020. There are, on average, 2.6 beef and 5 hides and skins importing firms per year.

[15] A major limitation to this analysis is that some consignments are missing TINs due to incorrectly filled paperwork or data management issues. While this is not a significant problem at an aggregate level, it is a concern within some product categories. However, in the case of fresh and frozen beef exports, around 70 percent and 80 percent of exports by value do have a TIN recorded, respectively. This share is higher in the case of hides and skins, i.e. around 95 percent. See Table A4 in Annex 1.

**Figure 8. Number of importers by product, 2010–2020**




Source: Authors' own calculation based on Uganda Revenue Authority (URA) customs data.

Figures A1–A4 in the Annex provide a visual representation of the market concentration in each product category and trade regime. Each graph shows the trade volume for a given product category and regime over time, disaggregated by the firm responsible for each consignment. Since the customs data are anonymised, each firm is randomly assigned a colour for each chart and trade volumes without a TIN are represented in dark blue.[16]

Finally, from customs data, we are also able to identify other exported and imported products by these firms. Table 16 presents the share of meat and livestock exports and imports, by beef-exporting firms across the eleven years we have customs data for. There is significant product diversification among beef exporters – the share of live cattle exported by the same firms (23.6 percent) far outstrips that of fresh and frozen beef exports (8 percent), and the share of live and slaughtered chicken exported by these firms far exceeds their trade in beef and cattle.

[16] Except for the missing TIN trade flows, firm/colour combinations are not consistent across charts.

**Table 16. Product share of exports and imports by beef-exporting firms, 2010–2020**

| Product category | Export share | Import share |
|---|---|---|
| Live horses, asses, mules and hinnies | 0.97 | 0.00 |
| Live bovine animals | 23.60 | 9.70 |
| Live swine | 0.00 | 1.21 |
| Live sheep and goats | 1.46 | 0.00 |
| Live poultry | 36.25 | 20.00 |
| Other live animals | 0.24 | 0.00 |
| Fresh or chilled beef | 3.41 | 0.00 |
| Frozen beef | 4.87 | 0.00 |
| Meat of swine | 1.95 | 13.33 |
| Meat of sheep and goats | 0.97 | 1.21 |
| Meat of horses, asses mules and hinnies | 0.24 | 0.00 |
| Offal - bovine animals, swine, sheep, goats, horses, mules, asses and hinnies | 13.63 | 0.00 |
| Meat and offal of poultry | 9.00 | 13.33 |
| Other meat and offal | 0.49 | 0.00 |
| Preserved meats | 2.92 | 41.21 |

Source: Authors' own calculation based on Uganda Revenue Authority (URA) customs data.

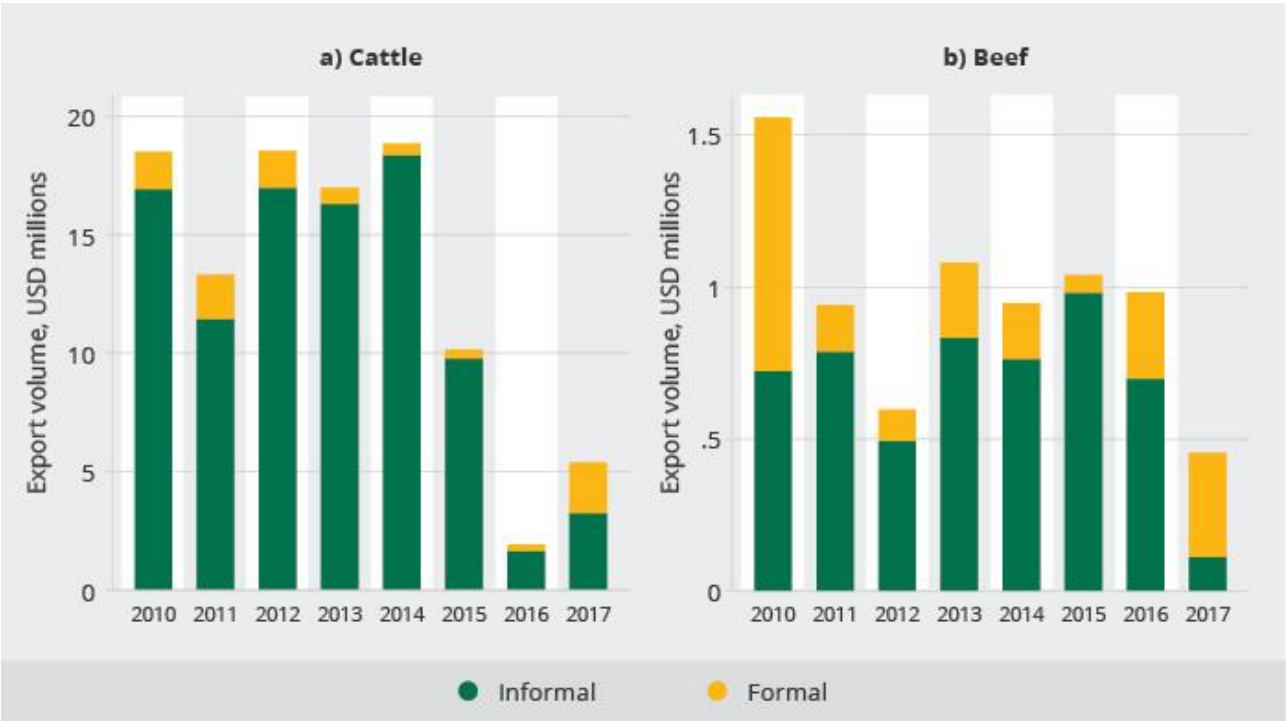
# 6. Informal trade

Finally, this section analyses the importance of informal trade in the sector. The informal cross-border trade data (henceforth 'ICBT data') come from a survey conducted by Uganda Bureau of Statistics in partnership with the Bank of Uganda to establish the volume and value of informal trade flows between Uganda and neighbouring countries (Kenya, Rwanda, the Democratic Republic of the Congo, Burundi, the United Republic of Tanzania and South Sudan). In the context of this dataset, 'informal' means that shipments of goods are either not recorded by customs authorities at all, or are under-declared. These data span from 2010 to 2017.[17]

In contrast to formal trade, informal shipments are usually carried across borders by foot, bicycle, car, motorcycle or on the backs of livestock. As a result, the average value of shipments in the informal trade data is much lower – the mean value of a shipment of beef for export is USD 4 600 in the ICBT data, compared to USD 12 800 in the formal customs data.[18] While the value of each informal transaction is often low, these trade flows represent a significant volume of Uganda's exports. Official estimates suggest informal exports account for around 15 percent of Uganda's total export volume (BoU, 2020). Within the East Africa region, however, informal exports to neighbouring countries comprise around 40 percent of formal exports to the same destination (Rauschendorfer and Shepherd, 2020).

Ugandan livestock exports generate around USD 20 million per year in export earnings. Cattle is the single largest category within the livestock trade, accounting for more than 50 percent of the total volume of that product category. The export market for Ugandan meat products is much smaller than livestock – in total, slaughtered meat generates only USD 3 million per year in export revenue. Beef represents around 30 percent of this volume. Figure 9 shows the composition of cattle and beef exports over the period for which we have data, i.e. 2010–2017, for both informal and formal trade.[19]

**Figure 9. Cattle and beef export volumes, 2010–2017**

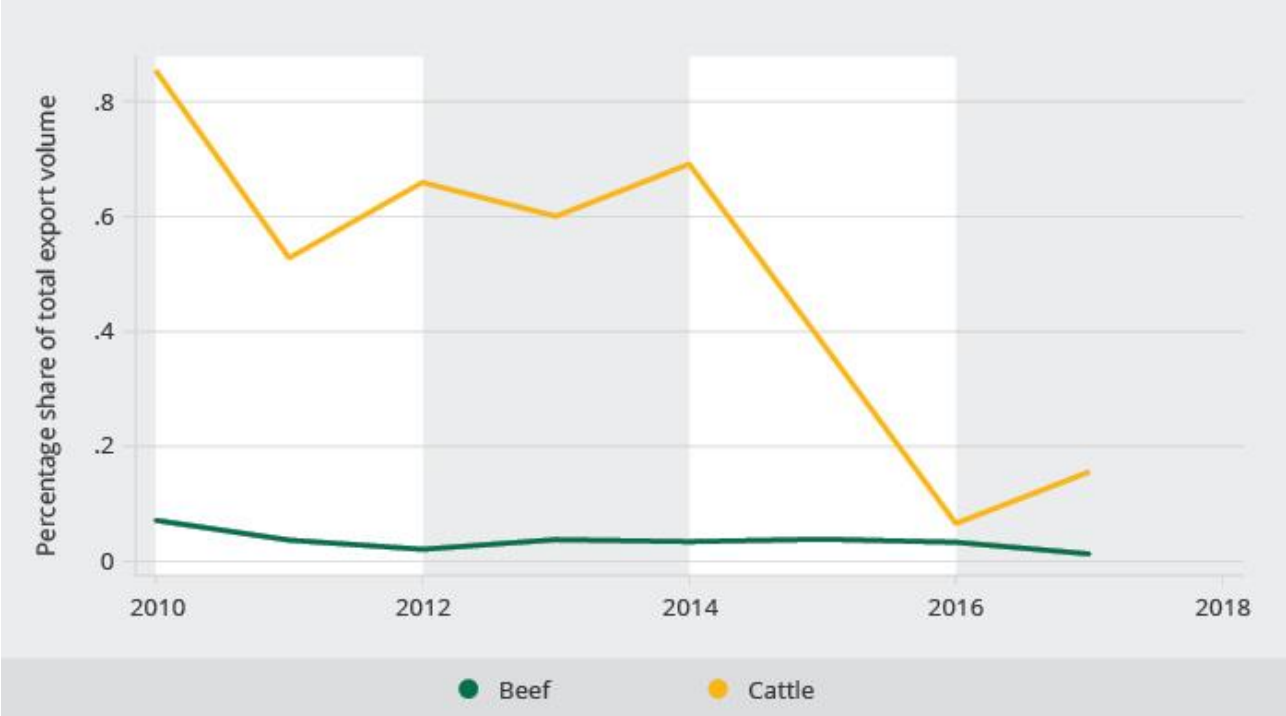



Source: Authors' own calculation based on Uganda Revenue Authority (URA) customs data.

[17] Informal trade values and volumes are collected by enumerators stationed at around twenty key border posts for two weeks per month, and uprated to generate monthly trade flows. Copies of the ICBT survey instruments are provided in the Annex 1.
[18] The *median* beef export is USD 280 in the ICBT data, compared to USD 1 990 in the formal customs data.
[19] By contrast, trade in hides and skins occurs overwhelmingly through formal channels. The ICBT data does not disaggregate the hides and skins category by animal (so it is impossible to distinguish hides and skins of cattle from sheep, for example) – but informally-exported hides and skins between 2010 and 2017 accounted for less than 0.1 percent of the total value of Uganda's hides and skins exports.

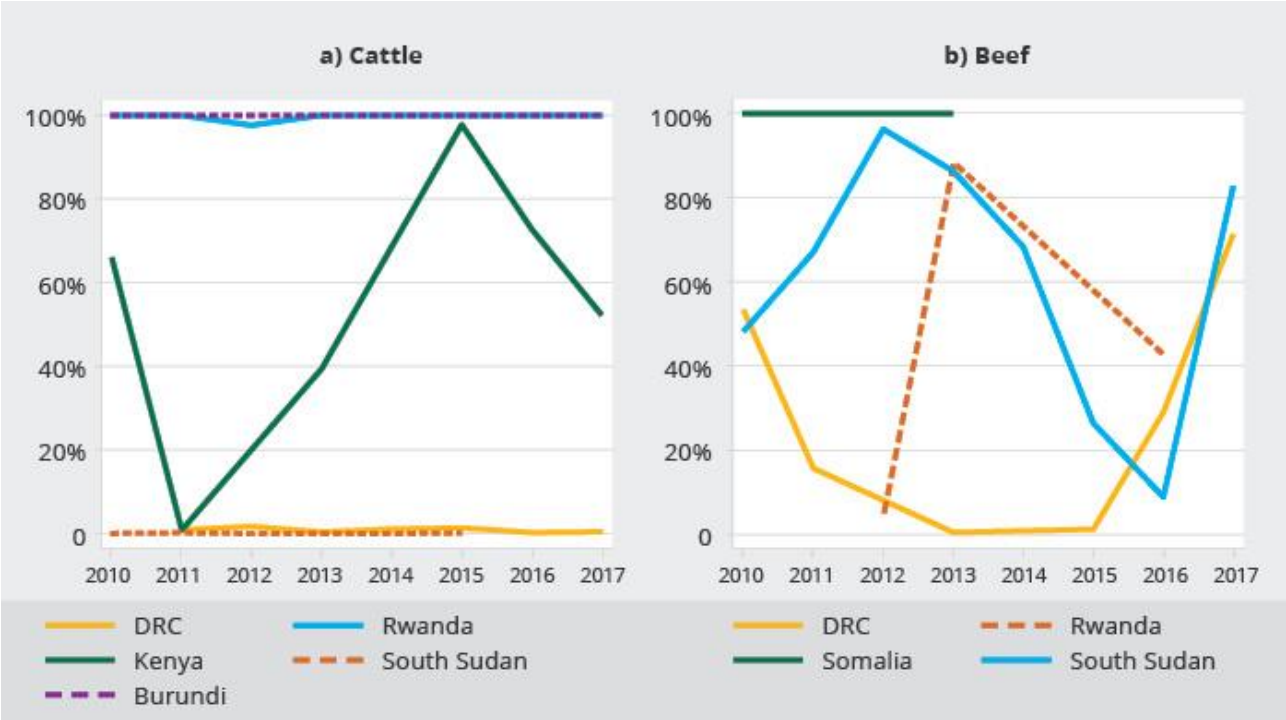
To contextualise these trade volumes, in 2017 the total value of Uganda's exports (both formal and informal) was USD 3.5 billion (BoU, 2021). Figure 10 shows the share of total exports attributed to the sum of formal and informal cattle and beef exports over the period 2010-2017. Despite a decline in recent years, live cattle once accounted for almost 1 percent of Uganda's total export volume. Beef has remained relatively stable at just below 0.1 percent of total exports.

**Figure 10. Percentage share of total export volume for beef and cattle, 2010–2017**




Source: Bank of Uganda, 2021. Informal Cross Border Trade. Kampala. Cited 1 December 2021. www.bou.or.ug/bou/bouwebsite/Statistics/Reports/ICBT.html

**Figure 11. Share of cattle and beef exports through informal channels by trading partner, 2010–2017**




Source: Bank of Uganda, 2021. Informal Cross Border Trade. Kampala. Cited 1 December 2021. www.bou.or.ug/bou/bouwebsite/Statistics/Reports/ICBT.html

Trade with individual trading partners differs considerably with respect to the degree of formality of Ugandan beef and cattle exports (Figure 11). For example, the vast majority of cattle exports to Burundi clear customs formally, while cattle exports to South Sudan are overwhelmingly informal, mainly through the Oraba and Elegu ports. Trade agreements may have some role to play in determining the formality of trade with different trading partners – in the absence of trade agreements, high tariffs increase incentives for evasion at customs. Through the East African Community Customs Union, no tariffs are applied on Ugandan imports into the United Republic of Tanzania, Kenya, Rwanda, Burundi. South Sudan only joined the EAC in 2016, which may explain why the vast majority of cattle and beef exports to South Sudan in the data are informal. Through the Common Market for Eastern and Southern Africa, Uganda enjoys free trade with the Democratic Republic of the Congo and (since 2018) Somalia.

As all consignments clearing customs formally are weighed, and ICBT enumerators estimate weights of informally traded goods, it is possible to calculate the implied price per kilogram of beef exports. Table 17 shows the average price per kilogram of beef, disaggregated by trading partner and by whether the exports cleared customs formally.[20] Firstly, we can notice that, as expected, formal prices are about twice as large as informal prices in each destination. Secondly, the Sudan seems to be the market in which both formal and informal prices are the highest, although this is likely to be the result of the South Sudanese Civil War spreading to Equatoria region (see Rauschendorfer and Shepherd, 2020).

[20] There is a considerable amount of misreporting and data entry errors in the customs data on net weights, so these implied prices are more accurate where the total value of trade is larger.

**Table 17. Implied price per kilogram of beef exports by trading partner and formality**

| Trading partner | Informal – price per kg | Formal – price per kg |
|---|---|---|
| Burundi | $2.76 | |
| Democratic Republic of the Congo | $2.54 | $6.30 |
| Kenya | $2.21 | |
| Rwanda | $2.32 | $4.15 |
| Sudan | $3.04 | $6.67 |
| United Republic of Tanzania | $2.31 | $4.21 |

Sources: Bank of Uganda, 2021. Informal Cross Border Trade. Kampala. Cited 1 December 2021. www.bou.or.ug/bou/bouwebsite/Statistics/Reports/ICBT.html and authors' own calculation based on Uganda Revenue Authority (URA) customs data.

Overall, these results highlight the need to incentivize trade formalization through, for instance, regulatory and fiscal incentives.

# 7. Conclusions and policy implications

This study provides an analysis of beef export competitiveness and diversification in Uganda. To this end, we produced several analyses which have suggested that market diversification and synchronization with international demand will be critical for sustainable export growth and orientation towards a more internationally competitive agrifood sector.

More specifically, the main findings of the analysis showed that, while there is ample scope for market diversification of beef and hides and skins exports, when assessing new potential destination markets, it is highly recommended to look not only at the import dynamics but also at the regulatory requirements imposed by the importing countries. Moreover, market concentration is very high when we only consider formal trade, but there is a lot of lower-value informal trade happening. Therefore, there is the need to support smaller informal traders to grow and integrate into the formal export market - e.g. by reducing trade costs, mainly NTMS but also tariffs.

Building on these findings and analysis, the following value-chain-specific policy recommendations can contribute to advance the objectives of export competitiveness and diversification.

## 7.1. Fresh beef (HS 020130)

Findings indicate that the gradual decrease of Uganda's fresh beef export market shares is driven by sector performance and supply-side factors. Although Uganda's exports are not oriented towards the most dynamic import markets, such as Uruguay, China or Israel, those will remain virtually out-of-reach given the high perishability of the product. Therefore, recommendations focus on addressing the factors contributing to the under-performance of the sector to consolidate and further develop existing flows towards neighbouring markets (e.g. the Sudan, Democratic Republic of Congo).

Policy recommendations focus on addressing two limiting factors: the prevalence of Food-and-Mouth Disease (FMD); the importance of informal trade.

Accelerate progress towards achieving the FMD-free zone status:

1. Disease-and-Mouth Disease (FMD), a severe and highly contagious disease, has significant economic impact on the livestock sector as it causes production losses with weakened, debilitated cattle heads as well as disruptions of the regional and international trade in animals and animal products.[21] Since it was first reported in the country in 1953, FMD remains endemic in Uganda (Velazquez-Salinas *et al.* 2020). With the support of the World Organisation for Animal Health (WOAH) and other technical partners, Uganda is currently at Stage 2 along the Progressive Control Pathway for FMD control (PCP-FMD), and its objective is to reach Stage 5 and eligibility for application to the FMD-free status by 2025. Progress along the PCP-FMD is constrained by several factors including inadequate resources to procure imported vaccines and FMD drugs, limited capacity of veterinary laboratory services, insufficient awareness on livestock disease control among value chain participants, and uncontrolled movements of susceptible wildlife species across borders. Recommendations focus on mobilizing and prioritizing financial resources, including donor support, to sustain FMD surveillance, control and vaccination, enforcing stricter control on wildlife and cattle border movements and quality control of FMD vaccines and drugs distributed in the country, and promoting FMD control awareness among value chain participants.

Formalize existing trade flows:

2) Estimates indicate that informal cross-border trade (ICBT) represents a non-negligible share of Uganda's fresh beef exports. Trade flows with immediate neighbours are particularly prone to being un-declared or not declared at all to customs authorities. While ICBT creates income and employment opportunities, bringing informal traders into the formal economy allows for a more secure and predictable operating environment, and with prospects for greater trade volumes and higher incomes. Formalizing ICBT can also increase Government revenue. A first set of recommendations focuses on reviewing customs and administrative procedures to simplify those considered most cumbersome, lengthy and complex by informal traders, and facilitate compliance with formal business registration and trade consignment clearance. For instance, the Single Window Information for Trade (SWIFT) project in Rwanda, through the automation of both internal and external processes and workflows, is estimated to have a large impact on time and cost savings for local producers seeking test results

[21] https://www.woah.org/en/disease/foot-and-mouth-disease/

and certification as they will be delivered electronically in reduced time durations. Another set of recommendations focuses on incentivizing formalization by providing specific business-support services to compliant firm. For instance, skills development and training, marketing services, subsidies to support cost of compliance with applicable norms and standards, export credit guarantee, and one-stop shops help producers to register for taxes can be provided cost-effectively.

## 7.2. Frozen beef (HS 020230)

Findings indicate that the gradual decrease of Uganda's frozen beef export market shares is driven by the declining attractiveness of the foreign markets predominantly served by Ugandan exporters (Democratic Republic of Congo, the Sudan and Vietnam). Therefore, recommendations focus on enabling Uganda exporters to serve foreign markets that are comparatively more dynamic, such as China, Myanmar, Iraq, United Arab Emirates and Thailand.

Policy recommendations are two-fold: facilitate Ugandan exporters' compliance with Non-Trade Measures and private standards in the targeted markets; facilitate trade and business relations between Uganda exporters and potential buyers in the targeted markets.

1) Facilitate compliance with NTM and private standards in targeted foreign markets:

   Compliance with Non-tariff measures (NTMs) and private sector standards can present major obstacles to trade. Clearing the procedural steps and bearing the cost of compliance can prove particularly challenging for micro, small and medium-sized enterprises (MSMEs). Government plays a critical role in developing the national quality infrastructure (NQI), the ecosystem of public and private institutions, the legal and regulatory frameworks and the practices that establish and implement standardization, accreditation, metrology, and conformity assessment (testing, inspection and certification) of products (Kellerman, 2019). To gain access to the most dynamic foreign markets, Ugandan exporters need to access accurate and up-to-date information about NTM requirements and applicable private standards specific to these markets, and they need to count on responsive, reliable and affordable conformity assessment services from public and/or private providers. A first set of recommendations consists in developing an NTM and private standards monitoring service to provide exporters with comprehensive information on applicable requirements (e.g. minimum quality and food safety standards) and related conformity assessment procedures (e.g. certification, testing, inspection) for the targeted markets. A second set of recommendations consists in assessing the capacity of Uganda's NQI to meet the needs of exporters seeking to serve the most dynamic foreign markets, identify capacity gaps, and address them. A third set of recommendations consists in helping exporters' bear the costs of conformity assessment through targeted subsidies (see above, Formalize existing flows).

2) Promote Ugandan exporters abroad:

   Re-orienting Ugandan exports towards new, more dynamic foreign markets requires developing and nurturing business relationships with potential buyers from these countries. The Government can support these objectives by organizing specialized trade fairs to introduce Ugandan suppliers and their products to visitors, supporting the participation of Ugandan exporters to trade missions and specialized trade fairs and exhibitions abroad (e.g. IFFA; Meat Pro Asia; Halal World Food), and mobilizing the Economic and Commercial Sections of its embassies and business-oriented members of the diaspora.

## 7.3. Hides and skins (HS 410110; HS 410190)

Findings indicate that the export performance of Uganda's hides and skins sector is mostly hampered by the fact that exporters predominantly serve less dynamic foreign markets (e.g. Pakistan), or relatively dynamic but small foreign markets (e.g. Rwanda). Therefore, recommendations focus on re-orienting Ugandan exports towards foreign markets that are comparatively more attractive. Uganda already exports non-negligible volumes to Italy, among the world's top importers of hides and skins, and other European Union markets offer attractive prospects for a diversification (e.g. Austria, Croatia, Greece, Netherlands, and Slovakia).

Policy recommendations are similar those for the frozen beef sub-sector (see above):

1) Compliance with Non-Trade Measures

Efforts should focus on facilitating the compliance of Ugandan exports with Non-Trade Measures and private standards applicable to skins and hides products in the targeted markets. They should also seek to develop trade and business relations with Ugandan exporters and potential buyers in the targeted markets, for example through the participation in specialized trade fairs (e.g. LINEAPELLE). Finally, current trade with leather product manufacturers, both long-standing (e.g. Italy, Pakistan, India) or emerging (e.g. Rwanda), indicates that Ugandan skins and hides meet the quality requirements demanded by the leather processing industry. In this context, and in concertation with private sector stakeholders, the Government could organize a formal consultation to explore the potential for manufacturing and exporting higher-value leather products (e.g. handbags, belts).

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# Annexes

## Annex 1. Tables and figures

**Table A1. Average price differentials for Ugandan imports vis-à-vis sub-Saharan African countries**

| | Dependent variable: log (Import price) | | | | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Treatment | **0.096** | **0.093** | **0.195**** | 0.103 | 0.149 | 0.214 |
| | (0.076) | (0.076) | (0.088) | (0.106) | (0.161) | (0.198) |
| Treatment*concentration | | | | **0.309**** | | |
| | | | | (0.139) | | |
| Treatment*key prods | | | | | **0.216**** | **0.168** |
| | | | | | (0.098) | (0.146) |
| Real effective ex-rate | | 0.010* | -0.071 | -0.070 | -0.074 | 0.756** |
| | | (0.005) | (0.200) | (0.201) | (0.203) | (0.324) |
| RTA | | 0.268 | 0.686*** | 0.651*** | 0.693*** | 0.390** |
| | | (0.220) | (0.197) | (0.199) | (0.195) | (0.179) |
| Common currency | | -0.012 | -2.055*** | -2.039*** | -2.058*** | -2.502*** |
| | | (0.252) | (0.153) | (0.152) | (0.152) | (0.256) |
| Distance | | 0.323*** | 0.667*** | 0.663*** | 0.668*** | 0.807*** |
| | | (0.056) | (0.095) | (0.094) | (0.095) | (0.168) |
| Sample | 6-digit commodities within HS4: 0201, 0202, 4101 | | | | | |
| Fes | Product-Time-Origin, ikt | | | | | |
| Reference | SSA | MEC | MEC | MEC | MEC | SSA |
| Observations | 3,461 | 3,461 | 792 | 792 | 792 | 792 |
| $R^2$ | 0.615 | 0.622 | 0.698 | 0.698 | 0.698 | 0.898 |
| **Price difference** | **10%** | **9.8%** | **21.5%** | **36.2%** | **24.1%** | **18.2%** |

Notes: Price is Unit Value expressed in logs. In column 1 to 2 the control group includes Sub-Saharan African countries, while in column 3 to column 6 the control group includes only the Uganda comparator countries from the World Bank Measuring Export Competitiveness database (MEC), this explains the difference in the number of observations. In column 6 regression is weighted using import values. Robust standard errors clustered by destination-year in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' own calculation based on Centre d'études prospectives et d'informations internationales (CEPII). 2021. Trade Unit Value database. Paris. Cited 6 December 2021. www.cepii.fr/CEPII/en/bdd_modele/bdd_modele_item.asp?id=37

**Table A2. Average price differentials for Ugandan imports vis-à-vis sub-Saharan African countries, by period**

| | Dependent variable: log (Import price) | | | | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Treatment*Year (2001-2009) | -0.155 | -0.070 | -0.153 | -0.077 | | |
| | (0.121) | (0.132) | (0.121) | (0.135) | | |
| Treatment* Year (2010-2014) | 0.155 | **0.330*** ** | 0.162 | **0.333*** ** | | |
| | (0.110) | (0.107) | (0.111) | (0.108) | | |
| Treatment* Year (2015-2019) | **0.248*** | 0.277 | **0.254*** | 0.275 | **0.216**** | **0.168** |
| | | | | | | |
| Treatment *Key Prods *Year | | | | | **0.050*** ** | **0.039*** |
| | | | | | (0.019) | (0.020) |
| Log(GDP) | | | -0.020 | -0.029 | -0.020 | -0.029 |
| | | | (0.021) | (0.059) | (0.021) | (0.058) |
| FEs | ikt | ikt | ikt | ikt | ikt | ikt |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes |
| Reference | SSA | MEC | SSA | MEC | SSA | MEC |
| Observations | 3,461 | 792 | 3,461 | 792 | 3,461 | 792 |
| $R^2$ | 0.622 | 0.699 | 0.622 | 0.699 | 0.622 | 0.699 |
| Price Difference | 28.2% | 39.1% | 28.9 | 39.5% | 5.2% | 4% |

Notes: Price is Unit Value expressed in log. Starting from column 3 to column 6 the regressions are weighted using the value of trade. In column 5 and column 6 the treatment dummy is also included among the controls. Robust standard errors clustered by destination-year in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' own calculation based on Centre d'études prospectives et d'informations internationales (CEPII). 2021. Trade Unit Value database. Paris. Cited 6 December 2021. www.cepii.fr/CEPII/en/bdd_modele/bdd_modele_item.asp?id=37

**Table A3. Variable definition and data sources**

| Variable | Description | Source |
|---|---|---|
| Exchange Rate | *Real effective exchange rate* | EQCHANGE, CEPII |
| RTA | Dummy variable for regional trade agreement in force between country-pair at time t. | Gravity database, CEPII |
| Tariffs | Applied Preferential and Most-Favoured nation tariff rates by 6-digit HS goods | WITS, World Bank |
| CommCurr | Dummy variable for common currency between country-pair at time t. | Gravity database, CEPII |
| Distance | Bilateral distance between capitals | Gravity database, CEPII |
| Unit Values | USD dollar per thousand kg | TUV database, CEPII |
| Unit Values, TCC | USD dollar per quantity unit | TCC custom authority |

Source: Authors' own elaboration.

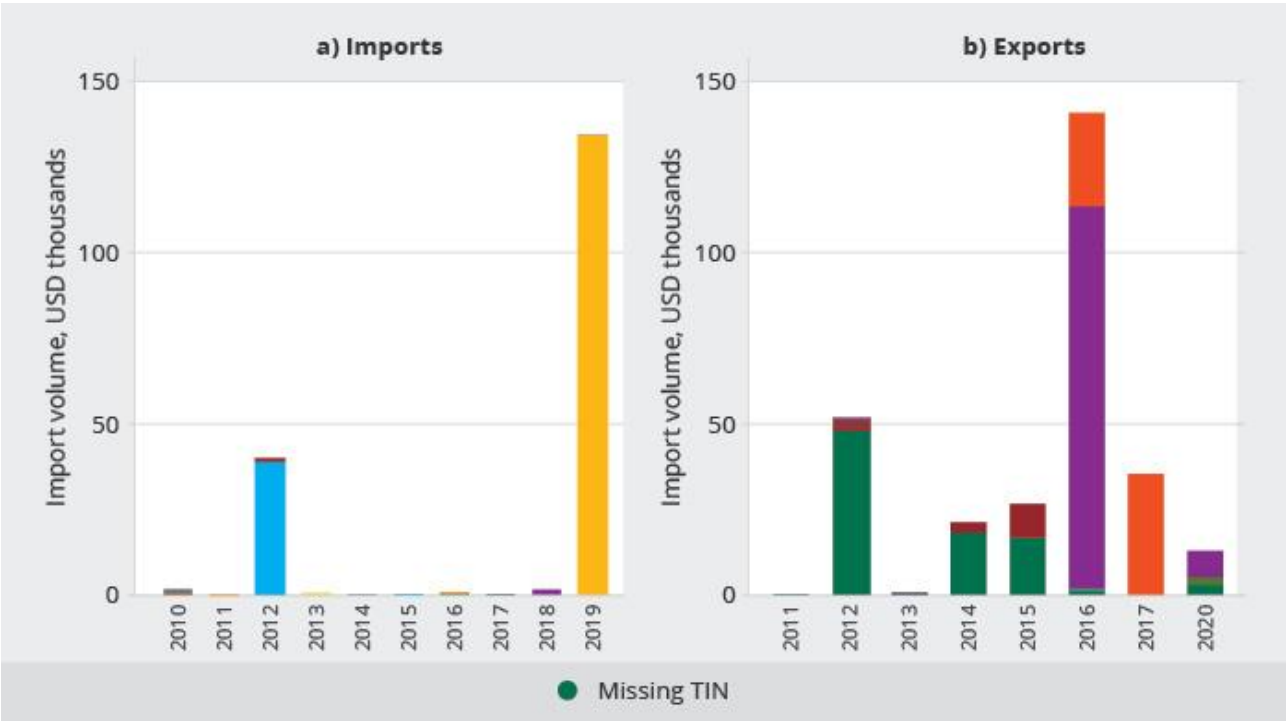
**Table A4. Share of trade volumes missing TINs**

| HS code | Imports | Exports |
|---|---|---|
| 020130 | 0% | 31% |
| 020230 | 1% | 19% |
| 410110* | 1% | 1% |
| 410190 | 1% | 10% |

Note: 410110 corresponds to 410120 'Raw cattle hides – whole'.

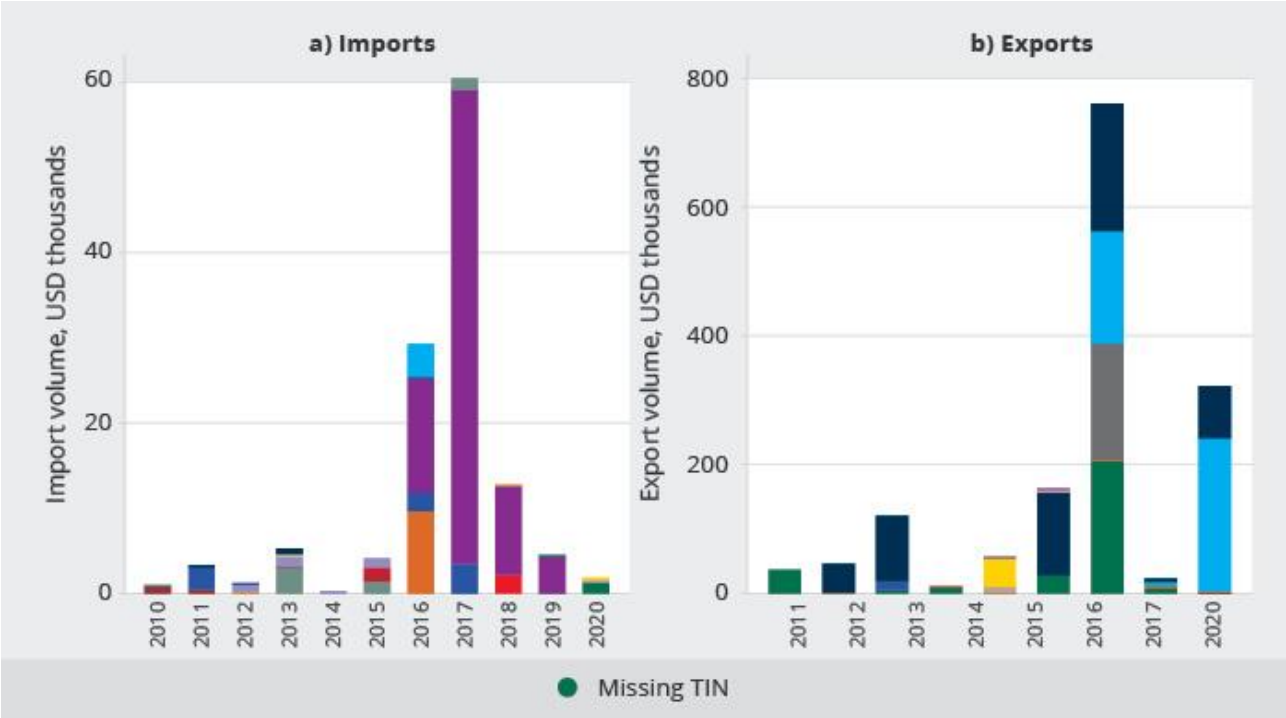
Source: Authors' own calculation based on Uganda Revenue Authority (URA) customs data.

**Figure A1. Firm-level trade volumes, fresh beef (HS 020130)**



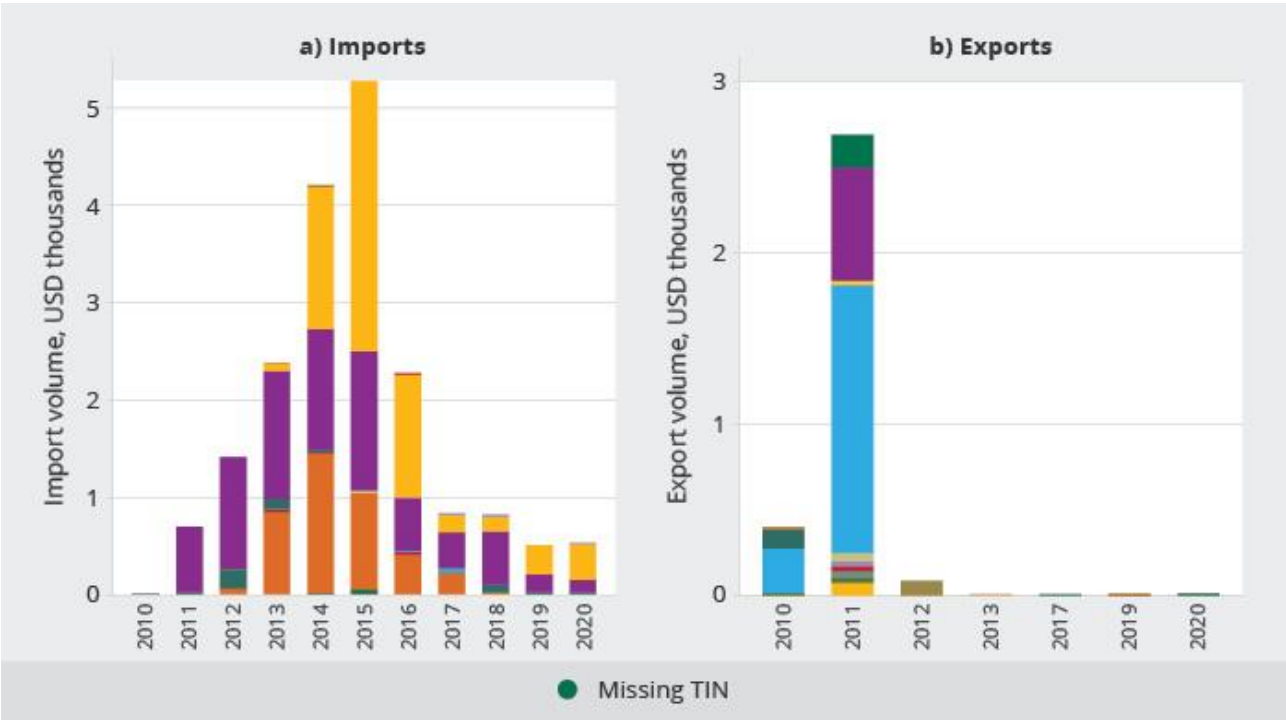

Source: Authors' own calculation based on Uganda Revenue Authority (URA) customs data.

**Figure A2. Firm-level trade volumes, frozen beef (HS 020230)**



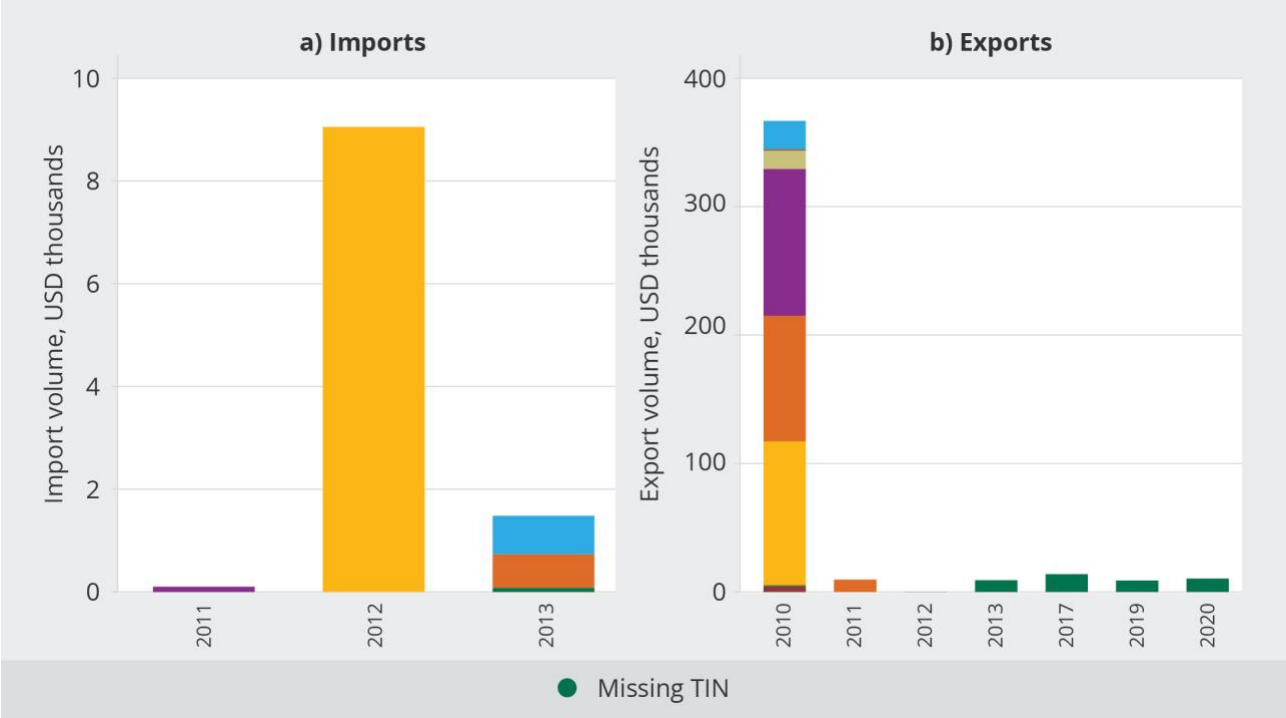

Source: Authors' own calculation based on Uganda Revenue Authority (URA) customs data.

**Figure A3. Firm-level trade volumes, hides (HS 400110)**




Source: Authors' own calculation based on Uganda Revenue Authority (URA) customs data.

**Figure A4. Firm-level trade volumes, skins (HS 401090)**




Source: Authors' own calculation based on Uganda Revenue Authority (URA) customs data.

## Annex 2. Methodology

**RCA-PR:** Proudman and Redding "RCA-PR" is defined as:

$$RCA - PR_{ik} = \frac{(x_{i,k}/\sum_{\mathrm{i}} x_{i,k})}{\frac{1}{\mathrm{N}}\sum_{\mathrm{k}}^{\mathrm{N}}(x_{i,k}/\sum_{\mathrm{i}} x_{i,k})}$$

The main advantage in using the RCA-PR definition is that it evaluates the export share of an economy i in product k with respect to the average market share of the same economy in all other products: a country will have a comparative advantage in product k if the ratio is higher than 1.[22] For any point in time the mean value of RCA-PR will be constant and equal to 1. In other words, RCA-PR is equivalent to a standard RCA normalized by its cross-sectional mean.

TBI: Trade Balance Index (TBI, also known as Lafay index23) is computed as follow:

$$TBI_{ik} = \left(x_{i,k} - m_{i,k}\right)/\left(x_{i,k} + m_{i,k}\right)$$

where $x_{i,k}$ represents exports and $m_{i,k}$ imports of country i in product k. The TBI index ranges from -1 to 1. A TBI < 0 means that a country is a net importer for goods k; whereas TBI>0 means that the country is net exporter. At the limit, a TBI of -1 indicates the country does not produce good k and that the domestic consumption relies entirely on import. On the other hand, a TBI of 1 indicates that the country is producing only for export.

Decomposing export growth: export growth rates decomposition is carried out using an econometric shift-share analysis, where in each quarter the growth of exports in product k from country i to destination j is regressed on exporter, product, and destination fixed effects. The contribution of each dimension is identified by the estimated fixed effects:

- Fixed Effect i: exporter specific factors
- Fixed Effect j: destination market factors
- Fixed Effect k: exporter industrial specialization

For any quarter in the estimation sample, the baseline specification for the decomposition reads as follow:

$$\Delta Exports_{ijk} = FE_i + FE_j + FE_k + \varepsilon_{ijk}$$

From the above decomposition, we derive the "adjusted market shares": a supply side measure of the contribution of country-specific factors to market share change (i.e. normalized FEi), plus two indexes on the relative contribution of geography (FEj) and industrial specialization (FEk) to a country export growth. For import growth, it is the same methodology defined above but applied to the import flows. For further details see Gaulier *et al.* (2013).

Competitiveness ladder position: The main advantage of the gravity model for trade is that it is very intuitive. "Using the metaphor of Newton's Law of Universal Gravitation, the gravity model of trade predicts that international trade (gravitational force) between two countries (objects) is directly proportional to the product of their sizes (masses) and inversely proportional to the trade frictions (the square of distance) between them" (Yotov *et al.* 2017).

Beyond that, the gravity model firmly grounds into economic theory as wide ranges of theories comply with the structural gravity assumptions. As highlighted in Head and Mayer (2014) both demand side and supply side model of trade imply as prediction a gravity type equation for bilateral trade flows.[24] Finally, when brought to the data the gravity model reveals a strong predictive power. Empirical gravity estimations prove to fit the observed data very well, consistently explaining between 60 and 90 percent of the observed variation (Yotov *et al.* 2017).

[22] See Carrère *et al.* (2014) for a recent application of RCA-PR.
[23] See Lafay (1992).
[24] Arkolakis *et al.* (2012) demonstrated that a large class of models generate isomorphic gravity equations.

Such features helped the gravity model to become the workhorse for empirical assessment of the determinant of bilateral trade flows over the past 50 years (Head and Mayer 2014). The typical structural gravity system is given by:

$$X_{ij} = \frac{Y_i E_j}{Y}\left(\frac{t_{ij}}{\Pi_i \mathrm{P}_j}\right)^{1-\sigma} \quad \text{(i)}$$

$$\Pi_i^{1-\sigma} = \sum_j \left(\frac{t_{ij}}{\mathrm{P}_j}\right)^{1-\sigma} \quad \text{(ii)}$$

$$\mathrm{P}_j^{1-\sigma} = \sum_i \left(\frac{t_{ij}}{\Pi_i}\right)^{1-\sigma} \quad \text{(iii)}$$

The system of equations (i)-(iii) describes the theoretical gravity equation for bilateral trade flows between country i and j, $X_{ij}$. Consistently with the original law of gravity it can be broken down into two main components: a "size" term $Y_i E_j / Y$ representing the economic mass of exporter i (output $Y_i$) and importer j (expenditure $E_j$) relative to the world output ($Y$);25 and a "friction" term, $\left(t_{ij}/\Pi_i \mathrm{P}_j\right)^{1-\sigma}$ covering all trade frictions between origin and destination. Finally, $\sigma$, represents the elasticity of substitution of varieties produced in different countries.

The term (2) and (3) represent the Multilateral Resistance Terms (MRTs), originally introduced by Anderson and van Wincoop (2003) and defined as theory consistent aggregators of the bilateral trade costs. By measuring the supply ($\Pi_i$) and the demand-side ($\mathrm{P}_j$) incidence of trade costs for a given economy across all its trade partners the MRTs also control for third country general equilibrium effects. We report the empirical counterpart of the Equation (i) in the main text.

Export relative price: for each 6-digit variety in the agrifood RCA basket exported by both Uganda and a competitor in a given destination market, we build a relative price index as weighted geometric average of relative unit values at 6-digit. The weights are given by the share of individual commodities in the total import of the destination country, ensuring that aggregation is not affected by changes of the export basket of the origin country. For a more in-depth presentation of the methodology see Fontagné *et al.* (2008).

$$RelPrices_k^j = \sum_{k=1}^{K} \frac{UV_{TCC,k}^j}{UV_{ref,k}^j} * w_{jk}$$

Import volume: to evaluate developments in relative demand for foreign varieties in Uganda we rely on a structural gravity decomposition of trade flows. In so doing, we start by estimating the following model:

$$log\left(Exports_{ijk,t}\right) = \delta_{ijk} + \delta_{ik,t} + \delta_{jk,t} + \beta \log\left(1 + Tariff_{ijk,t}\right) + \varepsilon_{ijk,t}$$

Where the term $Exports_{ijk,t}$ refers to the volume of exports from origin i towards destination j in year t for the 6-digit variety k. The Gravity Controls matrix includes variables aiming to capture country-pair trade frictions determined by: geography and history (as the -log- of bilateral distance, a dummy variable for common language, historical ties and common border); as well as trade policy such as a dummy variable for Regional trade agreement and the (log) of the applied $Tariff_{ijk,t}$ aiming to capture bilateral time-variant trade frictions (price shifter); $\delta_{ik,t}$ measuring the competitiveness of exporter i in variety k and year t (i.e. factory gate prices) and $\delta_{jk,t}$ capturing the demand components (such as preferences) at the destination market j. Importantly since $\hat{\delta}_{jk,t}$ is estimated controlling for both bilateral frictions (i.e. both time invariant – such as geography – and time variant -such as RTAs and $Tariff_{ijk,t}$ - components) as well as supplier competitiveness ($\delta_{ik,t}$) the demand component is purged from confounding factors coming either from geography, trade policy or exporter characteristics. Finally, $\varepsilon_{ijk,t}$ represents an idiosyncratic error term. The sample period covers two decades from 2000 to 2019 over 5-year intervals as estimating the model on consecutive years may results in biased coefficients as the adjustment of trade flows to policy (and price) changes are not instantaneous. Data wise, bilateral exports at 6-digit HS classification are from the BACI dataset (CEPII) whereas tariffs are from WITS database (World Bank, 2021).

[25] Intuitively the size term imply that large producers tend to export more to all markets whereas rich countries tend to import more from all suppliers.

Import price: we perform an empirical investigation of the Ugandan import patterns for key commodities by looking directly at the average price of the imported goods and the number of countries from which Ugandan firms source their imports (which we refer to as varieties for convenience). The estimated equation reads as follow:

$$y_{ijk,t} = \delta_{ik,t} + \beta_1 Uganda_{i=UGA,t} + \beta_s Controls_{ijk,t-1} + \varepsilon_{ijk,t}$$

Where $y_{ijk,t}$ is the log of the unit value imports of product k from exporter i in destination j; $Uganda$=1 if the destination of exports is Uganda (and zero otherwise). $\delta_{ik,t}$ is the fixed effect at the product-year-country of origin level. The vector of $Controls_{ijk,t-1}$ includes bilateral distance in logs (to proxy for transport costs), relative effective exchange rate vis à vis trading partners (controlling for purchase power), a dummy for regional trade agreement and a dummy for common currency (as proxy for trade and monetary policy). Time varying controls are lagged one year to mitigate simultaneity bias. Furthermore, given the presence of $\delta_{ik,t}$ fixed effects, the estimated coefficient for the exchange rate is capturing the effect of bilateral exchange rate differentials by country-pair over time.

As dependent variable, $y_{ijk,t}$, we use the import price in log, so that the estimate of $\beta$ can be read as the expected % difference in the price of a variety being imported in Uganda with respect to the same variety (where variety is defined by the commodity-supplier pair) being imported in another Sub-Saharan Low-income country (SSA benchmark) or in another comparable economy (as defined by the Measuring Export Competitiveness algorithm, MEC benchmark). Notice that the estimation sample does not include other destinations than the selected benchmarks.

The standard errors of the coefficients for all estimations are clustered at the destination country - time level. This structure concedes the unit values of imported products to be correlated within a destination country and year. This is the case, for example, whenever import prices are sensible to that country's general regulation.

Finally, to control for possible measurement error in quantities and thus in unit values we estimate Equation (7) also with weighted least square, where weights are proportional to the value of a country imports of product k in period t.

## MONITORING AND ANALYSING FOOD AND AGRICULTURAL POLICIES [MAFAP]

The Monitoring and Analysing Food and Agricultural Policies (MAFAP) programme seeks to establish country owned and sustainable systems to monitor, analyse, and reform food and agricultural policies to enable more effective, efficient and inclusive policy frameworks in a growing number of developing and emerging economies. It is funded by the Bill & Melinda Gates Foundation.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