

Final report

Rwandan coffee exports during COVID-19

Challenges and
opportunities for
increased resilience

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RWANDAN COFFEE EXPORTS DURING COVID-19¹

Challenges and opportunities for increased resilience

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Abstract

To analyse the impact of COVID-19 on Rwandan coffee sector, we conducted a phone survey of exporters between August and December 2020. In line with effects on international trade, we find that Rwandan coffee exports fell by 18.6% in 2019-20, mainly affecting domestic and less experienced exporters. However compared to coffee, the reduction in export earnings from non-traditional and services exports was substantially larger. The majority of surveyed exporters faced supply-side disruptions attributed to COVID-19 control measures like lockdowns and heightened checks at land borders. The relative resilience of the Rwandan coffee sector in the face of an unprecedented global health pandemic underscores the need for supply-side measures to help secure stable coffee export earnings in the short to medium-term.

¹ We are grateful to the support of NAEB senior management, Coffee Exporter Association and several conversations with the exporting firms for their insights. For excellent research support we thank Muhire Moses and Morjaria thanks IGC for funding support. All errors are our own.

Executive summary

COVID-19 took a severe toll on the Rwandan economy in the first half of 2020 then abated in the second half. The first half of the year was characterised by several countries entering COVID-19 lockdowns which impacted economic activity. Economies such as Rwanda's that rely on tourism and commodity exports were among the most affected in the early stages of the crisis. From July to September 2020, Rwanda's GDP growth dropped by 12.4% compared to the same period in 2019. The situation improved in the second half of 2020 as COVID-19 restrictions eased both in Rwanda and globally.

The implications of the COVID-19 crisis for the coffee sector is of great interest to the government, given its importance to the Rwandan economy. At the global level, the COVID-19 crisis severely affected global merchandise trade while coffee was not immediately affected. International coffee trade is typically transacted by forward contracting and rarely spot traded so temporary changes in demand would not affect trade immediately. However, the long-term implications for the coffee industry will depend on the pace of recovery of the global economy which will largely depend on the global vaccine rollout.

To understand the immediate implications of the COVID-19 crisis for the Rwandan coffee sector, the IGC surveyed coffee exporting firms between August and December 2020. The survey was conducted in collaboration with the National Exports Promotion Board and reached 74 percent of active exporters responsible for roughly 45% of total exports. Our survey aimed to oversample domestic firms likely to be vulnerable to shocks.

Our survey finds that coffee firms faced demand and supply side challenges in 2020 due to COVID-19 although aggregate export revenue was relatively stable. The surveyed exporters on average exported 33.5% less volume in 2020 relative to 2019. However, export statistics from the National Bank of Rwanda show that the average unit price of coffee exported rose in 2020 compared to 2019, resulting in a decline in the aggregate value exported by 18.5%. While the average quantity of coffee declined in 2020, multinational firms and older domestic firms were less affected. In addition to demand constraints, several coffee exporters reported being affected by supply-side bottlenecks like labour shortages and costly freight charges attributed to COVID-19.

Relatively stable coffee export revenue in 2020 reflects the broader resilience of traditional exports that are quintessential for global consumers compared to non-traditional and services exports. The value of Rwandan tea and 3T minerals exported from January to November 2020 declined by 1.9% and 17% respectively. By contrast, the decline in value of services exports (-46.3%) and non-traditional exports (-56.6%) was significantly larger. Resilience of Rwandan traditional exports in 2020 is consistent with the experience of other developing countries during past economic crises observed by (Nicita and Tumirchurur (2011)).

The findings underscore the need for Rwandan authorities to address COVID-19 supply disruptions and to guard against long-run global trends threatening global coffee

production so as to secure stable export earnings going forward. The majority of coffee exporters surveyed expect improvements to coffee orders and unit prices to improve in 2020/21. However, the pre-COVID-19 trend towards up and downstream consolidation in the coffee industry is expected to continue (Macchiavello and Morjaria (2021)). Given the importance of coffee for stable export earnings, securing these revenues would require tracking and addressing COVID-19 supply disruptions, improving farm-level productivity and raising the capacity of producers to meet the high quality standards of speciality coffee markets.

1. INTRODUCTION

The global economy in the second half of 2020 showed signs of recovery following the sharp downturn in the first half of the year due to COVID-19. The period between March and April 2020 saw several economies worldwide entering lockdown to stem the spread of COVID-19. As a result, global trade and industrial production from May to June 2020 plunged to -90% of its average during the same period in 2019² as international passenger travel also ground to a halt.

Timely and pragmatic interventions by Rwandan authorities have helped to stem the spread of COVID-19, but also impacted the domestic economy. Shortly after Rwanda's first COVID-19 case was discovered on March 15th 2020, the first lockdown was imposed, lasting from April 1st to May 1st. High frequency indicators indicate that impact on firms was substantial. In the second week of April, total turnover and transactions by VAT Registered companies had fallen by 46% and 77% respectively³. To alleviate the economic impact on firms, the Rwandan government implemented a range of measures including logistical, fiscal and monetary support.

Economies reliant on tourism and commodity exports, such as Rwanda, were among the most affected in the early stages of the crisis. From July to September 2020, Rwanda's GDP growth dropped by 12.4% compared to the same period in 2019⁴. Economic activity in Rwanda as well as globally picked up in the second half of 2020 as lockdowns were eased. The launch of COVID-19 vaccination in several advanced countries starting from November 2020 also contributed considerable optimism. But with the pandemic spreading and accelerating in some places, recovery to pre-pandemic conditions remains prone to setbacks until there is global vaccine rollout.

The COVID-19 crisis follows a period of rapid quality improvements to Rwandan coffee. The coffee C futures contract, listed on the NYSE, is the global benchmark for Arabica coffee. The average FOB price of Rwandan coffee relative to the C-price in the last decade has improved from average discount of 2.7 cents per pound before 2016 to parity with the C-price from

² IMF World Economic Outlook for October 2020

³ Government of Rwanda Economic Recovery Plan, June 2020.

⁴ The East African Newspaper, "Rwanda's GDP declines by 12.4% in the second quarter", 28th November 2020.

2016 onwards⁵. Some of this improvement can be attributed to quality upgrading witnessed in the production process in Rwanda. Since 2002 (when there were only a handful of washing stations) Rwanda was stuck in low volume-low quality cycle, however since then a strong and supporting regulatory authority and business friendly environment has helped to increase the number of mills to just over 300 this in turn has improved the share of the fully washed coffee exports from circa 30% of exports in 2010/11 to over 60% in 2018/19⁶.

However, extremely low world coffee prices occurring in the three years prior to the COVID-19 crisis has hindered higher revenue gains from quality upgrading. International coffee prices were broadly in decline from 2016 until 2019 as a bumper crop in Brazil and a depreciation of the Brazilian Real against the US Dollar increased supplies of Brazilian coffee on the world market⁷. The COVID-19 crisis that began in the first quarter of 2020 threatened further downward pressure on the coffee industry.

While COVID-19 has severely affected global merchandise trade, coffee was not immediately affected. Model based estimates from the WTO suggest that global merchandise trade in 2020 will fall by between 13% and 32% compared to the 2019 baseline under the mid-range scenario of a U-shaped economic recovery⁸. The leading explanation put forward for this decline is the contraction in demand for commodities as global industrial production slowed sharply in 2020Q2. By contrast, global coffee trade has been relatively less affected in the immediate aftermath of the pandemic. Between October 2019 and October 2020, world coffee exports fell by 4.9% while consumption fell by 0.9%⁹. Given that international trade in coffee is typically transacted by forward contracting, and rarely spot trading, temporary changes in demand would not affect trade in the short run. However, the long-term implications for the coffee industry will depend on the pace of recovery of the global economy.

A phone survey by the IGC covering over 70 percent of coffee exporting firms found that firms experienced both supply and demand constraints in 2020. The survey results show that coffee exporters in 2020 exported 33.5% less volume relative to 2019. Similarly, export statistics from the National Bank of Rwanda for January to November show a 33.9% reduction in volumes exported between 2019 and 2020. The fall in export quantity was compensated by higher unit prices of Rwandan coffee, resulting in a smaller decline in export values by 18.4%. While the impact of COVID-19 on coffee exports is believed to be significant, global market trends that started pre-COVID may have played a role. In addition to demand challenges, Rwandan coffee exporters faced supply-side bottlenecks attributed to COVID-19.

⁵ Authors' calculations based on data National Bank of Rwanda and the International Coffee Organization

⁶ Fully washed coffee commands a higher premium in international markets due to value addition steps that are undertaken both by washing stations and exporters (Macchiavello & Morjaria, 2015). Additional data source: NAEB annual reports: <http://NAEB.gov.rw>, accessed December 2020.]

⁷ Manwaring and Morjaria (2021): IGC Policy Brief: Understanding the impact of COVID-19 on Coffee Exports in Uganda, January 2021.

⁸ Brookings Institute: The Impact of the COVID-19 Crisis on Trade: Recent Evidence from East Africa.

⁹ International Coffee Organisation Coffee Market Report October 2020.

Most surveyed firms experienced labour shortages due to lockdowns, higher international freight costs and debt pressures. Nevertheless, some categories of firms were less affected. Specifically, multinationals and older domestic firms appeared to be more resilient in 2020.

While the government response to COVID-19 addresses firms' most pressing needs, the survey of coffee exporters suggests more opportunities for enhancing resilience. First implementing domestic sms-based reporting to address the outstanding COVID-19 bottlenecks, such as a transparent contact tracing infrastructure. Second, ensuring sustainable coffee production growth for stable export inflows through encouraging crop diversification and addressing low productivity. Third, continue enhancing and supporting coffee quality improvement initiatives in the Rwandan coffee sector. Fourth for NAEB to collaborate with RRA and MINECOFIN to investigate the tax-related concerns raised by coffee exporters.

2. SURVEY DESIGN AND SAMPLE SELECTION

The survey was designed as a census of all coffee exporting firms recognized by the National Agricultural Exports Board (NAEB). The survey was administered and executed by the authors in close collaboration with NAEB and the Association of Coffee Exporters and Processors. A list of 52 active coffee exporters was provided in July 2020 comprising firms of different ownership structures (vertically integrated, multinationals and domestic) . The timing of the survey, starting in August 2020, coincided with the end harvesting and the start of exporting procedures.

The survey covered 74 percent of active coffee exporting firms accounting for 45 percent of production. Out of the 52 firms, 19% were found to have closed permanently prior to the COVID-19 crisis, 60% accepted to be surveyed while 21% were unable to respond for various reasons. Nearly all domestic-owned firms were surveyed while half of internationally-owned firms were surveyed. Our survey aimed to oversample domestic firms likely to be vulnerable to shocks. In terms of production, the surveyed firms account for roughly 45% of total production. The distribution of surveyed firms is summarized in Table 1 in the Appendix. Interviews were conducted on phone to adhere with COVID-19 guidelines.

The surveyed exporters are representative of small and medium size firms and partially representative of large international firms. The average Rwandan coffee exporter is at least a decade old, over thrice the average age of firms across all sectors¹⁰. Our survey aimed to oversample domestic firms likely to be vulnerable to shocks and two prominent multinational firms to benchmark responses to a different organization form. The surveyed exporters almost exclusively specialize in exports of green coffee and no other product. The average share of total revenues from exporting coffee was over 66%. Majority of the survey firms were also involved in the entire domestic coffee supply chain by integrating backwards with

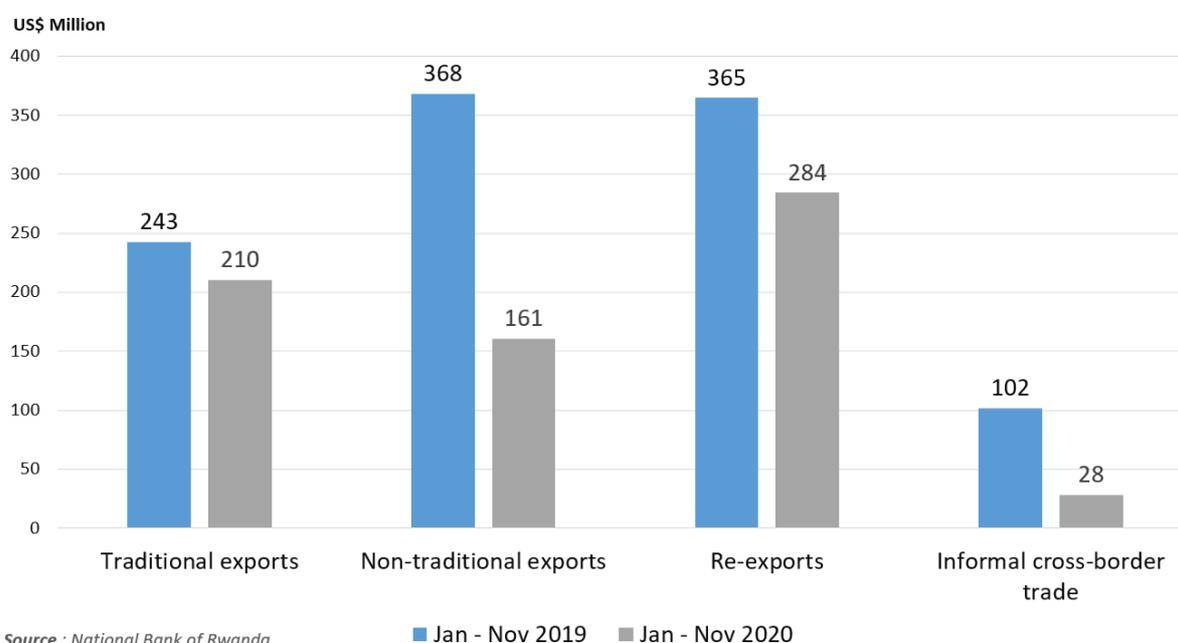
¹⁰ The average age of firms across all sectors was 2.58, according to the 2017 Rwanda Establishment Census.

washing stations (63%). In terms of exports, exporting firms on average exported 226Mt in 2020 compared to 340Mt in 2019. This equates to a reduction by 33.5%.

3. IMPACTS OF COVID-19 ON RWANDAN COFFEE EXPORTING FIRMS.

The international trade shock affected Rwandan goods and services exports but traditional and essential exports to global supply chains were relatively less affected. Total goods exports for January to November 2020 reduced by 18.2% to US\$ 1.1 billion relative to the same period in 2020. Among aggregate exports, traditional commodities were relatively less affected and reduced by 13%. By contrast, non-traditional and informal cross-border exports were the most affected, falling by more than half of the values in 2019 (FIGURE 1). Similarly services exports in the first three quarters of 2020 declined by 46.3% relative to the same period in 2019¹¹.

FIGURE 1: COVID-19 AND RWANDAN COMMODITY EXPORTS



While Rwandan coffee exports reduced between 2019 and 2020, it is difficult to accurately attribute the cause. Consistent with the survey finding above, official coffee export volumes were 33.9% lower in January to November 2020 relative to the same period in 2019 (FIGURE 2A). Whilst the impact of COVID-19 is likely to be significant, other demand and supply factors cannot be ruled out. For example, the oversupply of Arabica coffee from Brazil onto the world market that pushed global prices downwards starting in 2016 continued in 2020¹². The supply of cherries by smallholder farmers to washing stations has remained stable, approximately 80,600 tons in 2019 to 80,000 tons in the 2020 harvest season.¹³ The implied coffee supply

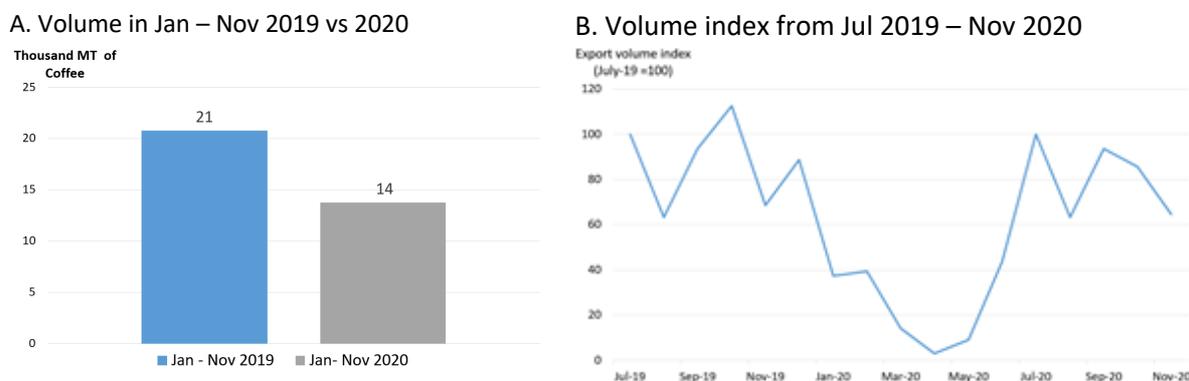
¹¹ National Bank of Rwanda Quarterly BOP statistics.

¹² International Coffee Organization, Monthly Coffee Report for October 2020.

¹³ Morjaria (2020): Governance in Agricultural Supply Chains: Evidence from Rwanda' Coffee Zoning Policy, Working Paper, Kellogg School of Management

inventory would typically be stored at designated warehouses within Rwanda until new coffee contracts can be executed and the logistics arranged.

FIGURE 2: RWANDA COFFEE EXPORTS IN 2019 AND 2020



Source: National Bank of Rwanda

Nevertheless, some types of exporting firms were more resilient in 2020. Tables 4 and 5 in the annex present analyses of firm level determinants of the change in exports between 2019 and 2020 as well as the likelihood of firms having a coffee contract cancelled in 2020. The analysis shows that an increase in a coffee exporting firm’s age by one standard deviation was associated with an increase in export volumes by 1.5% in 2020 relative to 2019, holding other relevant observable firm characteristics constant. Relatedly, a standard deviation increase in a firm’s age also reduced the likelihood of experiencing contract cancellation by 15%. By contrast, domestic exporters and cooperatives were less likely to experience export growth and more likely to experience contract cancellations in 2020. Surprisingly, the analysis shows that large firms were less likely to experience export growth and more likely to experience contract cancellation during the study period.

Supply bottlenecks related to COVID-19 persisted even after restrictions were eased. The survey shows that within the thirty days prior to being surveyed, over half of surveyed firms faced high costs of international freight and labour shortages attributed to COVID-19 related restrictions (FIGURE 2A). Labour mobility within Rwanda was restored on April 21, following a month-long nation-wide lockdown in which all non-essential travel was prohibited. Outside Rwanda, dwell times at border crossings and at Mombasa port dramatically increased between March and April 2020 due to increased pandemic surveillance¹⁴. However, regional initiatives like the TradeMark East Africa Safe Trade Emergency (STEF) programme helped to ease the movement of cargo along East African major trade corridors¹⁵. While these

¹⁴ Northern Corridor performance during COVID-19. Accessed from <http://www.ttcanc.org/reports.php>

¹⁵ STEF launched in June 2020 covering 12 countries in East and Southern Africa. Interventions included among others, providing safety equipment to border staff, deploying tracking applications and e-health passports for transporters. Accessed from <https://www.trademarka.com/download/57589/>

initiatives helped to ease COVID-19 bottlenecks, two thirds of the surveyed coffee firms perceived a significant increase in their operating costs (FIGURE 2B).

FIGURE 2A: BOTTLENECKS EXPERIENCED BY RWANDAN COFFEE FIRMS DURING COVID-19

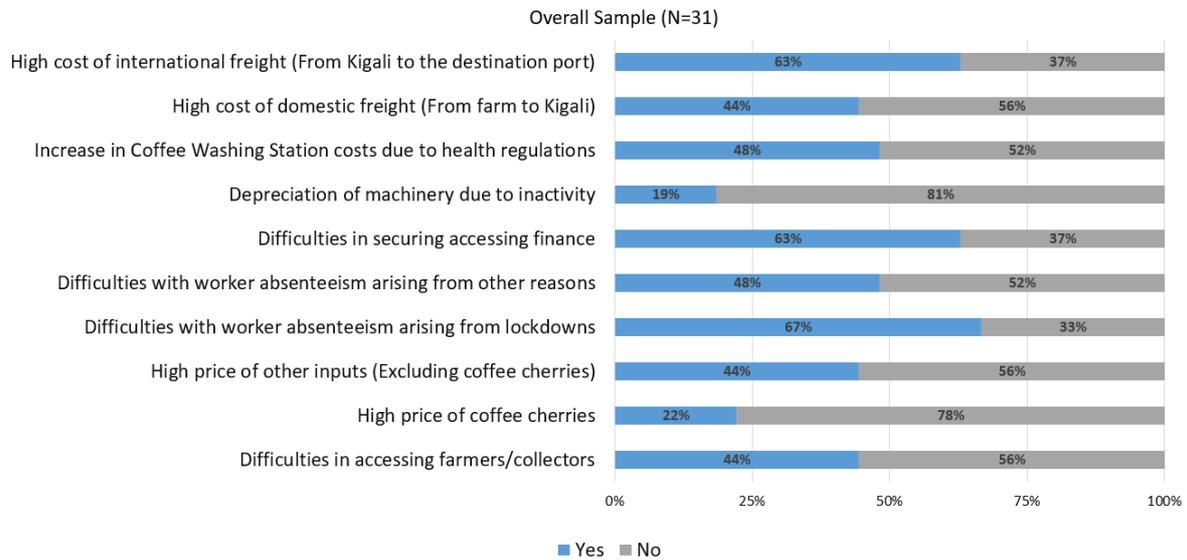
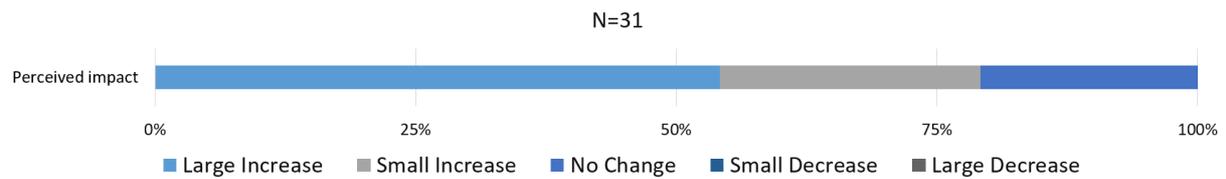
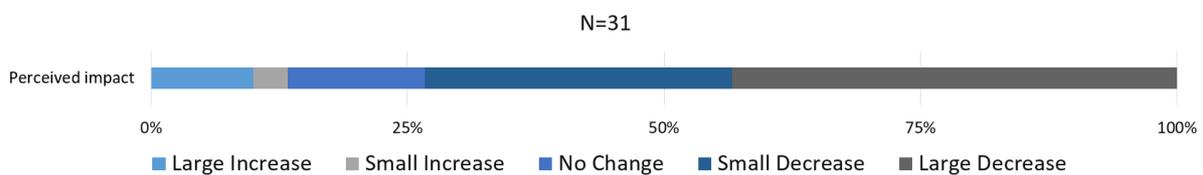


FIGURE 2B: PERCEIVED IMPACT OF COVID-19 ON OPERATING COSTS



The combination of demand and supply side constraints in 2020 put pressure on operating capital of coffee exporters. For the majority of firms surveyed, exporting coffee constitutes the main source of revenue. Therefore contraction in world coffee demand in the first half of 2020, though temporary, had implications for cash flow. Amongst the 24 surveyed firms with existing credit, over two thirds perceived a significant reduction in their ability to service their loans (Figure 3)

FIGURE 3: COVID-19 PERCEIVED IMPACT ON ABILITY TO SERVICE EXISTING LOANS



4. GOVERNMENT SUPPORT TO FIRMS DURING COVID-19

The Rwandan authorities responded early and pragmatically in the COVID crisis to alleviate the constraints faced by firms. Following the announcement of the first lockdown in March 2020, workers in sectors designated as essential such as health, agriculture were allowed

travel clearance. To help firms adhere with social distancing, the central bank undertook temporary measures to facilitate digital transactions including waiving transaction fees on bank, mobile money and point of sale transactions and raising the transaction limits on bank and mobile transactions. When most borders and international airports were closed, Rwandair shifted some of the excess capacity to exporting Rwandan cargo (Annex Table 3).

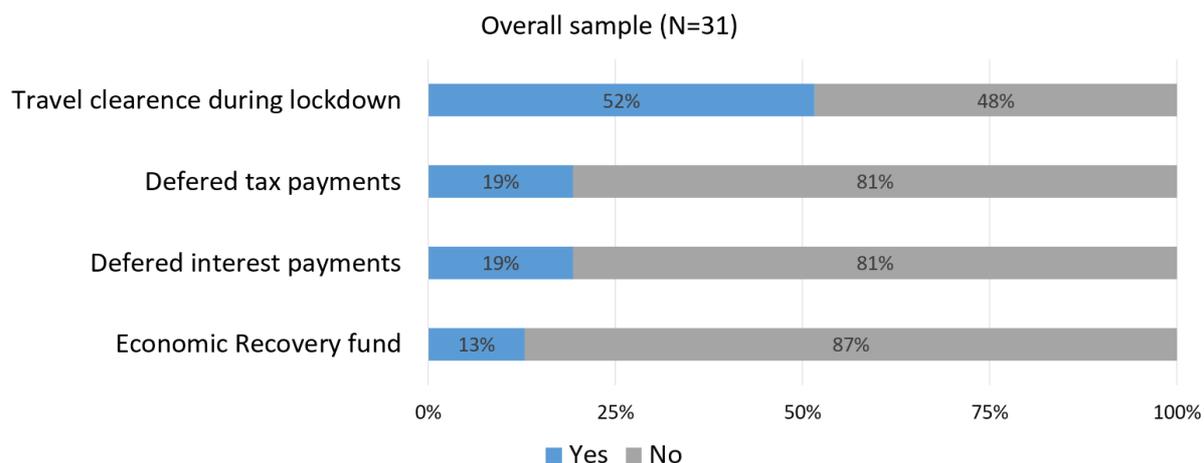
The government also adopted a range of fiscal and monetary measures to buffer firms' liquidity. The National Bank of Rwanda temporarily suspended interest payments on outstanding loans for impacted borrowers and allocated RWF 50 billion (0.5 percent of GDP) to commercial banks facing liquidity pressure. The government also adopted tax deferral and relief measures including suspension of payments on outstanding tax liabilities, softer enforcement of tax arrears collection and extension of the VAT / CIT deadline¹⁶. The government also launched a national economic recovery plan (ERP) covering the period from May 2020 to December 2021 equivalent to 3.3 percent of GDP¹⁷. One of the programmes under the ERP is the COVID-19 Fund to support affected business through subsidised loans from commercial banks and MFIs (Annex Table 3).

At the time of the survey more than half of coffee exporters reported least one form of support from the government. Majority of the surveyed firms accessed travel clearance during the lockdowns to process their coffee orders. Despite a significant number of firms reporting reduced capacity to service existing credit noted previously, less than 20% had their interest payments deferred. One likely explanation for the low uptake of interest payment deferrals was a concern over debt pressure that would arise at the end of the interest grace period. Amongst the firms that didn't take up any of the other support measures, the main reason advanced was a lack of awareness of the facility.

FIGURE 4: RWANDAN COFFEE EXPORT FIRMS ACCESSING COVID-19 SUPPORT MEASURES

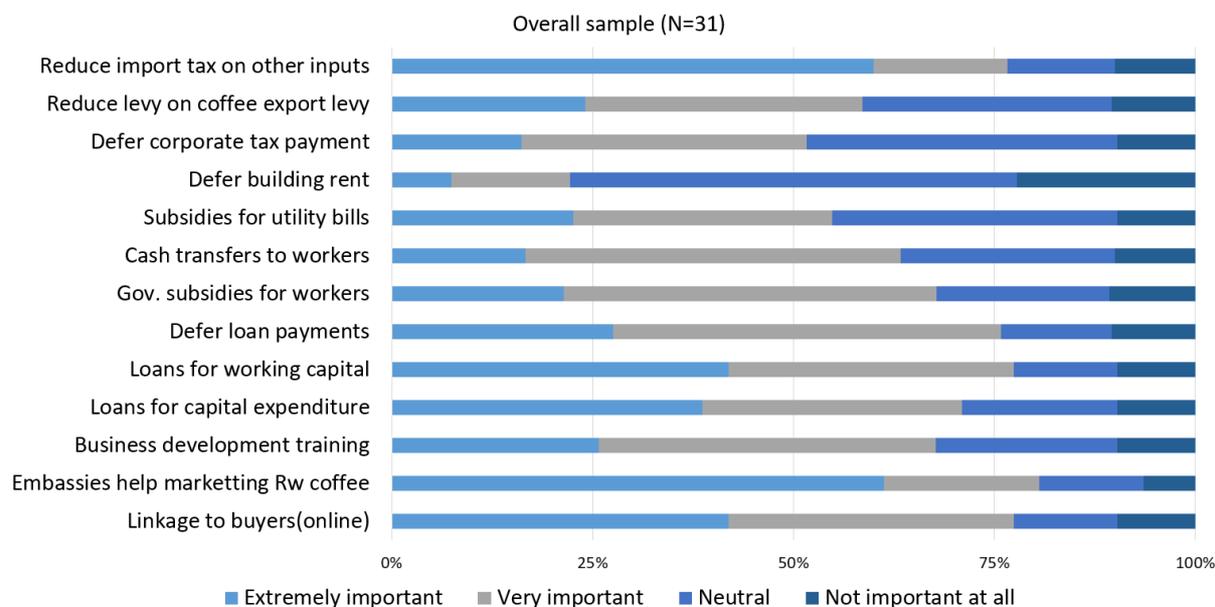
¹⁶ IMF COVID-19 policy tracker accessed from <https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19>

¹⁷ "Budget: Economic Recovery to Take Lion's Share" The NewTimes, May 20th 2020. Accessed from



In addition to existing measures, exporters expressed the need for other forms of support. When asked what type of support they would wish to receive the most widely cited policies are help with further promoting the Rwandan coffee brand abroad (60%) tax reduction for variable inputs like packaging materials (60%), and long-term credit to purchase capital equipment like coffee milling machines (40%) (FIGURE 5). Rwandan embassies the world over actively market the “Made in Rwanda ” products. Targeting coffee markets with the highest potential would increase further the brand awareness of Rwanda as a speciality coffee producer. With regards to tax relief for inputs, the Government of Rwanda currently has sufficient tax incentives to stimulate manufacturing and export-oriented industries including coffee. With regards to credit, several surveyed firms expressed an unmet demand for financing of capital equipment used in coffee processing.

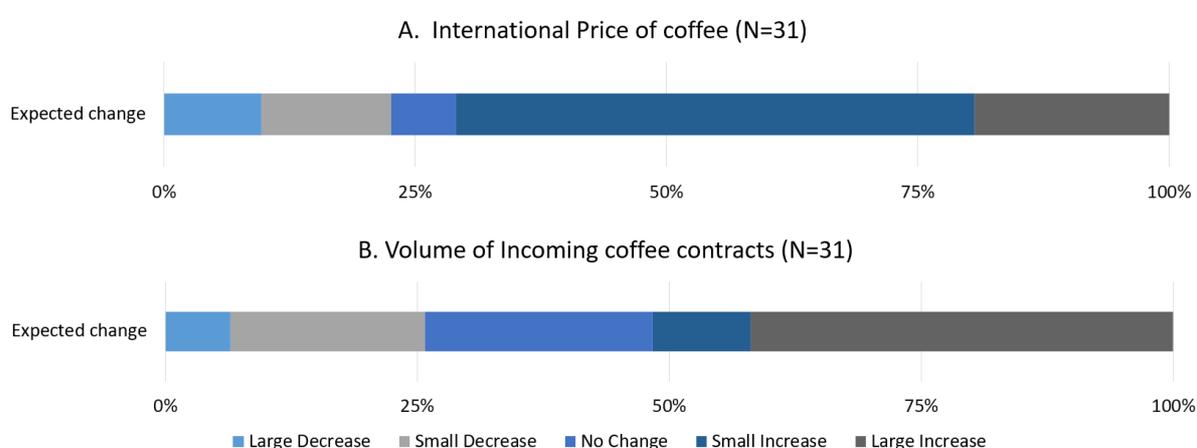
FIGURE 5: FIRM PREFERENCES FOR GOVERNMENT SUPPORT POLICIES



5. THE WAY FORWARD

Rwandan coffee exporting firms expect the export recovery that started in the second half of 2020 to continue in 2021. When asked about their expectations for the coming year, the majority of exporters expect the world coffee market trends observed in the second half of 2020 to continue into 2021 with improved orders at improved unit prices (FIGURE 6). As the pandemic continues to spread before global vaccination rollout, the uncertainty observed in 2020 is also likely to continue in 2021. The monthly benchmark price for Arabica coffee was more volatile in 2020, trading at within a 20 percent range in 2020 compared to 5 percent in 2019¹⁸.

FIGURE 6: EXPECTED COFFEE ORDER VOLUME AND UNIT INTERNATIONAL PRICE CHANGE IN 2021



The medium-term outlook for the world coffee market is broadly consistent with optimistic projections for the global economy. After a severe recession in 2020, the IMF World Economic Update for January 2021 expects a 5.5% Growth in 2021 and 4.2% in 2021¹⁹. The 2021 number is 0.3 percent higher than previously projected, and reflects stronger fiscal support in advanced countries and expectations of a vaccine-powered strengthening of activity later in the year. However this outlook is tempered by surging infections in late 2020 (including from new variants of the virus), renewed lockdowns, logistical problems with vaccine distribution, and uncertainty about take-up. An effective vaccine rollout campaign would enable a return to regular economic activity that would lift the demand for coffee.

However global coffee production faces the dual threat of low prices and climate change. The 2019 Coffee Sustainability report attributes the current low international coffee prices to consolidation at both ends of the value Chain (Sachs, 2019). The report also projects that climate change will undermine coffee productivity, especially in equatorial regions and also raise production costs for producers further.

¹⁸ World Bank monthly commodity prices (Pink Sheets).

¹⁹ IMF World Economic Outlook, January 2021 update accessed from <https://www.imf.org/en/Publications/WEO/Issues/2021/01/26/2021-world-economic-outlook-update>

6. POLICY RECOMMENDATIONS

While the medium-term outlook for the world coffee market is cautiously optimistic, the continued spread of COVID-19 suggests a high likelihood of set-backs before a return to pre-pandemic conditions. Based on the survey results and our insights and conversations with exporters the following recommendations can help to promote resilience during the COVID-19 crisis and broader coffee market fluctuations.

1. Implement a domestic SMS reporting system to help to address the outstanding COVID-related trade bottlenecks. While significant progress has been made, information from the surveyed firms indicates outstanding COVID-19-related bottlenecks that require the attention of decision makers. A first relates to the transportation of cargo from inland to East African ports. A second relates to availability for labour for harvesting and processing coffee. Implementing a domestic SMS reporting system for trade barriers to compliment existing regional platforms would identify and direct attention to the most persistent bottlenecks faced by Rwandan exporting firms. Further ensuring that within the country contact tracing infrastructure that allows hot spotting would ensure quick identification of constraints.

2. Ensure sustainable coffee production growth for stable export inflows. Traditional exports, like coffee in the case of Rwanda, have been shown to moderate the economic implications of economic crises for developing countries (Nicita & Tumirchurur (2011). Given that coffee is a leading commodity export for Rwanda, ensuring that coffee production adapts to climate change and price fluctuation should be a priority going forwards. The following options are proposed:

- a) **Encouraging crop diversification on coffee farms could prevent farmers from divesting from coffee.** The world coffee market has been subject to a sustained period of low international prices, discouraging producers from investing in coffee. Through crop diversification, Rwandan producers can spread production and income risk over a wider range of crops while generating agronomic benefits in terms of soil conservation and pest management. This would require research to devise a structured system of crop diversification compatible with coffee.
- b) **Address declining farm productivity of Rwandan coffee.** Data from the International Coffee organisation show a significant decline in production by 27.1% between 1992–1996 and 2015–2019. The 2017/18 NAEB annual report notes the existence of significant yield gaps in Rwanda’s coffee sector. The report indicates that opportunities for closing this gap lie in rehabilitating old coffee trees, improving agricultural practices and scaling up climate interventions in coffee.

3. Continue to assist on quality upgrading initiatives in the Rwandan coffee sector. As the global coffee industry becomes increasingly consolidated, meeting the quality standards of high-value consumers will be the way that Rwandan coffee can continue to be known as a speciality coffee producer. Past programmes in the Rwandan coffee sector like PEARL (2001-

2009) and SPREAD (2002-2010) were successful in building capacity at the grass root in coffee quality management.

4. NAEB should collaborate with RRA and MINICOM to investigate the concerns regarding the high taxes on inputs and providing additional financial instruments for the exporters, especially domestic firms. While coffee exporters complain that input taxes are high, the Rwandan tax code provides some relief for exporters primarily through exemptions for customs and VAT deductions. However, recent IGC research has identified a number of ways these incentives may not be implemented as intended, including misclassification of tariff rates assigned to goods (Frazer, 2017), slow process in obtaining tax refunds and (MINICOM, 2017) lack of awareness of existing incentives (Javorcick and Steenbergen, 2017). Collaboration with the RRA and MINICOM to address the high cost of inputs could improve productivity and competitiveness of Rwandan coffee.

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ANNEX

TABLE 1: DISTRIBUTION OF SURVEY SAMPLE BY SIZE OF EXPORTER

	Total	Less than 50Mt	50 Mt to 150 Mt	Greater than 150Mt
Interviewed	31	15	7	9
Closed	11	11	0	0
Non- response	10	7	1	2
Total	52	33	8	11

TABLE 2 : DESCRIPTIVES OF FIRM CHARACTERISTICS

Variable	Mean	Sd	N
Firm age	11.6	5.9	31
Non-cooperative	84.1%	0.4	31
Domestic	87.1%	0.3	31
Green coffee exported in 2019 (tons)	340.9	705.5	31
Green coffee exported in 2020 (tons)	226.6	597.8	31
Vertically integrated	61.3%	0.5	31
Exports roasted coffee	29.0%	0.5	31
Coffee exports % of total revenue	64.4%	0.4	31

TABLE 3: SELECTED GOVERNMENT ECONOMIC POLICY MEASURES IN RESPONSE TO COVID-19²⁰

Area	Measure	Institution
Tax	Deferral of VAT and turnover tax for 3 months	RRA
Tax	Temporary suspension of tax audits	RRA
Tax	Fast tracking tax refunds	RRA
Loan /Credit	Extended lending facility to commercial banks	BNR
Loan /Credit	Debt restructuring for firms in strategic sectors	MINECOFIN
Loan/Credit	Subsidized credit for eligible firms	MINECOFIN
Logistics	Domestic travel clearance for workers in sensitive sectors	MINICOM
Logistics	Transporting cargo on passenger planes	Rwandair
Advisory	Business development trainings for SMEs	RDB
Banking	Waiving fees on mobile and e-bank transactions	BNR
Banking	Raising limits on mobile and e-bank transactions	BNR

²⁰ The IGC COVID-19 policy response dashboard accessed from <https://www.theigc.org/covid-19/tracker/>

TABLE 4: FIRM-LEVEL DETERMINANTS OF CHANGE IN COFFEE EXPORT VOLUME BETWEEN 2019 AND 2020

	(1)	(2)	(3)	(4)
Dependent Variable: % change in exports between 2019 and 2020				
VARIABLES	Firm types	Firm size	Marketing strategy	Diversification
Firm age (Logs)	2.17 (1.34)	2.59** (1.24)	2.76** (1.10)	2.85** (1.25)
Cooperative dummy	-2.32 (2.51)	-2.28 (2.45)	-3.84 (2.78)	-4.55 (2.69)
Domestic owned dummy	-1.55 (1.27)	-3.37** (1.43)	-5.01** (2.33)	-6.22** (2.23)
Quantity exported in 2019 (logs)		-0.44*** (0.15)	-0.58*** (0.16)	-0.72*** (0.19)
Integrated with mill dummy			1.31 (1.60)	-0.68 (1.66)
Exports certified coffee dummy			-0.71 (1.76)	1.39 (2.20)
Exports roasted coffee dummy			-1.59 (1.75)	-1.95 (1.91)
Integrated * local owned			3.06 (2.15)	5.02* (2.42)
Coffee exports % of total revenue				4.51* (2.55)
Constant	-4.66* (2.47)	-3.20 (2.16)	-2.98 (2.53)	-5.96* (2.90)
Observations	31	31	31	31
R-squared	0.09	0.32	0.48	0.54

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, *

p<0.1

TABLE 5: FIRM-LEVEL DETERMINANTS OF CONTRACT CANCELATION BY GLOBALBUYERS IN 2020

	(1)	(2)	(3)	(4)
Dependent variable is a dummy variable = 1 if a coffee contract was cancelled in 2020				
VARIABLES	Firm types	Firm size	Marketing strategy	Diversification
Firm age (Logs)	-0.189 (0.133)	-0.222* (0.119)	-0.281** (0.127)	-0.29** (0.13)
Cooperative dummy	0.165 (0.288)	0.162 (0.270)	0.279 (0.308)	0.38 (0.27)
Domestic owned dummy	0.253 (0.247)	0.395 (0.253)	0.532** (0.220)	0.71*** (0.23)
Quantity exported in 2019 (logs)		0.035** (0.016)	0.039** (0.016)	0.06*** (0.01)
Integrated with mill dummy			0.495 (0.403)	0.79** (0.35)
Exports certified coffee dummy			-0.034 (0.209)	-0.34 (0.24)
Exports roasted coffee dummy			0.305 (0.201)	0.36* (0.19)
Integrated * domestic owned			-0.418 (0.443)	-0.70* (0.38)
Coffee exports % of total revenue				-0.66** (0.26)
Constant	0.597* (0.349)	0.483 (0.328)	0.348 (0.236)	0.78*** (0.28)
Observations	31	31	31	31
R-squared	0.076	0.211	0.313	0.44

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

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