ECONOMIC POLICY RESEARCH CENTRE

CASE STUDY 8
March 2019

COFFEE
AGRO-INDUSTRIALISATION

Uganda's coffee product space

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1. Industrial Production Structure of the Coffee Value Chain

Two coffee varieties produced in the country (Robusta and Arabica), define two retrospective flow pathways from the farm to the market in Ugandan coffee value chain from (Figure 1). Robusta coffee is mainly dry processed, and value is added by hulling unprocessed coffee to ungraded *Fair Average Quality clean Coffee (FAQ)*, and export of *graded clean green Robusta coffee*[1]. There are 433 primary processing factories located within the major Robusta coffee growing areas and about 36 export processing factories most of them operating at about 40% installed capacity. FAQ is sold to exporters by either farmers or owners of the primary processing factories (hullers). Exporters grade FAQ (a secondary processing level), and largely 98% (3.88 million 60-kilo bags) of Robusta coffee is exported as *graded green Robusta* beans to conventional markets (Figure 1).

1 A kilogram of dry coffee cherries (kiboko) gives an outturn of 0.55-0.6 kg of FAQ. A farmer selling a Kg of kiboko earns Ugx 2,200/-. The equivalent to FAQ (0.6kg) earns a farmer Ugx 2,640, giving a price margin of Ugx 440 per kg.

Arabica coffee is wet and dry processed, but dry processing lowers the quality and grade of Arabica coffee in the international market. Wet processing is common in Mbale (Mt. Elgon) and in Zombo and Nebbi sub-regions. Arabica coffee from these two regions is sold as graded Wet Bugisu Arabica (WBA), and Okoro Wet non- graded Uganda Arabicas (WUGARS), respectively. The dry processed Arabica originates from Kasese, and sold as Rwenzori dry processed Uganda Arabica (DRUGARS). Likewise there is a rather unconventional practice whereby Arabica coffee is *dry processed and sold without grading*. Two unique on-farm processing methods (dry and wet processing) characterize the final coffee product space. The bulk (92 percent) of the WBA, 100 percent of WUGARs, and 100 percent of DRUGARs are sold in the conventional market. Only 8 percent of the WBA is sold in the spatiality and domestic market (UCDA, 20107)[1]. The other coffee markets are the external specialty coffee market and the domestic market.

The *specialty coffee market* involves further differentiation and grading based on aroma and intrinsic quality value of coffee cup. Specialty coffee production involves meticulous

Figure 1: **Product Space in the Coffee Value Chain**

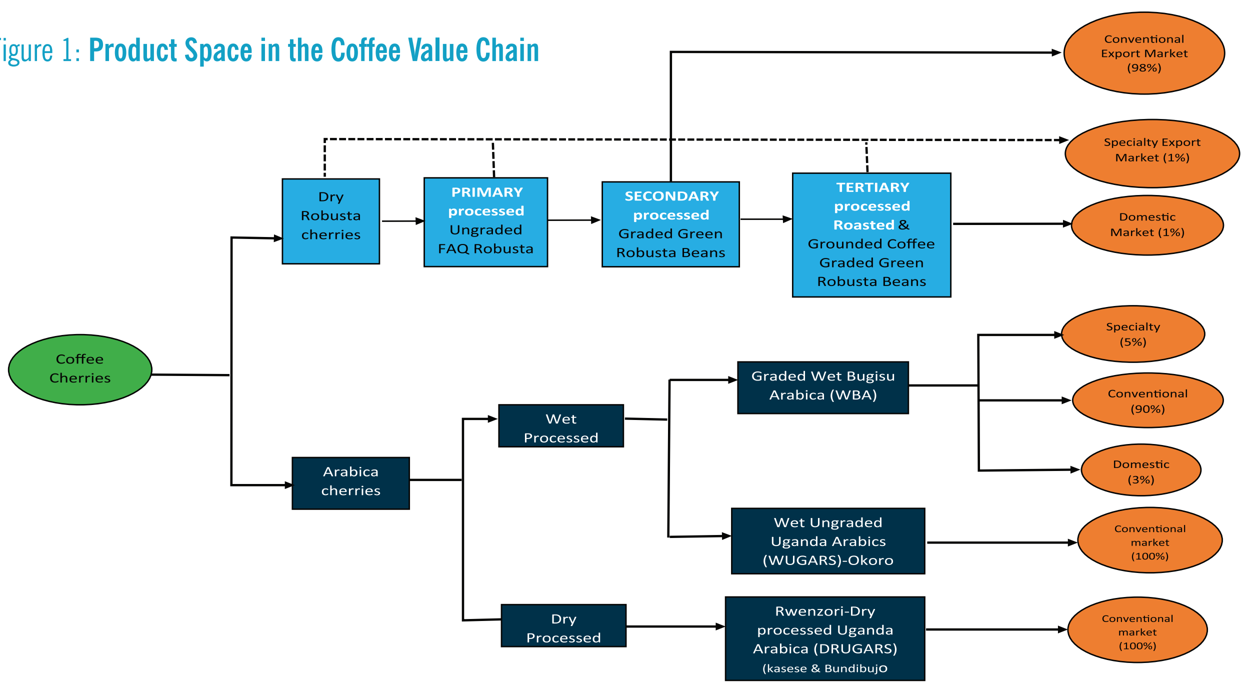
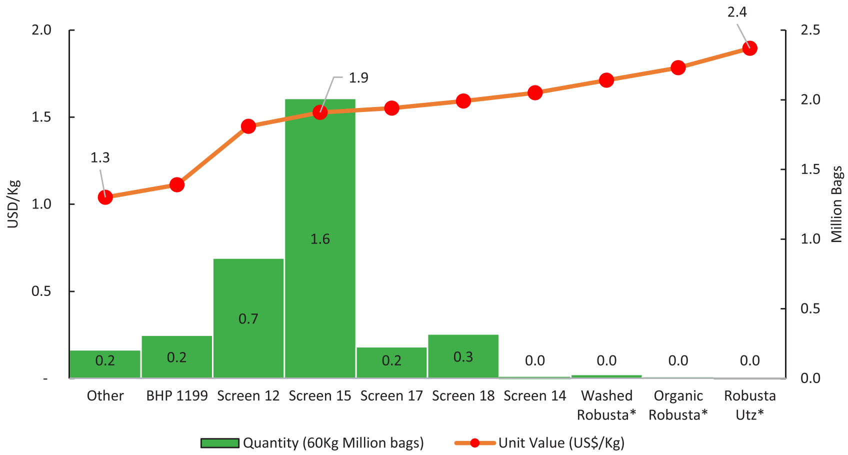


Figure 2: **Robusta Coffee Unit Prices (US$) per grade and Volumes Exported (FY 2016/17)**



Source: UCDA (2017).

and appropriate intersection of cultivar, microclimate, soil chemistry and husbandry, and plant husbandry is essential to the preservation of quality attributes in specialty coffee[2]. Coffee destined for specialty markets requires traceability right from farmer to miller to intermediaries to roaster to brewer (roaster). Specialty Robusta's fetch a premium price in the range of 10 to 20 percent above the conventional prices (UCDA Statistics, 2016). UCDA needs to take measures to take advantage of the growing market for specialty coffees Arabicas in USA and Europe (ICO, 2016)[2].

It is evident that the level of tertiary processing to produce _roasted and grounded coffee_ remains minimal. National output of roasted and grounded coffee currently constitutes about 1 percent (0.041 million 60-kilo bags) sold in specialty market; and 1 percent (0.041 million 60 kilo bags) consumed in the domestic market.

The prospects for further upgrading and integration in the global coffee value chain (GVC) lies at this stage. But it is quite apparent that this opportunity is yet to be exploited to the fullest potential. By exporting graded green coffee beans implies that Uganda remains integrated at the lower level of the coffee global value chain (GVC). However, this remains a sure market for most of Uganda coffee produced, and where Uganda has a comparative advantage in the medium term.

Aspects of Coffee Industry Product Space

Based on FY 2016/17 statistics, 4.2 million 60 kilo bags were produced and exported, and about 3.2 million bags (76 percent) are Robusta and 1.0 million bags (24 percent) are Arabica (UCDA, 2017)[3].

Robusta

Out of the 3.2 million bags, a range of over 10 (ten) grades of Robusta coffee are exported by Uganda (Figure 2). Robusta coffee is priced on the basis of grades[3] ranging from USD 1.3 to USD 2.4 per kilogram for low grade Robusta's and high value specialty Utz Robusta's, respectively (Figure 2). However, it is evident that the bulk (85 percent) of the 3.2 million bags of Robusta coffee exported is the low grade Robusta i.e. Screen 15 (50 percent), Screen 12 (22 percent), BHP1199 (5 percent), and other unclassified Robusta grades (8 percent) fetching low international prices USD/kg i.e. ranging from USD 1.3 to 1.9, respectively (Figure 2). Grading Robusta coffee expands the product space, and innately increases (upgrades) the monetary value of the coffee value chain (Figure 2). However, leveraging the grading outcomes is highly dependent on farm level cropping husbandry practices (irrigation, use of fertilizer, disease control and other appropriate farming methods).

Arabica

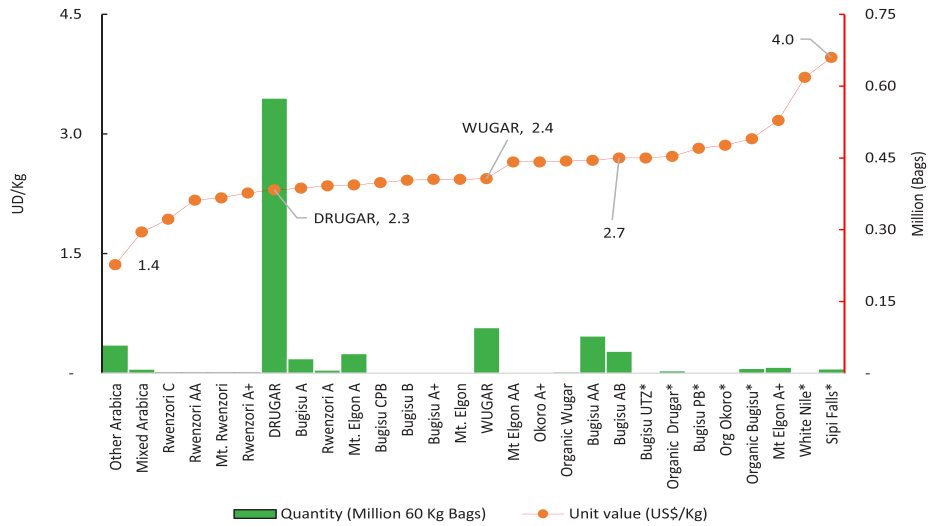
The 1 million bags of Arabica coffee exported in FY 2016/19 is differentiated into an assorted 28 different grades[4] (Figure 3). The international prices range from US$ 1.4 to US$ 4.0 per kilogram depending on the grade. Generally, with the exception of specialty market coffee grades (e.g. *'sip Falls, white Nile, Mt Elgon A+, Organic Okoro, Bugisu PB, and Organic Drugar)*, higher premium prices are earned when Arabica coffee is wet processed and graded. For example, the Bugisu Arabica coffee – is wet processed, graded and marketed in the international

2 Ric Rhinehart. (March 17, 2017). What is Specialty Coffee? Specialty Coffee Association Newshttp:// www.scanews.coffee/2017/03/17/what- | is-specialty-coffee/.

3 Three broad yardsticks are used to grade robusta coffees: (i) Robusta Utz – traced on basis of aroma and cup taste linked to production practices; (ii) Washed Robusta – a product from wet processing; (iii) organically produced Robusta; (iv) Screen size determined according to bean size i.e. Screen 12 to Screen 18 grades.

4 Arabica coffee is graded/classified along four (4) main criteria: (i) the specialty coffee – with trace-able intrinsic attributes e.g. aroma, cup taste, organic etc.; (ii) the wet processed and graded Arabica; (iii) wet processed and un- graded, and (ivi) dry processed without grading.

Figure 3: **Arabica Coffee Unit Prices (US$) per grade and Volumes Exported (FY 2016/17)**



Source: UCDA (2017).

market as Wet Bugisu Arabicas (WBAS). Grading creates grades such as *Bugisu AA*, *'Mt Elgon AA'* that fetch high premium prices about USD 2.4 on the international market (Figure 3). On the other hand, Arabica coffee from West Nile called (Okoro) are exported as un-graded Wet Uganda Arabicas (WUGARS).

It is important to note from Figure 3 that out of the 1 million bags of Arabica exported in FY 2016/17 by Uganda, the bulk about 58 percent (0.6 million bags) were the un-graded Dry Uganda Arabicas (DRUGARS). Additionally, over 65 percent of Arabica coffee exported is within the low priced quantum grades (i.e. Drugar, Mt. Rwenzori A+, Rwenzori AA, Rwenzori C, Mixed Arabic, etc).

Gaps in the Coffee Value Chain where public investment should be focused?

The analysis of the coffee industry product flow chart and grade differentiated unit pricing helps to identify where public investment must be focused to foster growth of the coffee industry in Uganda. The priority areas include:

a. Government should continue with, but balanced investments in coffee production and productivity to increase coffee production from the current level of 4.2 million 60-kilo bags to the target 20 million bags by 2030. Focus also on improving coffee grades (bean size) by expanding capacity at Kituza Coffee Research Centre (KOREC) to propagate and multiply high yielding and wilt resistant Robusta clones targeting all new coffee gardens;

b. Have in place equitable investments to improve farm level cropping husbandry practices (irrigation, use of fertilizer, disease control and other appropriate farming methods) in old coffee trees;

c. For Arabica public investments in R&D must target incremental production of high productive Arabica coffee (yielding 1.5 metric tons per hectare) to leverage on the high international prices of Arabica compared to Robusta;

d. UCDA and NAADs in partnership with operators should use the 433 primary processing facilities as pivotal centres for enhancing productivity and production at farm level, by getting them involved in seedling multiplication and distribution, mobilization of farmers, input distribution and access to financial and extension services. With increased coffee production at farm level, the existing FAQ processing factories (when operating at full capacity 100%) are capable of supporting the production of 10 million bags of FAQ per annum without establishing more factories;

e. Maximize unit earnings from Arabica exports by:-
   - Investing in export grading facilities in Zombo and Nebbi Districts for ungraded Wet Uganda Arabicas (WUGARS) from Okoro.
   - Promote wet processing as well as grading of the ungraded Dry Uganda Arabicas (DRUGARS) from Rwenzori. UCDA should pattern with private sector exporters to establish infrastructure and technology for export grading the WUGARS and wet processing the DRUGAR. Currently, Uganda is losing up to 25

cents per pound by marketing ungraded Arabicas;

f. Promote programs to exploit opportunities in the growing specialty coffee market for (both Robusta and Arabicas) in USA and Europe. Policy action is required from UCDA in partnership with exporters to take the following measures:
   - Organise farmers into strong institutionalised internationally certified coffee producing groups that deal directly with exporters by scaling-up efforts in Mbale and Kapchorwa districts to create steady specialty coffee supply hubs, with defined institutionalized linkages with exporters;
   - Design mechanisms for paying premium prices by grades of coffees certified at farmer's group level. Also to maximize on prices, deliberate efforts have to be made to link exporters with primary processors to benefit farmers who are organized as cooperatives and groups for special coffees that is produced with traceable production systems and practices. Exporters are likely to benefit by linking farmers with specialty market niches at premium prices;

Endnotes

1 UCDA (2017), Annual Report Series.
2 ICO(2017), Annual Report Series
3 UCDA (2017), Annual Report Series.

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