

## Research Article

# Effects of COVID-19 on Coffee Market Participation of Smallholder Coffee Producers' in Godere District, Southwestern Ethiopia

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In sub-Saharan countries like Ethiopia, COVID-19 affected not only the health sector, but also the agricultural productivity and marketing, especially affecting coffee producers' probability of market participation. The study was conducted on the effects of COVID-19 on smallholder coffee producers' coffee market participation in Godere district, southwestern Ethiopia. This study aimed to identify the effects of COVID-19 on coffee producers, its effect on the decisions of market participation mechanisms, and the prevention mechanisms employed during the pandemic. For this study, qualitative and quantitative data were collected from primary and secondary sources by using a semi-structured interview schedule with well-trained data collectors. The data was analyzed, and a simple random sampling technique was used to select 384 coffee producers at 95% confidence level. The study result shows that the level of coffee producers' market participation was reduced from 100% to 81.25% because of COVID-19's effect on smallholder farmers, with 18.75% failing to participate in the coffee market. COVID-19 prevention mechanism provided by the government for social movement was strongly affecting farmer levels of market participation. Most of the coffee producers agreed that COVID-19 affected their probability of coffee market participation because concerned stakeholders in the sector were not well subsidized to recover from the depression. Most of the farmers were not effectively getting financial services from aid organizations and government to mitigate the impact on their livelihood. Generally, COVID-19 strongly affected the levels of coffee producers' market participation, and it is advisable for concerned bodies to support producers by providing subsidies and creating market linkages.

## 1. Introduction

In our century, economic activities are more interlinked because of the accessibility of market information through advanced communication channels and formation of international value chains. In these chains, many economic agents were identified: labor, producers or firms, suppliers, consumers, financial institutions such as government and private banks, and other financial intermediaries. In these forms of interlink, if there was a problem that may occur on any of those chains because of disease, disasters, and other challenges, the result could be disruption either globally or within a country [1]. All 48 countries in sub-Saharan Africa (SSA) have reported cases of COVID-19 infection. At the time of writing, the SSA region has about 76500 confirmed

COVID-19 cases with 1748 deaths. These figures account for a small proportion of global COVID-19 infections (1.4%) and an even smaller proportion of deaths (0.51%) [1].

In Ethiopia, coffee is an essential commodity like other crops; hence, small farmers who produce coffee should focus on producing it commercially as an alternative source of income. Coffee is grown on 12.5 million farms worldwide, of which 67–80 percent are smallholder farms primarily located in developing countries, including 22 Low Human Development Countries [2]. The smallholder farmers need to focus on commercializing their coffee to grab more income opportunities from the emerging markets of the world.

In Ethiopia, most coffee cultivating regions are south, west, southern, eastern, and central regions [4]. According to Tadesse [5] and Tesfu (2012), based on the levels of

management, vegetation, structural complexity, and agronomic practices, coffee production systems in Ethiopia can be categorized into four groups, namely, forest coffee (FC), semi-managed forest coffee, garden coffee, and plantation. According to the report by [3], coffee is cultivated by more than 4 million farmers. Producers involved in producing stimulant products such as coffee are greater than growers of fruits. It creates job opportunities for country population of more than 15 million. Moreover, nearly 95 percent of the product is produced on small plots of land, generally less than half an acre or hectare. Even if Ethiopia is the world's sixth largest coffee producer with 40 percent of the continental production, it only contributes 4 percent to the international coffee market [4].

Farmers engaged in growing and producing stimulant crops such as coffee are greater in number than those growing fruits [3]. It employs 15 million people, or roughly 15 percent of the country's population, at different points along the value chain. The number of coffee producers has increased from 2012/13 to 2016/17 and then declined. Ethiopia produces and exports one of the best highland coffees in the world [8]. Total earnings from goods exports grew by 3% in 2018 over the same quarter of the last year on account of the rise in export earnings from coffee (19.1%), oilseeds (4.9%), leather and leather products (27.7%), fruits and vegetables (16%), meat and meat products (10.1%), flowers (8.1%), electricity (23.8%), and other exports (35.1%). Earnings from coffee increased by 19.1% in 2018 compared to the last year quarter and reached 215.6 million United States dollars on account of a 16.5% rise in export volume and 2.2% increase in international prices. As a result, the share of coffee in total merchandise export earnings increased to 31.8% from 27.5% a year earlier [5]. Countries such as Germany, France, Italy, Belgium, Sweden, Norway, Finland, Denmark, United Kingdom, Switzerland, United States of America, Japan, Saudi Arabia, Canada, Taiwan, South Korea, Australia, and South Africa are traditional buyers of Ethiopian coffee (Melkamu, 2015). Agricultural share of total exports declined from 86% in 2013/14 to 84% in 2016/17. However, the coffee share of total exports was increased from 30% in 2013/14 to 33% in 2016/17.

COVID-19 represents an extraordinary joint supply and demand shock to the global coffee sector. Since March 2020, when COVID-19 was declared a global pandemic by the World Health Organization (WHO), coffee prices have been highly volatile mainly as a result of supply chain disruptions. The initial spike was followed by a persistent decrease in prices that may foreshadow the likely cooling of coffee demand as a result of the recession that is now affecting many coffee-importing countries. At the end of June, the ICO composite indicator fell below the 100 US cents/lb mark. Hence, the COVID-19 pandemic constitutes an enormous additional challenge to the global coffee sector that has experienced a prolonged period of low prices [10].

Seneshaw et al. [11], to realize the impacts of COVID-19 problems on the coffee production as well as marketing sectors, undertook a rapid qualitative study on coffee value

chain in Ethiopia. Since April 2020, they were interviewing coffee producers and other coffee market actors. Their assessment was done based on a limited scope and with not representative interviews; carefulness is acceptable for extrapolation of their observations. It is better to see them as hypotheses of the impacts of COVID-19 on coffee value chains and movements in coffee prices and quantities procured in the last months by the Ethiopian Commodity Exchange (ECX), the platform that a significant part of Ethiopia's coffee is traded on. However, they did not touch about the effects of the pandemic case of the study area such as coffee producing areas of Majang Zone.

In Gambella Peoples National Regional State, Majang Zone is known for coffee production and marketing, and coffee production is considered a major livelihood option of the zone, especially Godere district. However, starting from March 2020, COVID-19 cases occurred within the sector. This pandemic highly hindered coffee producers decisions of market participation because of the different prevention mechanisms put by government based on Ministry of Health directions. Those prevention measures reduced farmers' decision to participate in coffee marketing. Sisay et al. [12] conducted a survey study concluding that one in five street traditional coffee vendors suffered from depression during the COVID-19 pandemic in Harar Town, Ethiopia. Therefore, the effects of COVID-19 spread on coffee marketing were observed in different areas of the country, and problems with smallholder coffee produced were specified, but this did not happen in the case of Gambella Region, Godere district. Therefore, this study aims to identify the effects of COVID-19 on coffee producers, its effect on the decisions of market participation, and the prevention mechanisms employed during the pandemic.

## 2. Research Methodology

*2.1. Description of Study Area.* The study was conducted in the case of Godere district, Majang Zone, Gambella National Regional State of Ethiopia (Figure 1). The district is one of the 14 districts of Gambella National Regional State, in addition to three administrative zones and one special district. From those zones, Majang Zone is known for its potentiality of coffee production and marketing.

### *2.2. Data Types, Sources, and Methods of Data Collection*

*2.2.1. Data Types and Sources.* Qualitative and quantitative data used for this study were collected from primary and secondary sources.

Primary sources of data were smallholder coffee producers in Godere district selected randomly and observations of the author, as well as members of the focus groups and a key informant interview.

Secondary sources of data were written sources such as government reports, Central Statistical Authority, Internet, Ministry of Health, and other published and unpublished documents.

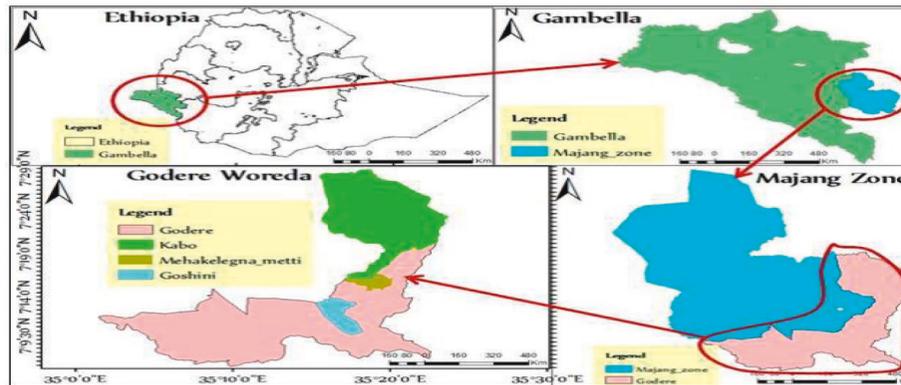


FIGURE 1: Map of study area. Source: ArcGIS, 2021.

**2.2.2. Methods of Data Collection.** Primary data was collected through using a pretested interview schedule or semi-structured questionnaire by employing well-experienced data collectors and field observation by the authors. In addition, it was collected from 12 members of focus group discussions (FGD) selected from coffee producers for creating a stage of discussion on the major effects of COVID-19 on their market participation. Furthermore, a key informant interview (KII) was used for selecting officers concerned with coffee marketing and production in the study area.

Secondary data was collected from written documents such as government reports on coffee productivity, market, COVID-19 impact, and prevention measures by using checklists, as well as the Internet and bulletins.

### 2.3. Sample Size Determination

**2.3.1. Producer Sampling Technique.** Simple random sampling technique was employed to select representative villages and respondents since the population in the study area have the same type of characteristics; i.e., all villages and farmers are coffee producers. At the first stage, Godere district was selected purposively based on its potentiality of coffee production and the severity of COVID-19 effect. At the second stage, 5 villages were selected from 12 coffee producing villages in the district. At the third stage, based on proportional probability to sample size, 384 coffee producers were selected from 9600 coffee producers using Yamane [13] simplified formula.

$$n = \frac{N}{1 + N(e)^2}, \quad (1)$$

where  $N$  is the total coffee producers taken from Godere District Coffee and Tea Development Office [14] report which was 9600,  $n$  is the sample size (number of respondents selected randomly at 95% confidence level), and  $e$  represents the error term at 5% precision level.

$$n = \frac{9600}{1 + 9600(0.05^2)} = 384. \quad (2)$$

### 2.4. Data Analysis Techniques

**2.4.1. Descriptive Statistics.** Descriptive statistics were used to compute mean, maximum, frequency, percentage, graphs, and tables, whereas chi-square and  $t$ -test were employed to compute the mean difference of demographic and socio-economic characteristics of respondents. In addition, SPSS version 20 and Stata version 16 software were used to enter, edit, and analyze data. Moreover, EEA (2020) applied this data analysis tool to conduct the impact of COVID-19 on the economy of Ethiopia.

### 2.5. Hypothesis and Variable Definition

**2.5.1. Dependent Variables.** Dependent variables are as follows: household market participation decision, which is a discrete dependent variable and takes a value of 1 if the coffee producer is a market participant and 0 if not; COVID-19 pandemic outcomes on coffee producers' levels of market participation in the study area.

## 3. Results and Discussion

**3.1. Household Market Participation.** The study result shows that 18.75% and 81.25% of the respondents were coffee market nonparticipants and participants, respectively. This finding indicates that most of the coffee producers were market-oriented production systems and saw coffee production as their major income source since it is a commercial crop. According to the respondents, COVID-19 pandemic depressed the movement of coffee producers from rural areas to urban areas and highly reduced the expected amount of coffee supply to the market. In the study area, because coffee is not a staple crop, almost all farmers were predicted to participate in coffee marketing, but 18.75% of them missed participation because of the occurrence of COVID-19 pandemic in the district.

As a result of shutdown of some sectors or restrictions on people movement based on the announcement of Ministry of Health and public health institutes, farmers fear sending their families to the market. Before the occurrence of this pandemic, all farmers participated in coffee marketing to

improve their livelihood and increase their daily income. Concerning the sex of the respondents, 67.97% and 32.03% of the respondents were male and female, respectively (Table 1). In the study area, most of the time women participation in governing income earned by the household from coffee sales was very rare, and almost all the income earned from coffee selling was managed by males. However, in production and harvesting, women played an important role in planting, weeding, collecting, drying, packing, cleaning, and sorting.

In addition, 63.01% and 36.99% of the respondents were nonmembers and members of cooperatives, respectively. Especially in the study area, those farmers who were not members of cooperatives were highly affected by COVID-19 pandemic due to the lack of buyers and obligated to sell their coffee produce at a lower price to local traders. Moreover, 78.91% and 21.09% of respondents had and did not have access to market information, respectively. In modern marketing, information is considered a major resource and the farmers in the district were not getting full information from supporters such as Coffee and Development Office as well as from the Office of Agriculture and Natural Resources, which shows that their role in providing proper information was very weak.

Furthermore, 47.4% of respondents had a transport facility and 52.61% failed to have one and rented transportation facilities from others. Those farmers having transport facilities such as vehicles, packs, animals, and lorries were less affected by COVID-19 pandemic than those who did not have ones. Concerning creating awareness for coffee producers, around 91.93% and 8.07% of women were empowered and not empowered, respectively (Table 1), and there was no significant difference between participants and nonparticipants. Empowered women in coffee marketing were very much fewer when compared to men in household because there was so much social teaching which discourages them from decision making. However, in terms of creating farmers' awareness of pandemic preventive measures, the role of women was not less important when compared with that of men.

This study result was consistent with findings of Degaga [15], which indicated that there were so many factors affecting coffee marketing and production in Ethiopia.

### 3.2. Effects of COVID-19 on Coffee Market Participation.

Not only has COVID-19 affected the health sector; it has also highly influenced agricultural productivity and marketability of developing nations especially Ethiopia since March 2020 till now [16]. In Ethiopia, since the spread of COVID-19, the coffee market participation decision of producers has reduced to some extent when compared with the previous probability of participation. In the district, previously before the occurrence of COVID-19 pandemic in the country, all coffee producing farmers were participating in coffee market; however, after the pandemic, around 18.75% of them were not market participants, and only 81.25% of them participated in coffee market. It was further shown that because the government placed different restrictions on the

movement of coffee market actors from place to place based on the criteria set by the Ministry of Health, most of the market actors became out of coffee market and chose to stay at home. This is similar to the study findings of [17] which indicated that the levels of strictness in the application of COVID-19 containment measures differed from country to country, suggesting possible differences in the impact of COVID-19 on bean production.

In addition, our result shows that 74.74% of coffee producers delayed harvesting coffee because of fear of the pandemic and the responsibility of respecting COVID-19 prevention mechanism set by the government (Figure 2). During that time, it was not possible for farmers to employ workers and work in a team such as *debo* or hiring daily workers because according to prevention mechanisms, it is forbidden to sit or work without keeping physical distance. During this, farmers were obligated to harvest coffee only by using family labor and took a long time to finish because coffee harvesting in the country is not mechanized. This finding is consistent with the findings of ICO [10].

Again, transportation was not also an easy problem affecting farmer's coffee marketing participation after the occurrence of the pandemic and highly hindered farmers' probability of market participation. As indicated in Figure 2, 85.42% of respondents faced transportation difficulties and used their family, labor, and pack animal force to take their coffee products to market. After the pandemic started spreading in the country, transportation such as public buses and vehicles of transportation partly stopped working and transported few individuals by keeping distance between them. This directly reduced farmers' decisions of coffee market participation and is in line with the study by [18].

The problem of getting standard coffee seed was also challenging and hindering households' coffee market participation after the COVID-19 pandemic and the prevention mechanism employed in Ethiopia, which is consistent with [19]. Therefore, around 77.87% of coffee producers faced this problem and reduced their probability of coffee market participation. Previously, before COVID-19, almost all farmers got standard coffee seed from research centers, extension agents, private traders, and district coffee and tea authority offices and failed to get this support from these organizations regularly. This affected the time of coffee planting because they were not getting standard seed on time. Around 91.41% of coffee producers were facing problems with delay in coffee planting for the reason of COVID-19 pandemic, which is similar to the findings of Pan et al. [20].

Difficulty in accessing credit facilities was not a simple obstacle for coffee producers in the study area after COVID-19 spread started in the country. Because there was part shutdown of economic system all over the world, many financial institutions started resisting the provision of credit services for coffee producers as well as for traders. Even during the spread of the pandemic, coffee producers were unlikely to go to financial institution office because keeping physical distance and staying at home were taken as useful mechanisms for preventing COVID-19 spread by both farmers and institutions. Therefore, around 95.31% of

TABLE 1: Demographic and socioeconomic characteristics of respondents.

Variables	Options	Participants (N = 312)		Nonparticipants (N = 72)		Total	X2 value	
		N	%	N	%		N	%
Sex of respondents	Male	213	68.27	48	66.67	261	67.97	0.781
	Female	99	31.73	24	33.33	123	32.03	
Using credit	Not user	103	33.01	16	22.22	119	30.99	0.09*
	User	209	66.99	56	77.78	265	69.01	
Membership in cooperatives	Not member of cooperatives	207	66.35	35	48.61	242	63.01	0.007***
	Member of cooperatives	105	33.65	37	51.39	142	36.99	
Women empowerment	Empowered	285	91.35	68	94.44	353	91.93	0.478
	Not empowered	27	8.65	4	5.56	31	8.07	
Access to market information	Access to market information	244	78.21	59	81.94	303	78.91	0.526
	No access to market information	68	21.79	13	18.06	81	21.09	
Transport facility	Having transport facility	164	52.56	38	52.78	182	47.40	0.360
	Not having transport facility	168	53.85	34	47.22	202	52.61	

Source: own data computation (2021). N= numbers of category/ frequency; %= percentage. \*\*\*, \*\*, \* and \* estimates are significant at 1%, 5%, and 10% levels, respectively.

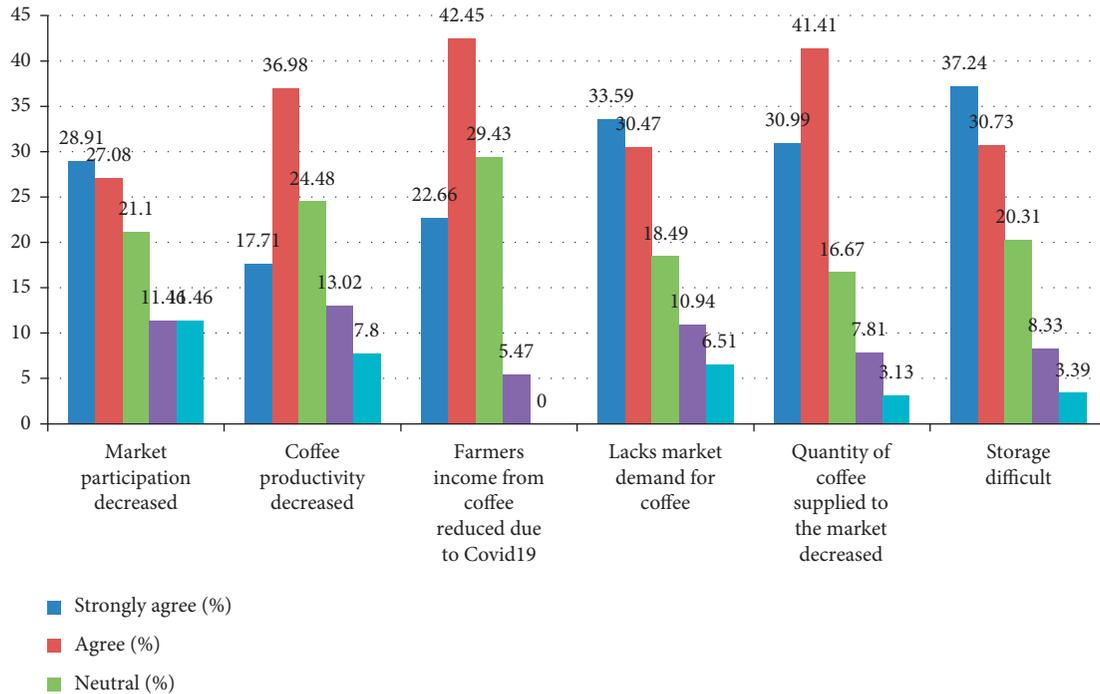


FIGURE 2: Respondents' perception of the effects of COVID-19.

respondents were facing problems of lack of credit service for coffee production and marketing in the study area (Figure 3). Even banks and microfinance were not contacting farmers to provide credit services for them to boost the volume of coffee production and increase the probability or decision of market participation, and this finding is consistent with [21].

Similarly, after COVID-19 pandemic occurred in the country, labor supply was highly reduced, the impact of which on coffee producers' market participation was not less significant. This is in line with EEA (2020) which indicated that the economic consequences of the COVID-19 crisis are expected to have differentiated impacts on a wide range of economic and social indicators.

The study result indicated that 88.54% of farmers faced this problem because of the spread of COVID-19, decided on family labor effectively, and reduced the amount of coffee produced and marketed (Figure 3). This is similar to the findings of ICO [10] and in line with the World Bank [22] report which indicated that there will be widespread loss of income and deeper levels of poverty as social distancing intensifies. This will have a big impact on the service industry, tourism, and sizeable self-employed population. The combination of labor constraints and limited access to markets will drive poverty and exacerbate food insecurity. Loss of income, especially for those engaged in informal operations where women are overrepresented, is likely.

Increased wage of labor was also highly decreasing farmers' demand for the use of labor for further production of coffee and market participation. As shown in Figure 2, 83.59% of farmers were victims of this problem, and wages for labor increased because of workers' thinking that they are

risking their lives. Decreased price of coffee was also a major problem affecting farmers' market participation, which occurred because of part shutdown of many economy sectors internationally and nationally, and it directly reduced the price of coffee at local market. Even during the occurrence of COVID-19, it was not possible for farmers to take their coffee products to a fair market, and they decided to sell at the local market. As indicated in Figure 2, 51.82% of the respondents were facing the problem of falling price of coffee. This finding is consistent with the findings of UNECA [23], which indicate that the continent will observe a 1.4 percentage point GDP decline equivalent to \$29 billion (i.e., from \$66 billion in 2019 to \$37 billion in 2020). It is estimated that COVID-19 will shave

*3.3. percentage points off this fiscal year's economic growth in Ethiopia.* Most of the farmers were victims of lack of buyers for coffee during the occurrence of the pandemic because of the government putting different restrictions on community movement from place to place to reduce the effect of COVID-19 on human health, which is similar to the study findings of [24]. The study result shows that 77.34% of respondents were facing this problem; at that time, it was very difficult for coffee producers to sell their coffee products to respective traders at a reasonable price. Additionally, 99.22% of respondents reported that they did not get any extension support from concerned organizations such as villages, development agents, districts, coffee and tea development authority, primary cooperatives, and trade and industry office to respect the restrictions made by the government on social contact, social distance, and announcement of home stay (Figure 3).

Concerning communication service provision, more than 92.19% of coffee producers were not getting proper communication services from the government, especially with regard to the price of coffee quality, how to protect themselves and supply the product to the market, how to create market linkages, and other information provision. Furthermore, lack of team work or group work such as using *debo* during harvesting and marketing was strongly restricted to prevent the spread of the pandemic, and all farmers were victims of this problem. Meanwhile, decreasing demand for coffee produce was also a major problem that affected producers because of the spread of COVID-19 in the study area. The study result shows that around 37.5% of respondents stated that COVID-19 pandemic reduced buyers' demand for coffee products in the study area (Figure 3).

*3.4. Respondents' Perceptions of the Severity of COVID-19 Effect on Coffee Market Participation.* This part discusses the severity of the impacts of COVID-19 pandemic on reducing household decision to participate in coffee marketing; around 28.91%, 27.08%, 21.1%, 11.46%, and 11.46% of coffee producers strongly agreed, agreed, were neutral, disagreed, and strongly disagreed, respectively. This finding shows that large proportions of respondents were strongly affected by COVID-19 and reduced their market participation by supplying their products to the market as before. Concerning the decrease of productivity of coffee per year, around 17.71%, 36.98%, 24.48%, 13.02%, and 7.8% of coffee producers strongly agreed, agreed, were neutral, disagreed, and strongly disagreed, respectively (Figure 2). This further shows that more proportions of coffee producers were highly in agreement with COVID-19-influenced household decisions of market participation and decreased productivity because of restrictions put by the Ministry of Health.

Farmers' income from coffee sales reduced because producers were keeping their social distance and it was not impossible for them to interact with other labor as before; around 22.66%, 42.45%, 29.43%, and 5.47% of coffee producers strongly agreed, agreed, were neutral, and disagreed, respectively. This result further indicates that most of the respondents were victims of this problem and became unable to increase their income from coffee sales by participating in either local or national markets. Likewise, 33.59%, 30.47%, 18.49%, 10.94%, and 6.51% of coffee producers strongly agreed, agreed, were neutral, disagreed, and strongly disagreed, respectively, about being victims of lack of demand for coffee. This finding indicates that a large proportion of coffee producers were victims of these problems since most of coffee traders' stopped and coffee marketers started staying at home to protect their own and their families' health. This was so much severely influencing coffee producers' decisions of market participation and directly reduced their income as well as their livelihood improvement in the study area (Figure 2).

It reduced the volume of coffee on the market, and 30.99%, 41.41%, 16.67%, 7.81%, and 3.13% of coffee producers strongly agreed, agreed, were neutral, disagreed, and

strongly disagreed, respectively. Therefore, large numbers of respondents were highly affected by this problem because of the spread of the pandemic in the country. Lastly, around 37.24%, 30.73%, 20.31%, 8.33%, and 3.39% of coffee producers strongly agreed, agreed, were neutral, disagreed, and strongly disagreed, respectively, about facing the difficulty of coffee storage because during the spread it was difficult for them to rent a magazine from town and hire workers for packing, loading, and unloading the product. Generally, concerning the severity of COVID-19 effect on coffee producers decisions of market participation, most of the coffee producers were affected by the problem and directly reduced their productivity and interest of market participation (0 3).

*3.5. Countermeasures Taken to Reduce COVID-19 Effect on Coffee Market Participation.* The study result shows that only 16.41% of respondents mentioned that government and concerned organizations supplied them with improved coffee variety for free or at a fair price during occurrence of the COVID-19 pandemic (Figure 4). This finding indicates that most of the farmers were not getting such support from Office of Agriculture and Natural Resources, Tea and Coffee Development Authority, private nurseries, providing individuals, and nongovernment organizations and earned lower output which was not appropriate for participating in coffee marketing. Therefore, during the occurrence of the pandemic, farmers failed to get coffee, improved the variety, and highly reduced their probability of market participation in the district, which is similar to the findings in [20].

Moreover, only 18.49% of respondents got training in how to sale coffee while keeping their social distance, and a lower proportion of farmers were users of this prevention measure. Even farmers' willingness to apply that prevention mechanism was very much lower, and sometimes government workers were resistant to consulting farmers. Providing subsidies for farmers was also another mechanism used by the government to support the coffee sector; however, only 8.59% of them got subsidies for their production to boost the volume of coffee supply and increase probability of market participation decision. Again, the provision of production technology for coffee producers was also very low, and only 12.76% of farmers got it. This finding shows that no technologies were created for farmers due to the easy effects of COVID-19 on their market participation decision through increasing the volume of coffee production and coffee productivity per acre, which was more similar to the findings of the study by [25].

There were also lower levels of assistance provision for poor coffee producers, and only 18.49% of them got assistance from different organizations for items or services. This further indicates that most of the poor farmers are not getting any support from the concerned organizations to simplify the impact of COVID-19 on their livelihood. Meanwhile, credit service in long-term repayment period was provided only for 3.39% of farmers, and it was not actively provided for 96.61% of farmers. This further reveals

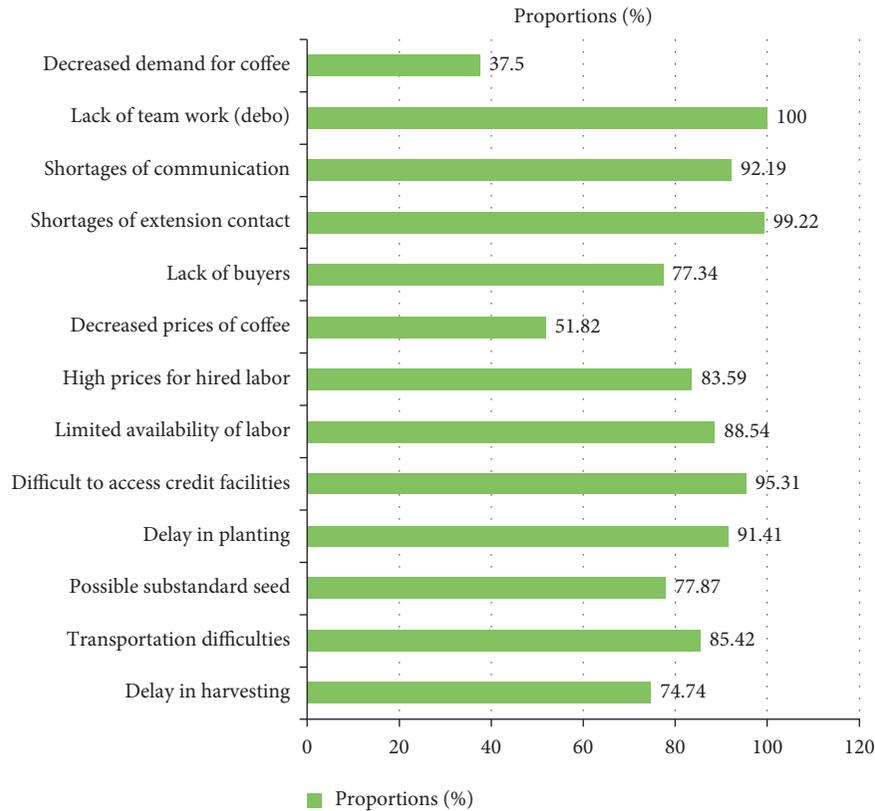


FIGURE 3: Effects of COVID-19 on farmers' market participation.

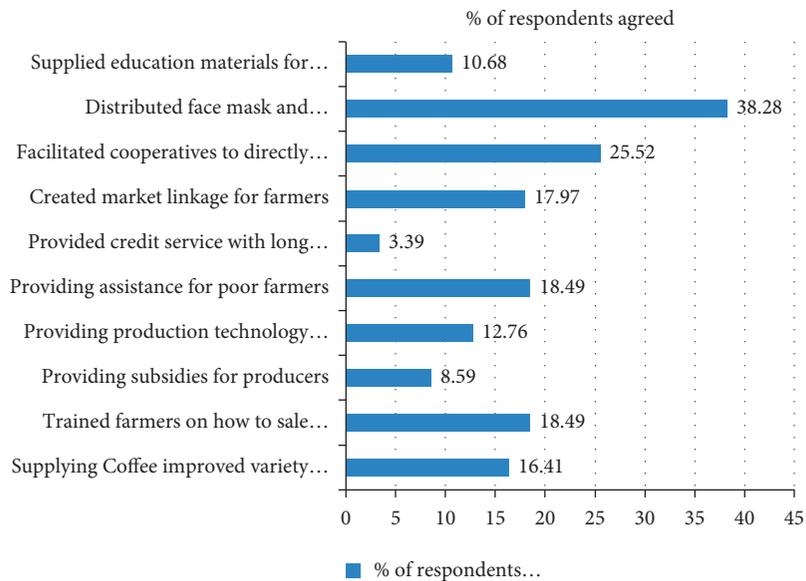


FIGURE 4: Measurements are implemented to overcome COVID-19 effect.

that those existing financial institutions in the district were not playing a significant role in supporting farmers. Again, only for 17.97% farmers, market linkages were created; a major proportion of farmers failed to get proper market linkage with coffee buyers during the pandemic spread; and the role of market institutions was not significant in supporting farmers (Figure 4).

Again, upon the pandemic spread in the country, only for 25.52% of farmers, cooperative organizations facilitated selling coffee products at farm gates or local market, which further reveals that cooperative societies were not fully supporting coffee producers' market participation during occurrence of the pandemic. Additionally, 38.28% of poor coffee producers got face mask sanitization and consulted on

how to participate in coffee market while keeping their social distance and using sanitization. Therefore, in the study area, even if the role of health experts was very high, they did not play a significant role in creating awareness for poor rural farmers in the study area because they are very far from health centers. Furthermore, education materials were provided for only 10.68% of respondents; the family and most of them failed to get these materials because the concerned organization never showed willingness to help them, and the capacity of coffee producers' decision to participate in coffee marketing was reduced (Figure 4).

Generally, countermeasures implemented by policy makers were very weak and did not play a significant role in increasing households' probability of market participation in the study area. Because of the severity of COVID-19, the impact on households' market participation was increased; it was not easy for farmers to recover in a short period of time. As shown by the study result, the effects of COVID-19 on market participation of respondents were not easy and were not solved by local governments and funding institutions.

#### 4. Conclusions and Policy Recommendations

In this study area, COVID-19 highly influenced agricultural productivity and severely hindered producers' levels of market participation when compared to the situation before the occurrence of the pandemic. In particular, coffee is a major commercial crop produced for market purposes either for local markets or international markets. Proportions of coffee producers' market participation were decreased because of the pandemic and the restrictions made by the government to prevent it, and this directly affected both coffee productivity and marketing in the study area. Even the prevention mechanisms undertaken in the study area were very weak and did not support farmers in increasing their participation in coffee marketing through creating proper market linkage using different digital technologies for production marketing.

Additionally, most of the respondents agreed that COVID-19 highly affected their coffee market participation, as it directly diminished the volume of coffee produced as a result of lack of labor for weeding, harvesting, processing, washing, transporting, packing, drying, and selling because people's movement was partly restricted. Again, farmers were not well subsidized to recover from COVID-19 effect on their economy, and institutional support was very low in the study area. Primary cooperatives and financial institutions did not provide financial support for coffee producers.

Finally, in the study area, the costs of production, transportation, labor, and marketing were highly increased for farmers, and the price decreased at the same time. During this situation, many farmers' capacity for supplying coffee to the market was decreased, and they shifted their economic activity from coffee marketing to other staple crop production and livestock rising. Meanwhile, most of them did not receive extension support helping them struggle to mitigate the effects of COVID-19 and improve their livelihood status rather than becoming out of market.

Therefore, based on the study findings, the policy makers and concerned organizations should support farmers to recover from COVID-19 effect on their coffee market participation. Moreover, it is better if the Office of Agriculture and Natural Resources works in collaboration with district coffee and tea development authority to support farmers who are victims of COVID-19 by creating proper market linkage even at the international market by modernizing domestic transportation facilities. Measurements taken by the government for the prevention of COVID-19 effect on coffee producers in the study area were very low, and there is a demand for serious correction by cooperation with concerned stakeholders.

#### Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

#### Conflicts of Interest

The authors declare that they have no conflicts of interest.

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