Micro - Report
AFRINT II

Production, Marketing and Credit Behavior of Smallholder Farmers in Ethiopia
(Draft Report)

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Chapter I: CHARACTERIZING GRAIN PRODUCTION IN THE STUDY AREAS

1.1 Production, area and yield

Teff, maize, wheat and sorghum are the most important cereal crops in Ethiopia. Teff and wheat are the preferred food crops in urban areas while maize and sorghum are staple foods in most rural areas. Most farmers are believed to sell their teff, which often fetches premium price, and buy maize or sorghum for home consumption.

Teff

Teff production for the 120 sample farmers in Yetmen (Amhara region) was 1.42 tons per household in 2007 (Table 1.1). This level of output was obtained from an average plot size of 1.36 ha, giving a yield of 1.04 ton per ha. Comparison between the old (80 farmers) and the newly added (40 sample farmers) shows that the former group cultivated larger teff area (1.62 versus 0.84 ha) and produced larger level of output (1.65 versus 0.95 tons) than the latter group. However, yield figures were slightly greater for the new group (1.13 versus 1.02 ton/ ha) than the old group. Teff yield in one of the most productive areas of the country (Yetmen) appears to vary between 1.0 and 1.1 tons per ha. However, a more recent estimate[1] of teff yield for the Amhara region and the country gave a higher yield of 1.2 and 1.1 ton per ha, respectively.

Compared to 2002, average teff production (per household) in 2007 increased by 46 percent, from 1.13 to 1.65 tons (for the 80 sample farmers). This increase was obtained as a result of a 29% increase in yield (from 0.79 to 1.02 ton per ha) and a 13% increase in land area (from 1.44 ha to 1.62 ha). Teff growers in Yetmen have increased their production mainly through a more sustainable path of increasing their yield. Teff is also a high value crop and its price has been increasing in recent years, which seems to have encouraged investment in order to increase yield.

Maize

Maize production for all sample farmers in Bako (Oromiya) was 1.52 tons per household in 2007, while the average farm size and yield were found to be 1.00 ha 1.52 ton per ha, respectively (Table 1.1). It was also observed that production area and yield figures were slightly higher for the old sample than the newly added one. The difference between the two groups is particularly significant in relation to area under maize cultivation, with only 0.75 ha for the new group as opposed to 1.12 ha for the old group.

Unlike Yetmen, the trend over the years in Bako (for the 80 sample farmers) is not promising: mean maize production in 2007 declined by 20 percent compared to 2002. This is mainly due to the 24 percent decline in cultivated area over the same period. The slight increase in yield (6%) was insufficient to mitigate the impact of the significant

[1] FAO, FAO/WFP Crop and food security assessment mission to Ethiopia, Special Report, (Phase 1), January 2009. The mission looked at the 2008/09 crop year.

decline in cultivated area. Given that maize is a relatively low value crop, the sharp decline in production is thought to have adverse impact on poverty in the areas. This is true since pepper, a major cash crop in the area, is now out of production for the most part because of disease outbreak. Maize producers are also faced with one of the most volatile prices in Ethiopia[2]. The low return may have also discouraged investment on improving soil fertility, new technologies and productive cultural practices.

Maize yield in Bako, one of the most productive areas of the country and adjacent to the location of the national maize research center, is considerably lower than the recent FAO report, which estimated maize yield at 2.5 ton per ha for Oromiya and 2.4 ton per ha for the nation as a whole. A closer examination is required to understand the reasons behind the very low level of yield in Bako (only 1.3 to 1.5 tons/ha).

Wheat

The story of wheat in Bekoji (Oromiya) is not promising by all accounts. With mean production and yield of only 0.86 ton and 0.95 ton per ha, respectively, wheat producers in Bekoji have lower performance than teff or maize producers (Table 1.1). A mean wheat yield of only 0.95 ton/ ha is unfavorable when compared to the 1.0 – 1.1 ton/ha of teff, which has also got a much higher value in the market. Wheat yield is also significantly lower than maize yield, which is 1.40 ton per ha. The yield of the new sample farmers is particularly very low, 0.70 ton per ha as compared to 1.13 ton per ha for the old group. By contrast, the FAO estimate of wheat yield is much higher: 2.3 ton per ha for Oromiya and 2.1 ton/ ha at national level.

Similar to the case of Bako, the trend over time in Bekoji (for the 80 sample farmers) is a cause for concern: mean wheat production in 2007 declined by 36 percent. This was due to a decline in both yield (by 15%) and area (25%), relative to 2002. A major improvement in the technology of wheat production is required to increase production and productivity.

According to FAO report, wheat yield is estimated at 2.3 ton per ha for Oromiya and 2.1 ton per ha for the nation as a whole. It is not clear why wheat yield is over 50 percent lower in Bekoji, which is generally viewed as one of the high potential areas.

Sorghum

The picture with regard to sorghum production and yield in Assebot is not encouraging. With mean production of 0.76 ton only and mean yield of 0.55 ton per ha, the performance of Assebot is the lowest among the study areas (Table 1.1). The dry weather of the area is the main factor for the low level of production and productivity. There is no yield difference between the old and the new site, although the latter group cultivates more land and produces more output.

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[2] See for instance, Eleni Gebre-Medhin and Tadesse Mezgebou, Prices and volatility in the Ethiopian Grain Market, ESSP Policy Conference Brief No. 19, June 2006.

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Sorghum production (for the 80 sample farmers), similar to maize and wheat, has declined sharply (34%) in 2007 relative to 2002. The decline was largely due to yield decline, which dropped by 27%. A 9% decline in area under sorghum was also observed over the same period. Mean sorghum yield levels of Assebot are much lower (60% to 67% lower) than the 1.7 ton per ha (for Oromiya and Ethiopia) estimated by FAO. The reasons for the yield gap are not obvious since Assebot has very good soil and is a major sorghum producing area. Sorghum is a dry-land crop with lower yield levels than the other cereal crops.

Table 1.1: Area, production and yield of major crops

	Year	**Area**	**Production**	**Yield**
Bako (Maize)	2007	1	1518.58	1518.58
Only old hhs	2007	1.12	1774.34	1584.232
Only new hhs	2007	0.75	993.2	1324.267
	2002	1.48	2221.33	1500.899
Yetmen (Teff)	2007	1.36	1417.22	1042.074
Only old hhs	2007	1.62	1649.17	1018.006
Only new hhs	2007	0.84	953.3	1134.881
	2002	1.44	1132.21	786.2569
Bekoji (wheat)	2007	0.91	864.53	950.033
Only old hhs	2007	0.81	914.94	1129.556
Only new hhs	2007	1.09	767.5	704.1284
	2002	1.08	1428.23	1322.435
Assebot (sorghum)	2007	1.38	758.26	549.4638
Only old hhs	2007	1.25	834.87	667.896
Only new hhs	2007	0.91	609	669.2308
	2002	1.38	1269.62	920.0145

1.2. Asset ownership

Land and oxen are the two most important assets in rural Ethiopia. In 2007, the mean farm size varied from 1.68 ha in Assebot to 2.92 ha in Yetmen (Table 1.2). This is larger than the national average farm size of about 1 ha. It can also be inferred that Assebot, with the lowest yield and dry weather condition, has the smallest average farm size, hence the lowest average income. This is also consistent with the national picture of smaller farm size in food deficit areas (World Bank 2009). Mean farm size is significantly smaller for the new households in all sites.

Farm sizes have increased between 2002 and 2007 in all sites but Bako (for the old sample). The increase was more significant for Yetmen (from 2.0 to 2.4 ha) and Bekoji (from 2.5 to 3.1) than Assebot (from 1.7 to 1.9 ha). In Bako, mean farm size decreased from 2.6 ha in 2002 to 2.2 ha in 2007. Since the increase in the yield of maize (main crop

in the area) was too small to compensate the decline in area and since the area also suffered from decline in cash crop production (due to insect attack), poverty appears to have worsened in Bako.

The response to the question of how area under cultivation can be expanded shows that renting or borrowing land is by far the most important means to gain access to additional land. Renting or borrowing is virtually the only method in Bekoji and Yetmen, while farmers in Bako and Assebot rely on clearing virgin land (Assebot) and bringing fallow land into cultivation (Bako), in addition to renting or borrowing land (Table 1.3).

The average number of oxen owned varied from 1.13 in Assebot to 3.34 in Bekoji (Table 1.2). The small number of oxen in Assebot corresponds to the small size of farmland while the reverse is true for Bekoji. Average number of oxen for the new households is smaller in Bako, Yetmen and Bekoji. Both old and new sample households in Yetmen own the same number of oxen.

The number of oxen tended to decline in all sites except Assebot. For farmers in Yetmen and Bekoji, the number of oxen declined, although average farm size increased significantly between 2002 and 2007. The efficiency of oxen utilization (measured in terms of oxen number per unit area) has improved in Bekoji and Yetmen but declined in Bako and Assebot.

Table 1.2: Asset ownership (land and oxen)

	Total land size				**Number of oxen owned**			
	2007	2007 Old households only	2007 New households only	2002	2007	2007 Old households only	2007 New households only	2002
Bako (Maize)	2.12	2.22	1.7	2.6	1.88	1.88	1.88	2.08
Yetmen (Teff)	2.924	2.39	1.6	2.04	1.74	2.00	1.23	1.98
Bekoji (wheat)	2.039	3.12	2.53	2.48	3.34	3.73	2.55	3.89
Assebot (Sorghum)	1.683	1.88	1.3	1.7	1.13	1.05	1.27	0.79

Table 1.3: Methods used for expansion of land under cultivation

	Percent reporting yes					**Extent to which current farm size can be expanded (ha)**
	Clearing virgin land	Converting grazing land to crop	Bringing fallow land into permanent cultivation	Renting /borrowing land	Buying land	
Bekoji	0.0	0.8	1.7	99.2	0.0	1.15
Assebot	52.5	6.0	1.7	68.6	45.8	1.42
Bako	0.0	5.0	57.6	37.5	0.0	1.46
Yetmen	0.0	0.0	0.0	100	0.0	0.54

The size distribution of land is generally favorable, with only 3 to 14% of the households owning less than 1 ha of land (Table 1.4). The proportion of households owning relatively larger farm (greater than 3 ha) is also small (3 to 14%) in Bako and Assebot. A relatively larger number of farmers in Bekoji (38%) and Yetmen (20%) cultivate over 3 ha of land, implying greater concentration of land in wheat and teff growing areas. The extent of consolidation seems to be lower for maize/ Bako (possibly because of low return) and sorghum/ Assebot (because of high growing risks and low yield).

The distribution of oxen is more unequal than the distribution of land (Tables 1.4). A significant proportion of the farmers have no ox at all or only one ox: 61% in Assebot, 53% in Bako and 42% in Yetmen. By contrast, only 9% of the respondents in Bekoji have no ox at all or only one ox. Those with no or one ox need to team up with other families to form a pair of oxen for cultivation. A farmer with no ox could work for two days for a family with a pair of oxen in return for using the pair for one day on his farm. Two families with one ox each form a team to the pair of oxen and share the pair on equal basis. Both arrangements imply that a farmer with no or one ox cannot work on his farm every day during the land preparation season, which often starts in February/March and ends with planting in July. Farmers with no ox are forced to work two-third of the season for oxen owner and only one-third for themselves. Those with a single ox can work on land preparation only half of the time. This would also mean that families with no or one ox could only cultivate a smaller size of land. It should be noted that draft animals are not a major problem in Bekoji, where over 90% of the farmers have two or more number of oxen and the average farm size is the largest (3.1 ha). Oxen-cultivation in Ethiopia is several centuries old and the technology (particularly the plow, which is made of wood and a small iron tip) has not changed probably since its first introduction.

Changes in asset distribution between 2002 and 2007 show a tendency towards concentration: the proportion of households owning less than 1 ha of land has increased in Bako, Yetmen and Assebot but remained the same in Bekoji. As the proportion of land-poor farmers is increasing, the percentage of relatively richer farmers (cultivating more than 3 ha) has increased in Yetmen, Bekoji and Assebot while declining in Bako (Tables 1.4 and 1.5).

The picture with regard to oxen distribution is rather mixed: the proportion of those owning no ox increased in Bako, Yetmen and Bekoji but declined in Assebot, while the proportion owning more than four oxen declined in Bako, Yetmen, Bekoji and remained the same in Assebot. The distribution of oxen has not become less unequal between 2002 and 2007 (Tables 1.4 and 1.5).

Table 1.4: Distribution of land and Oxen (2007)

	Land ownership				**Oxen ownership**				
	< 1 ha	1 – 2 ha	2-3 ha	>3	None	1	2	3	>=4
Bako (Maize)	11.7	45.8	28.3	14.2	18.3	35	26.7	4.2	15.8
Yetmen (Teff)	9.1	46.6	24.1	20.2	12.7	29.7	36.4	15.3	5.9
Bekoji (wheat)	2.5	26.9	32.8	37.8	4.2	5	35.3	10.1	45.4
Assebot (sorghum)	13.6	72	11	3.4	37.3	23.7	31.8	5.9	1.3

Table 1.5: Distribution of land and Oxen (2002)

	Land ownership				**Oxen ownership**				
	< 1 ha	1 – 2 ha	2-3 ha	>3	None	1	2	3	>=4
Bako (Maize)	3.8	38.7	31.3	26.2	16.7	25.6	29.5	9	19.2
Yetmen (Teff)	5	47.5	33.8	13.7	2.5	33.8	41.3	10	12.6
Bekoji (wheat)	2.5	42.5	36.3	18.7	0	5	27.5	16.3	51.2
Assebot (sorghum)	6.3	72.5	21.2	0	47.5	32.5	18.8	0	1.3

1.3. Household demographics

The average age of the sample farmers is 41 years in Bako, 47 years in Assebot, 50 years in Bekoji and 51 years in Yetmen (Table 1.6). Most are elderly farmers, especially in Yetmen and Bekoji. Many of the young farmers may not have official status since they cultivate land obtained through family or rented land. Since registered farmers often cultivate land allocated to them by the government (through the leaders of their respective peasant associations), young farmers may not show up in the sample (which is drawn from the official list). The proportion of female-headed households varied between 11 and 18 % in Bekoji, Yetmen and Assebot, but it is less than 2% in Bako.

Family labor is not in short supply for the sample farmers. On average, each household in Bako, Yetmen and Bekoji has 3 family members, aged between 15 to 60 years, working on the farm. In addition, a few families have young (less than 15 years) and old (over 60 years) members working on the farm. The number of family members working on the farm is relatively smaller (2. 4) in Assebot.

Educational level of farm managers (largely head of household) is not very high. On average, a farm manager has between 1.7 years (Bako) and 3.8 years (Bekoji) of schooling. Moreover, a significant proportion of the managers in Bako, Yetmen and Assebot are illiterate (44% to 54%). On the other hand, most farm managers in Bekoji (76%) are literate. Adult literacy programs need to be introduced to improve this situation.

Table 1.6: Household labor (Age, educational level, sex, number of households working on the farm)

	Age	**Educational level of farm managers**		**Sex (% female)**	**Number of household members working on the farm**		
		Years of schooling	% Illiterate		16-60 years	15 and below	61 and above
Bako (Maize)	41.47	2.41	43.7	1.7	3.03	.82	.13
Yetmen (Teff)	51.22	1.66	53.85	11.0	3.06	.03	.25
Bekoji (wheat)	49.68	3.79	23.53	13.4	3.07	.77	.21
Assebot (sorghum)	47.14	1.86	48.31	17.8	2.42	.45	.06

1.4. Access to extension services

Most farmers (between 41% and 97%) prefer to describe their frequency of contact with extension as workers as 'rarely' (Table 1.7). The proportion of those with no contact is also very large in Bako (38%) and Yetmen (35%). A regular interaction is reported by 1% in Assebot, 2% in Bekoji and 7% in Yetmen, compared to 21% in Bako. It can also be observed that regular access to extension has declined in 2007 in Yetmen, Bekoji and Assebot, compared to the situation in 2002. This is not consistent with the fact that the number of extension workers in Ethiopia increased from less than 20,000 some five years ago to 65,000 in 2007/08.

Table 1.7: Access to extension services

		Bako (maize)		**Yetmen (teff)**		**Bekoji (wheat)**		**Assebot (sorghum)**	
		2007	2002	2007	2002	2007	2002	2007	2002
Frequency	never	38.4	42.5	34.7	70	1.7	58.7	13.6	30
	rarely	40.8	50	58.5	17.5	96.6	30	85.6	63.7
	regularly	20.8	7.5	6.8	12.5	1.7	11.3	.8	6.3
	Total	100.0	100	100.0	100	100.0	100	100.0	100

1.5. Seed type used

Improved seeds are largely unavailable for teff and sorghum and this is reflected in the response of farmers in Yetmen and Assebot, where 98% to 99% reported using traditional seeds (Table 1.8). By contrast, most maize farmers in Bako (82%) reported using hybrid seeds but this does not tally with the yield actually obtained (less than 1.6 ton per ha). It is possible that farmers have been buying seeds that are not genuinely hybrid or they have no proper information on the kind of seeds they are using. About 51% of the farmers in Bekoji reported using improved seeds, while the rest used 'traditional' seeds. A discussion with some farmers has shown that seeds referred to as 'traditional' are actually recycled improved seeds. It appears that the quality of seeds sold to farmers (improved or hybrid) is poor.

Table 1.8: Type and quality of seed applied

	Type of seed				**Quality of seed**			
	Traditional	Improved	Hybrid	Total	Poor	Average	Good	Total
Bako (Maize)	5.0 (7.7)	13.5 (92.3)	81.5 (0.0)	100.0 (100)	15.8	81.7	2.5	100.0
Yetmen (Teff)	99.2 (98.7)	.8 (1.3)	0 (0.0)	100.0 (100)	0	85.5	14.5	100.0
Bekoji (wheat)	49.2 (46.3)	50.8 (52.4)	0 (1.3)	100.0 (100)	5	54.6	40.4	100.0
Assebot (sorghum)	98.3 (100)	1.7 (0.0)	0.0 (0.0)	100.0 (100)	38.1	48.3	13.6	100.0

Figures in parenthesis are for 2002

1.6. Fertilizer use and soil fertility management

All farmers in Bekoji and Yetmen, and 92% in Bako use fertilizer, while nearly all farmers in Assebot plant without fertilizer (Table 1.9). Low and variable rainfall have discouraged the use of fertilizer in Assebot. According to group discussions with farmers, the return from applying fertilizer on sorghum is very low relative to the high risk of failure. The community has also resisted government attempt to introduce fertilizer in the area in the past.

The type of fertilizer used, however, varies between the three fertilizer using areas. All users in Bako used both DAP and urea, compared to DAP only in the case of Bekoji (Only two farmers used both types in Bekoji). Yetmen farmers, on the other hand, practiced two different systems of fertilization: 43% used urea only while the rest (57%) used both types of fertilizer. It is also important to note that many farmers seem to be applying fertilizer types for which they have no preference. For instance, nearly a third of the farmers in Bako prefer to use urea, although nearly all of them used both types. Many farmers in Yetmen also did not apply what they actually preferred. Fertilizer distribution is not always in line with the choice of farmers. Only farmers in Bekoji actually applied what they preferred (Table 1.10).

The rate of fertilizer application or expenditure also varies between the three sites. The highest rate of expenditure (USD per ha) is reported in Bako, where maize is the major crop, followed by teff growers in Yetmen. Wheat farmers in Bekoji have the lowest rate of expenditure. These differences may reflect variations in terms of soil fertility and management practices in the area (see below). For instance, more farmers in Bako consider the fertility of their farm as 'poor' than the other three sites. Since prices are not significantly different between the three areas (all located within 250 kms from the capital Addis Ababa), the rate of expenditure is believed to closely correspond to rates of fertilizer application.

Apart from chemical fertilizer, different soil-fertility management practices are applied. Crop rotation, for instance, is widely practiced in Bako, Yetmen and Bekoji and to some extent in Assebot. On the other hand, a smaller proportion of farmers, especially in Yetmen and Assebot, reported fallowing. The use of animal manure is relatively more common in Bako and Assebot than in Yetmen or Bekoji. Green manure is more widely used in Bekoji and Assebot than in Bako or Yetmen. Soil conservation structures are reported by 85% of the respondents in Yetmen, compared to 32% to 59% in the other three sites.

Table 1.9: Fertilizer type, expenditure and soil fertility management

		Bako (maize)	**Yetmen (teff)**	**Bekoji (wheat)**	**Assebot (sorghum)**
Fertilizer type	Urea only	0.0	43.1	0.00	.8
	DAP only	0.0	0.0	98.3	
	Both	91.7	56.9	1.7	
	Not used at all	8.3	0.0	0.0	99.2
	Total	100.0	100.0	100.0	100.0
Fertilizer exp.	US$	72.01	76.43	42.06	-
Crop rotation	% using	90.8	96.6	100.0	35.6
Fallowing	% using	33.3	.8	42.4	1.7
Animal manure	% using	39.2	9.4	17.8	48.3
Green manure/ compost/residue	% using	2.5	5.9	87.3	57.6
Soil & water conservation structure	% using	31.7	84.7	59.3	41.5
Fertility of land	Poor	47.5	5.1	31.9	6.8
	Average	51.7	64.4	63.0	56.4
	Good	.8	30.5	5.0	36.8
	Total	100.0	100.0	100.0	100.0

Table 1.10: Farmers' preference of fertilizer type

		Bako (maize)	Yetmen (teff)	Bekoji (wheat)	Assebot (sorghum)
Fertilizer type	Urea only	31.7	49.1	0.8	n.a
	DAP only	0.8	12.1	96.6	n.a
	Both	59.2	38.8	2.5	n.a
	Not used at all	8.3	0.0	0.0	n.a
	Total	100	100	100.0	n.a

1.7 Biotic and abiotic constraints to production

Ethiopian farmers operate under a number of abiotic and biotic constraints. In particular, weather related risks such as drought; flooding and untimely rain are serious problems. As expected, nearly all farmers (99%) in Assebot reported a significant reduction of output due to dry spell, compared to 11% in Bekoji, 4% in Bako and 3% in Yetmen (Table 1.11). About 24% of the farmers in Bako have also reported minor damage due to drought. Water logging or flooding is reported to have significantly reduced output by 24% of the farmers in Bekoji. It has also caused minor damage in Bako (24%) and Yetmen (13%). Although untimely rains have caused significant problems only for a small number of farmers, they have resulted in minor damages in the case of 50%, 46%, 19% and 13% of the farmers in Bekoji, Bako, Assebot and Yetmen, respectively. Farmers in the study areas seem to have limited options in managing risks associated with drought, water logging and flooding.

Damage to crops due to insects, diseases and rodents is more common in lower altitude (higher temperature) than in higher altitude (lower temperature) areas: all farmers in Assebot (lowland) reported a significant damage compared to only 0.8% in Bekoji (highland). About 21% and 5% of the farmers in the mid-altitude areas of Bako and Yetmen, respectively, reported significant damage. Minor damage is also reported by 17 to 23% of the farmers in Bako and Yetmen. The use of farm chemicals is limited because of high cost and lack of availability (Table 1.12).

Table 1.11: Biotic and abiotic constraints to production

		Bako (maize)	Yetmen (teff)	Bekoji (wheat)	Assebot (sorghum)
Drought (dry spell	Significantly reduced output	4.2	2.5	10.9	99.2
	Caused minor damage	24.2	5.1	4.2	.8
	Was not a problem	71.7	92.4	84.9	-
	Total	100.0	100.0	100.0	100.0
Water logging/ flooding	Significantly reduced output	5.0	2.5	23.5	.8
	Caused minor damage	24.2	12.7	8.4	99.2
	Was not a problem	70.8	84.7	68.1	100.0
	Total	100.0	100.0	100.0	.8
Untimely rain	Significantly reduced output	3.3	2.5	11.8	6.8
	Caused minor damage	45.8	12.7	49.6	18.6
	Was not a problem	50.8	84.7	38.7	74.6
	Total	100.0	100.0	100.0	100.0
Insect/disease/ rodent attack	Significantly reduced output	5.0	20.5	.8	100
	Caused minor damage	22.5	17.1	5.0	0
	Was not a problem	72.5	62.4	94.1	0
	Total	100.0	100.0	100.0	100

Table 1.12: Major problems in using good quality insecticides/ herbicides

Problems	Bako	Yetmen	Bekoji	Assebot
Not available at all	1.7	6.1	3.4	99.2
Not available at the right time	30.0	15.8	56.3	0
High cost	68.3	78.1	40.3	0.8
Total	100	100	100	100

Chapter II: Access to market of smallholder farmers in Ethiopia

2.1 Introduction

Agricultural marketing, which has a guiding and stimulating impact on production and productivity, is the main driving force of agricultural development in Ethiopia. Access to the agricultural markets takes an increasing importance as a traditional agrarian society is transformed into a modern industrial society. The increasing proportion of the population living in urban centers and rising level of income requires more highly organized marketing channels for processing and distributing agricultural products.

In the Ethiopian context, agricultural marketing acts as an agent of rural development in two ways. Firstly, by ensuring a high enough price to the producers, marketing serves as an incentive to increase production and productivity, the supply side. Secondly, by getting a low enough prices to the consumers, it works as an inducement on the demand side. A functioning agricultural marketing system will bring the producer in contact with the highest bidder thereby getting him the highest price. In due process, it can ensure the speedy distribution of the agricultural produce by reducing wastage and improving competition. Moreover, agricultural marketing will play a coordinating role, steering supply and demand with respect to place, time and form utilities. Decreasing consumer prices and increasing producer prices simultaneously can be realized by improving the performance of the agricultural marketing system, which reduces the marketing margins.

The market-driven agricultural transformation framework in Ethiopia has two major components (namely: improving agricultural production and marketing) and four enabling components (namely: finance, human capital, institutions and policy). The production side includes development and transfer of productivity enhancing technologies such as new germplasm, improved seeds, optimum application of fertilizer and agro chemicals, improved cultural and management practices, and intensive agricultural extension. However, experience has shown that the availability of farm inputs as well as increased productivity in Ethiopia and outputs are only necessary conditions for wealth creation at the farm level. The marketing side includes, improving storage, transport, and processing; quality improvement (quality control measures); linking farmers with the market; market infrastructure development; market information; and improving input marketing by shifting from public to private-driven input markets. The enabling component of the framework includes sustainable delivery of financial services; promoting human capital development through capacity building programs; promoting and establishing the right institutions which promote both production and marketing and creating the right policy environment for the market-driven agricultural development process. Thus, when the enabling components are effective, the impact of the production and marketing components will improve significantly.

A sustainable agricultural marketing is defined here as a system in which incentives are available for all market participants. Incentives are derived from policies and programs that minimize constraints and improve access to markets that provide opportunities for profitable investments of farmers. Given a conducive policy environment, sustainable development of the agricultural marketing and farm production systems can only be achieved when there are value-added activities performed by each participant in the marketing system. The value adding, thus, provides the incentive (profit) for market participation and any function or process that does not add value within the marketing system will not be sustainable.

Any improvement in agricultural marketing in Ethiopia would, therefore, stimulate agricultural development and overall economic growth with equity. However, such an improvement in marketing cannot entirely be left to evolve on its own. It must be nurtured through selected interventions that clearly define institutional, legal and policy frameworks that would effectively and efficiently facilitate marketing of agricultural produce. The challenge is, therefore, to develop an enabling environment, technological and institutional framework that will foster the growth of efficient markets for farm produce by harnessing synergies between the private and public sectors.

The continued lack of efficient agricultural marketing system could seriously impair and jeopardize the current efforts to increase agricultural production and productivity with a view to close the national food security gap and increase income per capita in line with the Government strategy of Agricultural Development Led Industrialization (ADLI). Sustainable food security and poverty reduction in Ethiopia cannot be achieved without due consideration to the development of efficient agricultural markets (output and input markets). Well-functioning agricultural markets in Ethiopia should provide greater access to consumers, who depend on the market for affordable food supplies, and to farmers as they shift from subsistence to the commercialization of smallholder agriculture.

The provision of secured agricultural markets gives the incentives to increase output and to diversify subsistence production into cash crops. Farmers tend to specialize in the production of food crops to firstly meet household needs and secondly increase household income depending on market opportunities. An efficient market for agricultural produce is generally perceived as the best institutional arrangement for ensuring more optimal production and consumption decisions. An efficient agricultural marketing has also a mobilization as well as a coordination role, steering production and supply with respect to place, time, form and ownership utilities. Moreover, given the characteristics of the Ethiopian farmers, production oriented towards meeting subsistence needs, household centered decision making, risk minimizing behavior, lack of information and innovativeness, small and unstable marketable surplus, low bargaining power, relatively labor surplus and capital deficit, and seasonal cash availability, the existing agricultural marketing system is far from fulfilling its role as the engine of growth.

2.2 Main features of marketed grain

The production of grains, coffee, pulses and oil seeds are central to the Ethiopian economy engaging more than 10 million households. The government has implemented a number of reforms and institutional changes to improve agricultural production and marketing. Responding to the emerging market opportunities, farmers have been striving to engage in profitable agricultural activities and improve productivity that at the end of the day increase farm income and improve the livelihoods of rural communities. In spite of the reforms and institutional changes, subsistence farming remains dominant in the entire country. However, there are some indications which show that farmers are starting to produce and benefit from the markets. This particular survey is expected to provide basic information to understand the development of markets between 2002 and 2007.

Table 2.1: Household annual average consumption, sale, payment for hired labor and other uses (kg) in 2007

Crop	Household consumption	Payment for hired labor	Sales	Other uses (seed, feed, brewing, gift, storage losses, etc)	Total
Maize	363.3	24.8	400.4	38.8	802.7
Teff	517.9	19.4	237.5	179.3	934.4
Wheat	365.0	3.0	229.0	131.1	711.0
Sorghum	332.5	3.4	224.8	62.1	616.0

Given the implementation of market liberalization and the recent increase in agricultural prices, farmers tend to improve their participation in the markets. Table 2.1 indicates that about 50% the sample households sold their maize in 2007. The respondents sold, on average, more than 400 kg of maize, 238 kg of teff, 290 kg of wheat and 225 kg of sorghum. Although farmers used to consume more of maize or wheat or sorghum and less of teff, the results of the survey revealed quite the opposite. The results of the survey revealed that the consumption of teff by farmers was the highest compared with other grains (Table 2.1).

Table 2.2: Which food crops did you purchase the last year?

	No		**Yes**	
Crops	Frequency	Valid Percent	Frequency	Valid Percent
Maize	250	52.6	225	47.4
Teff	413	87.1	61	12.9
Wheat	335	71	137	29
Sorghum	329	69.3	146	30.7

Given the available data in the survey, it is difficult to identify whether the respondents are net buyers or net sellers. However, about 47.4% of the sample households reported that they did purchase maize in 2006. About 31% and 29% of the respondent purchased

sorghum and wheat respectively. Although teff is considered to be a cash crop that is consumed by relatively richer households, particularly in urban areas, the results of the survey revealed that about 13% of the respondents bought teff from the market.

Table 2.3: The percentage of households who sold their grain after the harvest

Crop	Before the most recent one (2006)	Two seasons before the most recent one (2005)	After the harvest in 2002	When the households were formed
Maize	39	39.5	44	35.8
Teff	43.1	41.4	44.9	22.6
Wheat	40.4	37.8	52.4	20.4
Sorghum	50.6	42.2	47.1	24.7

The percentage of households who sold their grain (maize, teff, wheat and sorghum) after harvest had increased in 2006 compared with what they sold when the households were formed. Although this is a clear indication of the integration of farmers into the markets, the results were not similar in 2005 and 2002. With the exception of sorghum producers, the rest of the sample households reported that the grain they sold in the market has declined in 2006 compared with the marketed grain in 2002 and 2005 (Table 2.3).

Table 2.4: Did you sell or do you intend to sell any grain following your most recent harvest?

Crops	No		Yes	
	Frequency	Percent	Frequency	Percent
Maize	155	52.4	141	47.6
Teff	134	53.4	117	46.6
Wheat	159	55.8	126	44.2
Sorghum	85	33.2	171	66.8

The survey result also indicated that more than 44% of the households intended to sell their grain after the most recent production season. About 66%, 47% and 48% of the sorghum, teff and maize producers had the intension of producing for the market respectively (Table 2.4). Assuming that teff is a cash crop, the researchers expected a high percentage of producers intending to sell more teff than other crops. However, the results were quite the opposite. One of the reasons could be the high prices observed for all agricultural products which encouraged farmers to sell all types of grain in the next production season. The results are consistent with results indicated in Table 2.5 that indicated relatively lower marketed quantity of teff compared with other crops.

Table 2.5: Total amount of grain sold (average per household in kg)

Crop	Most recent harvest (2007)	Before the most recent one (2006)	Two seasons ago (2005)
Maize	753.49	811.28	735
Teff	467.93	344.17	352.26
Wheat	376.01	343.95	434.47
Sorghum	297.56	382.64	325.34

Out of the grains sold by households after the most recent harvest (2007), maize ranked the highest, with an average sale of 753 kg per sample household. This was followed by teff (468 kg), wheat (376 kg), and sorghum (278 kg). Actually, the quantity of maize sold by households stood the highest in all the years indicated in Table 2.5. The amount of teff sold in the market has increased in 2007 compared with 2006. Although the amount of wheat has increased in 2007 compared with 2006, it was relatively lower compared with what the households sold in 2005. The amount of sorghum marketed had declined in 2007 compared with 2006 and 2005.

Table 2.6: Since 2002, how has the amount of grain you sell changed?

Crops	Less sold now		No significant change		More sold now	
	Frequency	Valid percent	Frequency	Valid percent	Frequency	Valid percent
Maize	102	76.7	6	4.5	25	18.8
Teff	47	42.3	20	18	44	39.6
Wheat	94	62.3	24	15.9	33	21.9
Sorghum	79	64.2	13	10.6	31	25.2

Although the total amount of grain sold after 2002 has not changed significantly (Table 2.5), the sample framers sold less grain in 2007 compared with 2002 (Table 2.6). About 40% of the sample households reported that the amount of teff they sold had increased while 42% indicated the opposite (less sold in 2007). About 77% of the respondents reported that they sold less maize in 2007. About 62% and 64% of the respondents revealed that they sold less wheat and sorghum in 2007 respectively compared with what they marketed in 2002.

Attempts are made here to analyze the factors, which determine of marketed grain of sample households. A double log multiple regression was run to identify the key independent variables affecting marketed grain (dependent variable). The regression results are shown in Table 2.7.

Table 2.7: Determinants of marketed grain

Variables	Maize		Wheat		Teff		Sorghum	
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
Crop production	.775	12.59	1.055	10.67	.9	9.44	.79	9.76
Age	-.24	-1.33	-.003	-0.02	-.31	-1.21	-.062	-.46
Sex	-.09	-0.57	.09	0.69	.25	1.59	.183	1.66
Education	-.003	-0.19	-.0003	-0.02	-.045	-1.65	.027	1.8
Land	.217	1.77	-.2711	-2.03	-0.06	-0.41	.017	0.18
Total cash income	.292	4.32	.1916	2.42	.323	3.73	.227	4.74
HHs members working on the farm	.146	1.16	.0515	0.42	-.113	-0.81	.013	0.13
Access to extension	-.16	-1.3	.204	0.95	.07	0.58	-.036	-0.36
Agricultural input credit	-.05	-0.46	.278	2.22	.08	0.7	.162	1.58
Households members	-.3	-2.13	-.247	-1.42	-.04	-0.18	-.124	-1.17
Constant	.613	.71	-2.43	-2.4	-1.13	-.83	-.586	-0.92
R^2	0.79		0.76		0.78		0.65	
Adjusted R^2	0.77		0.74		0.75		0.62	
Number of observations	133		109		89		160	

The results of the regression analysis in Table 2.7 indicate that for the maize producers, the volume of maize produced, the size of cash income, size of land cultivated and size of the households were the significant variables that affected the volume of maize sold by the sample households. The higher the amount of maize produced and higher cash income the higher the volume of maize marketed. On the other hand, the higher the size of the household, the lower the volume of maize marketed by sample households. The variables in the model explained about 77% of the variations in the marketed maize.

Wheat production, land size, availability of cash income and agricultural input credit are significant variable that are behind the volume of marketed wheat by sample households. However, the results show that marketed grain is negatively related with land size. Those sample households with limited land sold more wheat than those owning higher size of loans. The variables in the model explained about 74% of the marketed wheat.

The regression results for teff indicated that crop production and total cash income both determine marketed teff positively. The same was true for sorghum except that marketed sorghum has additional variables such as sex of head of household and educational level

of farm manager, which were found to have positive and significant effect on it.75% of the variations in marketed teff and about 66% of the variations in marketed sorghum were explained by the independent variables in the model (Table 2.7).

2.3 Market outlets of grain producers

Farmers require alternative market outlets that increase sales and operate at the lowest possible cost. Having alternative marketing channels are key strategic assets that can lead to sustainable competitive advantages to smallholder farmers. The market outlets vary across households and change over time. The sample households were asked to indicate, from a given list of possible market outlets, the main channels they normally use in selling their products. The results are summarized in Table 2.8.

Table 2.8: What is the main market outlet/crop depot for grain?

Crops	At farm gate	In the village market	In markets outside the village	Farmers group or organization
Maize	0	55.9	41.3	2.8
Teff	0	67.5	31.6	.9
Wheat	1.6	28	70.4	0
Sorghum	0	69	31	0

More than 96% of the respondents sold their crops either in the village markets or in markets outside the village. About 70% of the wheat producers and 41% of the maize producers sold their products in markets outside the village market. About 68% of the respondents indicated that they sold their teff in the village markets. About 69% of the sorghum producers and about 56% of the maize producers sold their produce in the village markets.

Table 2.9: Do you grow grain on the basis of a pre - arranged contract with a private trader?

Crops	No		Yes	
	Frequency	Valid Percent	Frequency	Valid Percent
Maize	133	93	10	7
Teff	118	100	0	0
Wheat	125	100	0	0
Sorghum	166	96.5	6	3.5

The respondents clearly indicated that they are not engaged in selling their grain in a pre-arranged contract with private traders. Out of all the respondents who reported selling grain using different market outlets, only 7% of the maize producers and 3.5% of the sorghum producers indicated that they had the experience of selling grain on pre-arranged contract with private traders (Table 2.9). The results of the survey show that contract farming in Ethiopia is at its rudimentary stage.

2.4 Changes in market access and prices

The weak performance of the agricultural markets (both input and output marketing) in Ethiopia has been recognized in various studies as a major impediment to growth in the agricultural sector and the overall economy. Smallholder farmers in particular face an uncertain production environment and enormous constraints and higher cost in accessing markets. The farmers also exchange with actors who have more resources, information, and options and, in sum, more economically powerful, including unfavorable international trade regimes and markets. Moreover, if the marketing system is inefficient, the surplus resulting from increased production (such as the surplus situation of 1995/96 and 2000/2001 in Ethiopia) benefits neither the farmers nor the country. The dramatic agricultural price increase in 2007 and 2008 has brought about a new challenge to the government and urban consumers, including the farmers who are net buyers.

Table 2.10: How has access to market for grain changed since 2002?

Crop	**Market access is worse now**		**Market access unchanged**		**Market access is better below**	
	Frequency	Valid percent	Frequency	Valid percent	Frequency	Valid percent
Maize	0	0	7	3	226	97
Teff	0	0	0	0	119	100
Wheat	1	.6	0	0	166	99.4
Sorghum	0	0	5	4	120	96

More than 96% of all the respondents revealed that access to markets has improved significantly since 2002. The recent increase in prices and demand for grain has contributed to the improvement in market access.

Table 2.11: Lowest and highest price of grain received following the most recent harvest (USD/100kgs)

Crop	**Lowest**	**Highest**	**Difference (%)**
Maize	11.6	12.9	11.2
Teff	41.2	44.5	8.0
Wheat	30.25	34.57	10.5
Sorghum	14	16.24	16.0

The results of the price information collected from the respondents showed lower seasonal price variability for teff. The highest price variability was observed in sorghum followed by maize and wheat. Although the expectation was low price variability for teff and higher variability for the rest of the grains (due to storage problems), the price difference observed was very low (Table 2.11).

Table 2.12: Is the price you receive for grain better or worse today as compared to when the household was formed?

Crops	Worse price today		No significant price change		Better price today	
	Frequency	Valid percent	Frequency	Valid percent	Frequency	Valid percent
Maize	0	0	1	2.1	47	97.9
Teff	0	0	0	0	38	100
Wheat	0	0	1	2	49	98
Sorghum	0	0	1	2.6	38	97.4

More than 97% of the respondents reported that the prices they received for their grain in 2007 was much better than the prices in 2002 and the prices they received when the households were formed (Table 2.12 and 2.13). This had a clear positive income effect for the smallholder farmers who are net sellers.

Table 2.13: Is the price you receive for grain better or worse today as compared to in 2002?

Crops	Worse price today		No significant price change		Better price today	
	Frequency	Valid percent	Frequency	Valid percent	Frequency	Valid percent
Maize	3	2.3	0	0	130	97.7
Teff	0	0	0	0	112	100
Wheat	2	1.3	1	.7	148	98
Sorghum	0	0	0	0	124	100

More than 97.7% of the grain producers in the survey indicated that the price they received in 2007 is much better than the prices they received in 2002. This is consistent with the response sample households who reported that access markets had improved in 2007, which also indicates that the income of net selling households had increased in 2007.

Table 2.14: Did traders pay lower price due to post-harvest quality deterioration?

Crop	No		Yes, for some of my produce		Yes, for most of my produce	
	Frequency	Valid percent	Frequency	Valid percent	Frequency	Valid percent
Maize	123	87.2	18	12.8	0	0
Teff	109	92.4	9	7.6	0	0
Wheat	122	97.6	3	.6	0	0
Sorghum	142	83	28	16.4	1	.6

According to the results of the survey, quality is not a serious issue affecting the prices received by sample households. More than 83% of the respondents indicated that traders did not pay lower prices due to post-harvest quality deterioration. However, about 13% of the maize producers and 16% of sorghum producers reported getting relatively lower prices for some of their produce due to post-harvest quality deterioration.

2.5 Development of vegetables, fruits, peas and beans markets

The improvements in market access and increase in prices showed similar trend for both grain and vegetables, fruits, peas and beans producers. The sample households indicated that they sold Irish potatoes (20.9%), peas (14.9%), beans (13.3%), vegetables (17.4%), fruits (14.1%), bananas (6.3%) and sweet potatoes (1.3%) for local markets. Although 25% the respondents did not sell fruits, vegetables, beans, and peas, about 7.0% of the fruit, vegetable, and Irish potatoes producers indicated that their crops were relatively more profitable compared with other crops. However, about 46.3% did not specify the crop, which was more profitable.

Table 2.15: Do you sell more or less of vegetables, fruits, peas and beans today as compared to when you formed your farm/household or today (2007) Percent

Responses	Compared to when the households were formed	Compared with 2002
Crop not grown at that time	16.2	9.5
Less is sold now	32.4	26.7
No change	5.0	3.6
More is sold now	46.4	60.2
Total	100.0	100.0

About 46.4% of the respondents indicated that they sold more fruits, vegetables, peas and beans in 2007 compared with what they sold when their households were formed. However, about 32.4% revealed that they sold less in 2007. About 16.2% reported that they did not grow the crops when their households were formed. About 5% indicated that they did not observe any change. More than 60% of the respondents revealed that they sold more vegetable, peas and beans in 2007 compared with 2002. However, about 27% indicated that they sold less in 2007 compared with what they marketed in 2002.

Table 2.16: How has the overall market access for the vegetables, peas and beans changed since you formed your household or today (2007)?

Responses	Compared to when the households were formed	Compared with 2002
Crop not grown at that time	8.0	4.0
Market access is worse now	1.3	1.3
Market access unchanged	.4	0
Market access is better now	90.2	94.6
Total	100.0	100

Table 2.16 shows that about 95% of the respondents indicated that the overall market access to vegetables, peas and beans producers had increased since the households were formed. Similar to grain producers, more than 90% of the respondents reported that overall market access to vegetables, peas and beans producers had improved in 2007 as compared to markets when the households were formed.

2.6 Storage practices of farmers

Improvement in storage is one of the fastest interventions, which can have an immediate impact in improving agricultural production. Building small and inexpensive structures can protect agricultural products form significant storage losses. The storage structures can be built by individual households or cooperatives to improve their ability to take advantage of seasonal rises in prices. The responses of households on how to store their produce are provided in Table 2.17.

Table 2.17: How do you store your produce?

Responses	Frequency	Valid Percent
Bags inside the house	43	9.1
In a granary	312	65.7
Bags in a proper store	3	.6
Other	117	24.6
Total	475	100.0

About 66% of the respondents indicated that they stored their crops in granaries, while 9% reported they stored their produce using bags inside their houses. Less than 1% revealed that they used bags to store their crops in a proper store (Table 2.17). The respondents also indicated that the storage loss was low, 3.13%.

Table 2.18: In case that you store the bags inside your house, how do you store them?

	Frequency	Valid Percent
In bags straight on the floor	300	63.7
In bags on pallets on the floor to allow for air circulation	167	35.5
In bags under the ceiling	4	.8
Total	471	100.0

Table 2.18 shows that about 64% of the respondents stored their crops in bags straight on the floor. About 36% of the sample households reported that they stored their crops in bags on pallets, which allowed air circulation.

2.7 Source of cash income of farmers

Farmers have different sources of cash income, which they can use to meet their needs. The main sources of cash income are generally from farm activities and off-farm activities. Non-farm activities and remittances are also addition sources of cash income. The responses of sample farmers on the sources of cash income are summarized in Table 2.19.

Table 2.19: Which income source generated most cash for your household in the course of the past year?

Source of cash	Frequency	Valid Percent
Sale of food staples	238	50.3
Sale of other food crops	21	4.4
Sale of non-food cash crops	77	16.3
Sale of animals/animal produce	52	11.0
Leasing out machinery (e.g. tractors) and/or equipment, oxen, push carts, etc…	3	.6
Work on others' farms/agricultural labour	2	.4
Non-farm salaried employment	12	2.5
Micro business	32	6.8
Remittance from absent household member, children etc.	36	7.6
Total	473	100.0

About 50% and 16% of the sample households reported they generate cash income from the sale of food staples and non-food cash crops respectively. About 11% of the respondents indicated that the sale of animals and animal produce was the main source of cash income. Micro businesses and remittance contributed for 6.8% and 7.6% of the cash income of households respectively (Table 2.19).

Table 2.20: Which farm income source generated most cash for this household in the course of the past year?

Source of cash	Frequency	Valid Percent
Sale of food staples	287	62.4
Sale of other food crops	24	5.2
Sale of non food cash crops	85	18.5
Sale of animal produce	50	10.9
Leasing out machinery etc…	14	3.0
Total	460	100.0

About 62% of the respondents indicated sale of food staple as the main source of cash for their households, which was generated directly from farming activities. About 19% and 11% the cash income was generated from the sale of non-food cash crops and sale of animals and animal produce respectively (Table 2.20).

2.8. Conclusion

Absence or thinness of markets and limited access to markets were the main problems that constrained farmers from increasing production and productivity in the agriculture. Farmers had been complaining on the low output prices, which did not cover the cost of inputs. However, the results of this survey in 2007 revealed that access to markets has improved and agricultural output prices increased significantly, benefiting net selling households. Although information on the net buying and net selling position of the sample households is not available, it is clear that some of the net buying farmers could be affected by the increase in prices of agricultural products. The respondents in the survey also indicated their intention to increase marketed products. To give the full picture of market developments in the agricultural sector, there is a need to conduct a detail survey which can capture the level of competition, market opportunities and value chains, enabling policy and regulatory environment, impact on livelihoods, access to inputs and services, availability of processing, quality control, standardized weights and measures, storage by traders, market behavior of traders and market information.

Chapter III: Access to credit of smallholder farmers in Ethiopia

3.1 Introduction

Agricultural production, processing and marketing constitutes an important source of livelihood for rural households in Ethiopia. Improved financial services in rural areas can enhance sustainable agricultural production and thus play a significant role in promoting agricultural technologies and have a long-term impact on increasing agricultural productivity. Because of the diverse characteristics of the smallholder farmers and their enterprises, any finance related intervention should focus on developing a flexible approach to deliver credit and other financial services that is responsive to the socio-economic environments, production systems, needs, constraints and priorities of individual households.

3.2 Access to finance

The survey results in Table 3.1 indicate that about 47.4% of the respondents had access to agricultural input credit in 2007. However, about 56% of the sample households reported that they took loans from various sources in 2007. About 22.5% indicated that they had problems in repaying their loans while 77.5% reported that they did not face any problem on repaying loans. About 72.1% reported that access to loan has improved significantly. About 23.8% of the respondents revealed that they had cash savings every year to meet their future needs. Since the percentage of savers is relatively low, we believe that developing the saving culture and flexible saving products are important interventions to get the financial resources required to increase agricultural production and improve productivity.

Table 3.1: Response of sample households on access to finance

	No		**Yes**	
	Frequency	Valid Percent	Frequency	Valid Percent
Do you at present obtain any form of agricultural input credit?	250	52.6	225	47.4
Are you normally able to save some money every year for future needs?	358	76.2	112	23.8
Did you take loans during the most recent season?	207	43.8	266	56.2
Did you face problems to repay loans	321	77.5	93	22.5
Compared with 2002,has access to the loans increased	132	27.9	341	72.1

3.3 Finance providers

Finance is one of the key elements in addressing issues of increasing agricultural production and productivity in Ethiopia. It is even considered to play a leading role in guiding agricultural development, particularly adoption of improved technologies in the country. Whatever development strategies or programs (poverty reduction strategy, rural development strategy, food security strategy, etc…) are proposed for Ethiopia, there is a need for finance and financial institutions or systems to implement the development programs. The provision of financial services such as loans contains two basic elements: (i) capital, the funds which are being provided; and (ii) financial institutions or systems involved in this process. If the objective is to deliver financial services such as loans to rural households and promote productive investments in the agricultural sector, it is important to have both the capital, and well-functioning financial systems and institutions. Table 3.2 shows the different finance providers involved in channeling loans to the sample households in 2007.

Table 3.2: What is the major source of loans?

Finance providers in the study area	Frequency	Valid Percent
Microfinance Institutions (MFIs)	51	19.1
Multipurpose cooperatives	102	38.2
Saving and Credit Cooperatives (SACCOs)	41	15.4
Iqub (Rotating Saving and Credit Associations or ROSCA)	1	.4
Friends/relatives	52	19.5
Moneylenders	12	4.5
Suppliers (input suppliers)	2	.7
Others (specify)	6	2.2
Total	267	100.0

About 19% of the respondents accessed loan from MFIs. Multipurpose cooperatives channeled credit for about 38% of the sample households. About 15% of the sample households accessed loan from financial cooperatives (Saving and Credit Cooperatives). About 20% of the respondents reported that they accessed credit from friends and relatives. Moneylenders accounted for about 5% of the loans channeled to the sample households. Iqub and suppliers credit accounted for less than 1% (each) of the total loans provided to the sample households.

Given the current regulatory framework in Ethiopia, loans to rural or urban households should be provided through banks, cooperatives and deposit taking MFIs. NGOs, government/donor programs/projects, Woreda offices, Kebeles, groups, etc are not prohibited, by law, to get involved in the direct delivery loans and other financial services. However, since the outreach of financial cooperatives, MFIs, and banks is very limited, the regional governments still continue to channel credit through unsustainable

finance providers such as multipurpose cooperatives, Kebele administrations and Woreda Offices.

It is believed that the sample households obtained loans from limited channels and some of the finance providers are unsustainable. There is a need to develop the right loan products for the smallholder farmers, which require sustainable finance providers with the necessary institutional setup to develop financial products and professional skills for their staff in the area of market research, product development and risk management. The finance providers should also shift from the traditional supply-driven approach to demand-driven financial products that involve market research and new product development.

3.4 Purpose of loans

Increased production, productivity and diversification require productive resources and opportunity for diversification, which in turn partly depends on the financing capacity of finance providers. Production credit provides households with the necessary capital to engage in activities that improve the level and stability of their income by diversifying their income sources (both on-farm and off-farm), adopting new and innovative production technologies (modern farm inputs, irrigation, improved animal breed, etc), and acquiring more productive resources (e.g. buying oxen, renting land, hiring labor, etc). Higher and more stable household income, as a result of creating access to finance, permits access to more and better quality food for rural households. Table 3 shows how the sample households used the loans by specifying the activities and inputs purchased with the loans taken from various finance providers.

Table 3.3: Main purpose of loans

Purposes	1st purpose
Purchase of farm inputs (fertilizer, improved seeds, chemicals, farm tools, etc.)	62.9
Purchase of oxen	10.1
For animal fattening/sheep/goat rearing	1.5
For dairy	.4
Purchase of donkey, mule, camel and other transport animals	.7
To start new trade business (cereals, coffee, livestock, salt, spices, etc…)	.7
To expand existing non-agricultural business	1.9
Purchase of household consumable items (food grain, kerosene, oil, cloths, etc…	13.1
For social ceremony (weeding, tezkar, and other festivities)	.4
For school, health fees	5.2
To hire labor	.4
For settling other debts	1.1
For paying taxes	
Others	1.5
Total	100.0

The sample households in the survey were asked to identify the main purposes of loans from finance providers. About 63% reported that they accessed loan primarily to buy farm inputs such as fertilizer, improved seeds, chemicals farm tools, etc…. About 10% of the respondents took loan to buy oxen while about 13% accessed loan to buy household consumable items such as food grain, kerosene, oil, cloths, etc. About 5% reported that they used the loan to pay school fees and other expenses related with schooling. About 2% of the sample households used the loan to expand existing non-agricultural businesses. About 1.5% took the loan to engage in livestock fattening. About 1% of the respondents accessed the loans to settle other debts.

Since the loan taken by the sample households were mainly used for productive purposes, it has a direct impact on increasing agricultural production and productivity. However, unless the loans disbursed by the finance providers are collected on regular basis, it will send a wrong message to the community and distorted the credit markets. Once the financial market is contaminated with non-performing loans, it will be difficult to deliver financial services through sustainable finance providers.

3.5 Main features of the loan products

The term of the loan may be inappropriate (too long or too short) for the intended activity. It takes time to generate income and a loan that needs to be repaid before sufficient income is generated to cover repayments and some surplus for savings can put the smallholder farmers in a very bad spot and negate the positive effects from the asset. On the other hand, if the term of the loan is longer than it takes to generate that income, it puts the farmers at the risk that the income will be spent on other things rather than repayments and there will not be sufficient funds to repay later on, again resulting in the possible sale of the asset. Having a loan that meets exactly the life cycle of the asset to be purchased will allow the farmers to take maximum advantage of the opportunities offered to them. The loan period reported by sample households in the survey is summarized in Table 3.4.

Table 3.4: What was the loan period (in months)

Loan period in months	Frequency	Valid Percent
1	9	3.4
2	3	1.1
3	13	4.9
4	5	1.9
5	8	3.0
6	15	5.6
7	7	2.6
8	106	39.6
9	1	.4
10	8	3.0
11	6	2.2
12	65	24.3
24	21	7.8
Total	268	100.0

The loan period of the respondents varied from one month to 24 months. About 40% of the sample households took loans, which were agreed to be repaid in 8 months. More than 92% of the sample households accessed loan for less than 12 months. About 8% of the respondents reported that they took long-term loans, 24 months. The average loan period of sample households was 9.5 months. This indicates that sample households took short-term loans to meet their need for working capital.

3.5 Determinants of loan size

A loan amount made available by finance providers can be too small to purchase an asset that will make a difference in the lives rural households. For example, buying only one goat will not allow the household to pay back the loan and earn sufficient additional income to save so that the goat will not have to be sold when times get tough. In bad circumstances the beneficiary may even have to sell the asset itself to pay back the loan and the improvements in the lives of the household are reversed. Having the right loan

amount for the intended purpose will allow a household to weather a storm and come out ahead when times get better. The survey result indicates that the average loan size of sample households in the survey is about 910 Birr. Although attempts are made by finance providers to estimate the loan size of individual farmers, there are a number of factors that affect the loan size of sample households.

Attempts are made here to analyze the factors, which determine of the loan size of sample households. A double log multiple regression was run to identify the key independent variables affecting loan size (dependent variable). The regression results are shown in Table 3.5.

Table 3.5: Determinants of loan size

Variable	Coefficient	t	P> | t |
Land	.247	3.33	0.001
Total cash income	.051	1.10	0.271
Household members	.23	2.64	0.009
Age	.277	2.08	0.038
Value of marketable surplus	.071	1.68	0.094
Saving	.159	1.73	0.083
Extension	.135	1.55	0.122
Education level of farm manager	.016	1.23	0.218
Sex	.018	0.93	0.847
Constant	3.84	5.93	0.000
R^2	0.14		
Adjusted R^2	0.12		
Number of observations	468		

Size of land, number of household members, age of head of household, Value of marketable surplus and availability of savings were found to have positive and significant effect on loan size.

3.6 Conclusion

Although about 72% of the sample households reported that access to loan has improved, the provision of credit, saving, insurance, remittances and other financial services to smallholder farmers in Ethiopia is still one of the strategic interventions required to promote the adoption of agricultural technologies, improve liquidity management, finance agricultural investments that help smallholder farmer diversify and enlarge their income sources, respond to lifecycle social events and emergencies that arise from illness, death, and natural or economic catastrophes. This would require (i) designing financial products for smallholder farmers by addressing the issue of loan size, the interest charged, the repayment schedule, loan period, etc… (ii) Building sustainable rural finance institutions which address the financial needs of smallholder farmers and their enterprises; and (iii) implementing appropriate policies, strategies, and legal and regulatory frameworks to improve financial access to the smallholder farmers.

Developing financial products and innovative lending methodologies which match the needs of smallholder farmers are very critical to improve agricultural production and productivity. Lending innovations, which reduce the lending costs for smallholder farmers, should be piloted to increase the demand for loans and expand the frontier of finance. These products will also create additional values, if they reduce the transaction costs of accessing financial services. This could be materialized by improving the

capacity of the finance providers so that they can identify the needs of smallholder farmers better, improve the quality of their services and/or reduce prices of the financial products. Moreover, focusing on what is of value to the smallholder farmer influences the operational efficiency as well as product design, increase beneficiary satisfaction and retention, and profitability of finance providers. Products tailored to the needs of the smallholder farmers will have a greater impact in helping farmers to be effective and efficient in managing their agricultural enterprises. The financial products designed for smallholder farmers should also be tied to their cash flows that improve their repayment capacity and allow the finance providers to sustain their operations.