

Growth, Structure and Firm Dynamics in Grain Markets: The Case of Grain Traders in Ethiopia

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Abstract

In this paper we consider the microeconomic evidence on the determinants of firm performance in Ethiopia, with a focus on grain traders. We analyse both internal and external factors, and the relative impacts of these factors on the performance of grain traders. Different economic indicators seem to suggest that grain traders have become increasingly unviable as reflected by absence or stagnation of growth. These firms suffer from a host of internal problems (e.g. weak human resources and other assets) and of external factors such as access to credit, market facilities, policy and regulatory framework, etc.). Hence without renewed focus on promoting firm growth, especially grain traders through improving access to warehouses, relaxing credit constraints, and improving the macroeconomic and regulatory environment, not only grain traders but also rural and urban households will face a very uncertain and untenable future which will hamper the performance of grain markets and the battle against poverty and food insecurity.

Key Words: Firm, growth, grain traders, Ethiopia

JEL Classification: D22, F14, L11, L20

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1. Introduction

While inflationary pressures and trends might be responsible for the surge in price trends experienced in recent years, seasonality of supply and lack of temporal and spatial arbitrage are responsible for price variations observed in agricultural products in countries such as Ethiopia.

High and volatile prices are caused by a wide variety of supply and demand side factors (Demeke *et al.*, 2012). Demand is steadily increasing due to population growth, urbanization and rising income levels. In contrast to the steady increase in demand, supply appears to be characterized by uncertainty and variability. This is also influenced by the inefficiency of grain markets, which are dominated by small traders with limited storage and distribution capacity. Supply shortages often trigger panic buying and price escalation, which also increase the inflationary pressure. The problem is often made worse by policies that attempt to control private speculative storage. It is assumed that speculators disrupt grain marketing, overlooking their role in widely fluctuating supply with fairly stable demand. A transparent and predictable business environment for traders can reduce food price instability in Ethiopia and other African countries (Minot, 2010).

A wide range of structural and institutional factors has hindered private sector investment and growth in grain marketing activities. Only growing grain trading enterprises can contribute to sustainable expansion and transformation of the grain marketing sector. Employment and wealth can be generated through the creation and expansion of firms. With large size, firms are able to benefit from scale economies and become efficient and competitive. Firm growth is, therefore, a way to introduce innovations, increase competitiveness and ensure survival in the market. The central objectives of this study are two-fold: to study both internal and external factors affecting market improvement and development in Ethiopia; and to evaluate the relative impact of the different factors on growth of grain traders.

The paper is organized as follows. Following the introduction, Section 2 presents the analytical framework. Sections 3 and 4 deal with description of

data and sample characteristics and determinants of growth, respectively. Discussion of econometric results and conclusion are presented in Sections 4 and 5, respectively.

2. Analytic framework to understand factors affecting firm growth in grain trading

According to standard microeconomic theory of a perfectly competitive market, firms faced with a U-shaped average cost curve will grow until they reach the size corresponding to the lowest point on the curve. Firms have no incentive to grow beyond the point of lowest average cost; hence the size of perfectly competitive firms will be narrowly dispersed. Any significant deviation from the optimum size (lowest average cost) will be temporary and will diminish over time and firms converge towards the equilibrium size. Once established, small firms have to grow quickly until they reach the efficient scale. The U-shaped average cost curve reflects a manufacturing economy characterized by a high degree of division and specialization of labor and by large fixed capital that is spread out over increasing quantities of labour. As the process of competition forces the less efficient firms to exit, only the fittest survive. In practice, however, it is common to observe large dispersions of firm sizes within the same industry: a few very large firms may coexist with a large number of small firms in many industries. One possible reason is an L-shaped average cost curve which could mean widely varying firm sizes, all producing at the same average cost. Research on the growth of firm began with Gibrat's (1931) law of proportionate effect (LPE). Gibrat's law stipulates that the rate of growth of a firm is independent of its initial size. The size of the firm at a given point in time is rather a product of a series of random growth rates in the history of the firm. This stochastic growth model can generate right-skewed distributions (log-normal distribution), and the skewness increases as the value of the log standard deviation () increases.

Several studies have tested Gibrat's law in the presence of other factors influencing firm growth. Owner-specific attributes such as education, work experience, gender, social network, ownership structure etc. influence firm growth. Different studies have examined how the different attributes affect

growth. According to Kantis *et al.* (2004), secondary school attainment, for instance, had no discernible impact on firm growth. On the other hand, the findings of many studies (Mead and Liedholm, 1998; Parker, 1995; McPherson, 1996) revealed that owners of firms completing secondary school had more rapidly growing firms in Kenya and Zimbabwe, but the same studies found no significant effect of primary education on firm expansion, particularly in medium and small enterprises. Many studies (e.g. Colombo and Grilli, 2005; Brown *et al.*, 2004; Mengistae, 2001; Jo and Lee, 1996; Roberts, 1991; Bates, 1985) also indicated that education, training, experience, etc., are key determinants of firm performance, while Cooper (1993) and Storey (1994) found no or even a negative relationship between work experience and firm growth.

Firm characteristics such as firm age is often identified as a major determinant of firm growth. Many studies in Africa, Latin America and developed countries (Mead and Liedholm, 1998; Parker, 1995; Variyam and Kraybill, 1992; Evas, 1987) revealed that younger firms are more likely to show higher rates of growth compared to firms that have been in existence longer. However, Heshmati (2001) reported that while younger firms experience faster employment growth, older firms experienced faster growth in the size of assets and volume of sales. Small and informal firms are relatively able to circumvent government regulations and taxation. However, as informal firms grow, there is a risk of becoming visible and creating disincentives to expand beyond a certain size (Snodgrass and Biggs, 1996). Thus, informality reduces chances for growth and it is associated with several other attributes that make growth difficult.

Investments in technology allow firms to produce more efficiently, supply the market with better products and get more opportunities to grow. Variyam and Kraybill (1994) found out that the majority of managers of firms analyzed considered the use of technology as a critical element in their comparative advantage. Those firms, which placed more emphasis in the use of new technology, had higher growth rates than firms that did not view technology as a critical factor.

Policy and regulatory environment facilitate or constrain firm size and growth. Regulatory measures strive to enhance competition among firms and, at the same time, to guarantee the quality and standardization of the product (Demeke and Ferede, 2005). Many studies (Beck *et al.*, 2005; Desai *et al.*, 2005; Johnson *et al.*, 2002; Rajan and Zingales, 1998), however, indicate that inadequate enforcement of property rights, legal constraints, and cumbersome regulations have adverse effects on firm growth and investment. De Soto (1987) argued that strict regulations and high taxes may keep firms small and informal. Regulation and institutional challenges may also deter firm owners from making growth-enabling investments while special subsidies and trade protection offer greater benefits to larger firms, which are often more capable of lobbying (Tybout, 2000). The inconsistency of policies and regulation increases uncertainty and risk which can destroy a flourishing firm and reduces the incentive to invest in grain marketing and processing. Firms may also postpone investment waiting for less uncertain future.

Firms also need supportive macro-economic environment, in which inflation is constrained and exchange rates are stable. Schiffer and Weder (2001) found that inflation and the exchange rate tend to affect smaller firms than larger firms. Bureaucratic process and corruption add costs of doing business and thereby reduce profitability of investment and growth of firms. The findings of Beck *et al.* (2005) reveals that financial, legal and corruption challenges disproportionately constrain the growth of smaller firms. The positive environment to expand business opportunities and enhancing firm capabilities to harness opportunities and promote firm growth include: a stable macroeconomic environment, the existence of mechanisms for contract enforcement and dispute resolution, consistency, so that business owners know what to expect and can assess risks, uninhibited flow of capital for foreign and domestic investment, a flexible labour regime, access to information and investment in education and technology.

A few studies have attempted to analyze firm growth in Ethiopia. For instance, Mengistae (1998) observed that growth rate of manufacturing firms decreases with firm age as well as size. Admasu (2006), Bigsten and Mulu (2007), and Mulu (2006) tested Gibrat's law using data from the manufacturing sector. The results showed that small firms grow faster than large enterprises

implying the Gibrat's law does not apply to the Ethiopian situation. The scope of these studies was limited to a specific aspect of firm growth in the manufacturing sector. This study, however, attempts to examine the overall environment to growth among grain trading firms in Addis Ababa and its surroundings. We contribute to the literature by investigating the constraints of firm growth with a focus on grain traders in Ethiopia. Grain traders are of particular interest given their central role in the performance of the food market in the country. In particular, in the era of escalating food prices since 2008, the Government of Ethiopia has become increasingly concerned the food market and has attempted to intervene in the market in multiple fronts, ranging from food distribution at subsidized prices and direct price control on selected products. We also consider how these interventions have impacted grain traders.

3. Data and Sample Characteristics

3.1 Data and study area

Primary data were collected through survey using structured questionnaire. A total of 250 grain traders were randomly selected and interviewed. The survey was conducted in December 2010 and January 2011. Although the main focus of this study was the grain market in Addis Ababa, nearby towns (Debrezeit and Nazareth) were also surveyed.⁵ Within Addis Ababa, 70% of the sample traders are from the central grain market known as Ehel Berenda while the rest were drawn from eight market centers of the city (Arada, Bole, Gulele, Kirkos, Kolfe-Keranyo, Lideta, Nifas Silk Lafto and Yeka). Information was also generated through focus group discussions with traders to get insights on the impacts of past, current and future government policies and other factors on grain trade activities. In additions, government statistics such as Central Statistical Agency's reports on grain production, consumption, price surveys, and other surveys, government policy documents, and other studies related to grain trading and milling were reviewed.

⁵ See Demeke and Ferede (2005) on the importance of the Addis Ababa grain market.

3.2 Characteristics grain trading firms

3.2.1 Growth and expansion of grain trading firms

Changes in average employment and storage capacity between time of start-up and time of survey (2011) have been used as indicators of growth of grain trading enterprises. Average number of employees⁶ showed little difference over time: the majority of the sample firms (64%) retained the same level of employment while 6.8% showed contraction in their employment levels (Table 1). About 29% reported expansion of employment levels, but 21% increased employment only by one or two persons.

Table 1: Change in employment and storage capacity between start-up and 2011

	Percent of respondents
Change in employment levels	
Reduced workers	6.80
No change	64.00
Increased workers	29.20
Change in storage capacity	
Reduced storage capacity	0.40
No change	88.00
Increased storage capacity	11.60

Source: Trader Survey, 2011

Grain trading is predominantly a family business with most of the labour coming from family members. Table 2 shows that very few firms employ more than 6 persons: the proportion of firms with an average of more than 6 employees was 3.2% at start-up and 6% in 2011. The overwhelming majority have 2 to 3 employees and this situation has not changed between establishment and survey year. The average number of workers (per enterprise) for the entire sample was 2.96 at the time of establishment and 3.33 in 2011.

⁶ Employees refer to persons employed by the firm, including salaried workers as well as paid or unpaid family members.

Table 2: Distribution of employment levels

	Initial year	2011
	Percent	Percent
0	2.0	0.8
1	16.8	13.2
2	34.4	31.2
3	22.4	20.8
4	11.6	12.0
5	6.0	10.8
6	3.6	5.2
7 -39	3.2	6.0
Total	100.0	100
Average	2.96	3.33

Source: Trader Survey, 2011

That the enterprises are small and stagnant is further confirmed by the data on storage capacity: as many as 88% of the sample firms reporting no change over the course of their existence, and only about 12% have expanded their storage capacity. Most firms (77%) were operating with stores of less than 30 ton capacity in 2011 (Table 3). Only about 9% of the firms reported a warehouse capacity of over 40 tons. Average warehouse capacity was reported as 24.5 tons in the year of establishment and 26.9 tons in 2011, implying that the firms managed to increase their storage capacity by less than 3 tons over the course of their existence, 11.8 years on average. Such a small capacity of store indicates that traders handle small quantities and are not engaged in keeping stocks beyond their day to day sales and buying activities. They have little or no capacity to undertake temporal arbitrage, i.e. storing grain from one harvest period to a later period. The stores are basic shade structures (cement floor, corrugated-iron roof, and half wall) used for keeping stack of grain-filled bags (made from woven plastic). No cleaning or grading services are provided in these stores.

Table 3: Distribution of warehouse size

	At start-up	Time of survey (2011)
	Percent	Percent
Less than or equal to 10 tons	26.00	21.60
1 to 20 tons	20.00	20.40
21 to 30 tons	32.80	35.20
31 to 40 tons	14.40	13.60
> 40 tons	6.80	9.20
Total	100.00	100.00
Average capacity (tons)	24.5	26.9

Source: Trader Survey, 2011

3.2.2. Individual and firm characteristics

Owner/ manager characteristics

A significant proportion of the grain trading firms are run by young individuals. Some 43% of the owners or managers are less than 35 years old. Hence, most of the owners or managers have limited experience in grain trading, with about 61% reporting to have less than 10 years of experience in grain trading businesses. This indicates the instability of grain marketing sub-sector and higher exit from the markets, influencing firm growth. Women owners/managers account for only 10% of the grain traders. Women also account for 6.6% of total workers (Table 4). The business involves a lot of negotiations and bargaining with sellers, buyers, brokers, transporters and handlers (loading/unloading) as well as physical handling of sacks of grain that many women may find difficult to manage.

Table 4: Gender of owner/managers and working staff

Sex	Owners/managers		Workers	
	No	%	No	%
Male	224	89.6	894	93.4
Female	26	10.4	63	6.6
Total	250	100	957	100

Source: Traders Survey, 2011

The majority (51%) of firms are owned and managed by people with primary and middle level education (1-8 years of education) or less (Table 5). Some are illiterate (5.2%) or have only religious education (1.2%). About 38% have high school level of education (9-12 years of education). The proportion of grain traders with higher (e.g. beyond high school) educational achievement is very low: Only 7% have college or university level education. Employees working for traders have even lower level of education; about 19% are illiterate or with only religious education. The lower level of educational attainment may indicate that grain trade does not attract educated people with new ideas or visions that can transform the sector.

Table 5: Educational level of owners/ managers

Percent	
Illiterate	5.2
Religious education	1.2
1-4 years of education	10.8
5-8 years of education	33.6
9-12 years of education	38.0
Technical and Vocational school training (TVET)	3.6
College level	6.0
BA and above	1.2
Other (specify)	0.4
Total	100.0

Source: Trader Survey, 2011

Firm characteristics

The vast majority of the sample trading enterprises (93%) are owned under sole proprietorship. Other forms of ownership such as partnership, share company or cooperatives account for less than 7% of the respondents (Table 6). Sole ownership restricts the opportunity of mobilizing more resources and investing in growth. This is aggravated by the limited access to loans from formal financial institutions and underdeveloped capital market in the country.

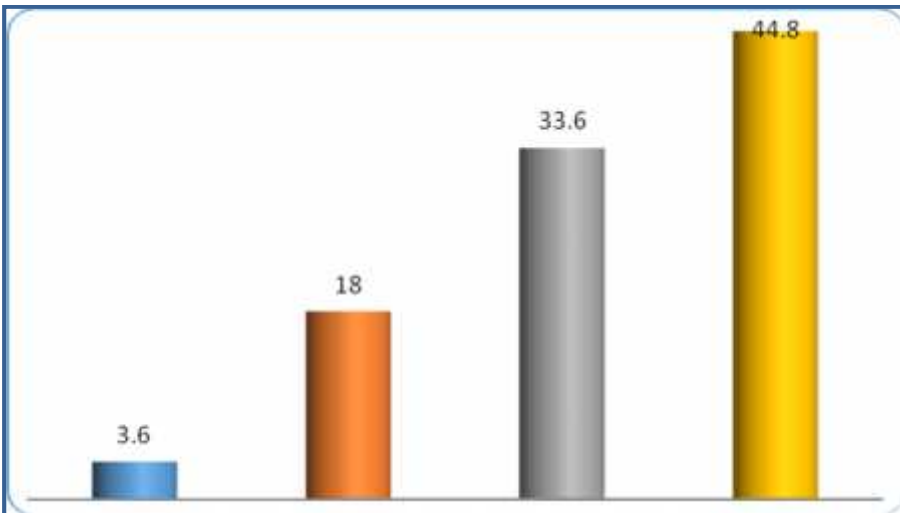
Table 6: Ownership form of grain trade enterprises

	Percent
Sole ownership	93.2
Partnership	2.8
Private limited company	0.8
Share Company	1.2
Cooperative	0.8
Others (specify)	1.2
Total	100.0

Source: Trader Survey, 2011

More than two-thirds of the enterprises were established after 1992, suggesting that the reforms following the overthrow of the former socialist government have played a positive role in promoting the private sector (Figure 3). However, a large proportion of the firms (about 45%) were established more recently, between 2003 and 2011. The recent high prices seem to have encouraged more entry into grain trade but lack of experience and volatile prices could make the new entrants more vulnerable and expanding trading activities a risky venture.

Figure 3: Firms by year of establishment



Source: Trader Survey, 2011

Nearly all sample traders own weighting equipment and sacks and a simple pointed tubular device, known as *memermeria*, for taking samples from sacks (to ascertain quality). Major assets such as warehouses and trucks are also critical for grain traders to undertake temporal and spatial arbitrage activities. However, more than 98 percent of traders do not have trucks of any type (Table 7). Only a small proportion (about 10%) of traders have their own store and the vast majority rely on rented store from government (63%) or individuals (25%) (Table 7). As indicated above, the stores are very small (with an average capacity of 26.9 tons) and are often made of mud- or brick-walled houses topped by corrugated iron roofs. There are no traders with silos or modern warehouse structures. Traders lack the appropriate storage structures with ventilation and handling facilities. Limited investment in major fixed assets is also associated with the fact that the market centres are built by the municipality with no provision for individual traders to invest and expand the structures.

Table 7: Truck and warehouse ownership over the last 12 months (% reporting)

Truck	
Small truck (e.g. ISUZU)	1.6
Medium truck (e.g. FSR)	1.2
Large truck	0.8
Warehouse	
Owned	9.6
Rented from government	63.2
Rented from individuals	25.2

Source: Trader survey, 2011

Horizontal and vertical linkages and cooperation

Although contractual linkages with the different operators along the value chain and membership in traders' association would help improve supply chain efficiency, growth and business competitiveness, most of the respondents have no such linkages. Grain purchase through contract farming was reported by only in two cases (0.8%) while purchase from farmers with no contract by 30

traders (12%) (Table 8). Traders get their supplies from spot markets where commodities are bought for cash and delivered immediately.

Traders sell grain to different types of clients and their most important clients are consumers and retailers: about 77% and 69% of the respondents sell to consumers and retailers, respectively (Table 8). About 48% sell to millers who then retail to consumers. There are no formal contractual agreements between the traders and the buyers. Buyers and sellers (or their agents/brokers) meet in person and negotiate over price and quality. The quality is established through inspection on the spot. Bargaining over price often takes a lot of time as sellers start by quoting higher prices while buyers offer lower prices. Both converge to a middle ground and agree on a price which is often kept secret. There is no invoicing or paperwork to indicate product specifications or quality guarantee. Ownership of the commodity is transferred as soon as the payment is made in cash. Although social relations and networks often instil trust and facilitate transaction, there are no formal horizontal and vertical linkages. With no agreements and contracts with sellers and buyers, traders cannot protect themselves against price fluctuations. The traditional marketing systems and volatility of prices (see above) do not encourage investment in stocks, warehouses, cleaning facilities, etc. Instant buying and selling is a common practice.

Participation in association is also weak as more than half of the sample traders are not members of a traders' associations (Table 9). It appears that the benefit of joining association is limited: most association members indicated that they have not benefited from improved access to credit, information, commercial contracts, dispute settlements, negotiating with authorities, etc. (Table 9). Over 80% of the members believe that association has not helped them in accessing credit, establishing commercial contracts, protecting them from unfair competition, or coordinating their transactions. Inadequate benefits seem to have discouraged traders from participation. The formal network situation is very poor and traders lack collective voice and action to influence policies and reduce transaction costs.

Table 8: Sources of grain purchase and types of buyers in the last 12 months (%)

	Yes	No
Source of grain purchase		
Farmers (no contract)	12.0	88.0
Contract farmers	0.8	99.2
Rural market	22.8	77.2
Assemblers	32.8	67.2
Wholesalers	46.8	53.2
Others (mainly brokers)	28.0	72.0
Buyers of grain		
Millers	48.0	52.0
Retailers	69.2	30.8
Consumers	77.2	22.8
Aid agencies	9.2	90.8
Others	11.2	88.8

Source: Trader Survey, 2011

3.2.3 Business and market environment: Access to finance, insurance, infrastructure and market institutions

Finance

A majority (about 75 to 79%) of the sample traders consider internal or own source to finance working capital or investment needs of their businesses as most important for their business (Tables 9). Borrowing from formal sources (e.g. banks) is reported by only about 6% of the sample traders. Although about 83% of the sample traders have bank accounts (Table 10) and are familiar with bank transactions, the use of formal sources such as banks and micro-finance institutions (MFIs) have limited importance. Collateral requirements are major impediments to accessing loans from formal sources (Amha *et. al.*, 2012).

Traders were also asked if they have ever borrowed money from external sources in the course of their operation. Only about 12% have ever borrowed from formal sources such as banks, microfinance institutions (MFIs) or NGOs (Table 10). Borrowing from friends and relatives is relatively more common as reported by about 50% of the respondents. About 16% have borrowed from

*iqub*⁷ and 3% from saving and credit cooperatives in the course of their existence.

Table 9: Most important source of finance to meet working capital and investment needs (%)

Source	Working capital	Investment
Own savings or retained earnings	74.8	78.8
Borrowing from formal sources	5.6	6.4
Borrowing from informal sources (money lenders, <i>iqub</i> , relatives/friends, etc.)	5.2	4.4
Supplier credit	11.2	4.8
Cash advances from clients	2.4	2
Other (specify)	0.8	3.6
Total	100	100

Source: Trader Survey, 2011

Table 10: Ever received credit from external sources (%)

Source of external credit	Yes	No	Total
Formal banks	7.6	92.4	100
MFI	4.0	96.0	100
NGOs	0.8	99.2	100
<i>Iqub</i>	16.4	83.6	100
Saving and credit cooperatives.	3.2	96.8	100
Friends and relatives	50.4	49.6	100
Others (mainly supplier credit)	6.4	93.6	100

Source: Trader Survey, 2011

Own finance is often augmented through rotating saving and credit association (ROSCA), locally known as *iqub*. About 48% of the respondents were members of *iqub* at the time of this survey was conducted in January 2011. The gap between actual working capital used and working capital required over the last 12 months (2011) is huge (Table 11). The actual working capital used is less than 40% of the required capital for about 52% of

⁷ Informal institution collecting money from members on regular time intervals to give the money to a member in a circulating manner.

respondents. On average, each trader manages with his/her grain trade business with a working capital of a little over US\$5 thousand (compared to the required average working capital of over US\$21 thousand).

Table 11: Share of working capital actually used as proportion of the working capital required

Proportion	Percent
<=20%	28.8
20.1 - 40%	23.6
40.1 - 60%	19.6
60.1 - 80%	14
80.1 - 100	14
	100
Mean working capital actually used	88,096.0 Birr 5182 (US\$)
Mean working capital required	367,417.7 Birr (21,613 US\$)

Source: Trader Survey, 2011

Infrastructure

Traders were asked whether or not the overall situation of infrastructure (e.g. roads) has been favourable for growth and expansion. A majority (61%) of traders agreed the situation is favourable. This is consistent with the recent surge in public investment in roads. Yet, there has not been any major effort to improve storage infrastructure. Apart from losses in terms of quality and quantity wastage, price fluctuations are aggravated by the absence of proper warehouse facilities. Traders at the central market are also affected by congestion due to lack of grain marketing space. The market place (*Ehil Berenda* in Addis Ababa) was built some 50 years ago when the population of the city was probably less than a third of its current size. Traders have also reported inadequate availability of transport services and high transport charges as important infrastructural constraints that have negatively affected their grain business activities (Table 12). High fuel prices have increased transport costs in recent years. The use of small trucks (less than 10 ton capacity) has also contributed to high transport charges and increasing grain prices.

Nearly all traders (owners/ managers) have mobile telephone and most have no complaints about high telephone charges. However, the use of internet or email is largely unknown; only 5 respondents (2%) reported using emails in communicating with suppliers and clients. Internet browsing is even more limited (about 1%). Internet usage in Ethiopia is one of the lowest in Africa, with a penetration rate of 0.7% as of December 31, 2011, (<http://www.internetworldstats.com/stats1.htm>).

Table 12: Perceptions of grain traders about selected infrastructural constraints

	Inadequate availability of transport	High transport charges/ price	High telephone charges/price
No problem	21.2	12.0	46.8
Minor problem	27.2	15.7	18.4
Moderate problem	23.6	18.9	13.6
Major problem	12.8	21.7	11.6
Very severe problem	15.2	31.7	

Source: Trader Survey, 2011

Nearly all traders (owners/ managers) have mobile telephone and most have no complaints about high telephone charges. However, the use of internet or email is largely unknown; only 5 respondents (2%) reported using emails in communicating with suppliers and clients. Internet browsing is even more limited (about 1%). Internet usage in Ethiopia is one of the lowest in Africa, with a penetration rate of 0.7% as of December 31, 2011, (<http://www.internetworldstats.com/stats1.htm>).

Market institutions

There have been recent initiatives to disseminate market information that includes broadcasting of grain price quotes on selected central and regional markets in the country through radio. The ECX is also posting daily grain prices in its website. However, close to 92% of the sample traders reported to have obtained market information from unofficial sources such as friends and brokers (Table 13). Traders may not have trust in official price information systems that do not capture quality as well as the all too important informal

grades and standards that vary by origin (production area), colour, moisture content, and extent of impurities. Spot prices also tend to vary with each transaction, depending mostly on the bargaining power of sellers and buyers. It is thus almost impossible to observe single daily spot prices. Market information is of little value in the absence of an objective and a formal system of grades and standards and open auction prices.

Table 13: Sources of market information (%)

Sources by official and unofficial	
Official sources	8.4
Unofficial sources	91.6
	100.0
Unofficial sources of information	
Friends and fellow traders	68.1
Brokers	31.9
	100.0

Source: Trader Survey, 2011

3.2.4 Government regulations and policies

Illegal traders

The central grain market is a place where licensed traders and brokers operate along with a large number of informal intermediaries (without license and stall). Informal traders do not pay taxes or rents (for those selling grain on trucks) and have competitive edge over those operating with license. They also enter the grain trade when conditions are favorable and exit out when the situation is difficult, hence forcing licensed traders to operate with small margins and no capacity and incentive to invest in growth and expansion. There is no enforcement mechanism and police protection against unlicensed operators. The presence of unlicensed traders was identified as one of the most important problems when traders were asked about constraints to increasing revenue from their business (Table 14).

Table 14: Most important constraint in increasing your revenue from this business

	Percent
Financial constraint	26.3
The presence of illegal traders	28.3
Lack of demand	6.3
High competition	7.1
High input price	6.3
Unstable price	8.3
Poor social network	3.3
Inconvenient working place	5.4
Lack of quality product	3.8
Supply shortage	2.1
Lack of skill/knowledge	1.7
High collateral requirement	.8
Poor policy implementation	.4
Total	100.0

Source: Trader Survey, 2011

Contract enforcement

The exchange process in the spot market is completed as per the terms of the negotiated price and contract. If the process involves resolving disputes, court action is used to enforce contracts. However, contract enforcement in Ethiopia takes a lot of time and money: it takes 690 days to settle disputes and the cost of recovery is very high for formal and registered firms. The cost in terms of time and finance is expected to be much higher for informal firms (Rashid and Minot, 2010). When asked why it is difficult to make contractual arrangements with farmers, traders mentioned supply instability, lack of trust and price volatility as the main problems. The same problem has affected linkage with processors. In other words, owing to inadequate institutional environment for contract enforcement, grain trading firms are forced to limit their transactions within the confines of a few trusted partners with no effort to forge horizontal and vertical integration in the grain value chain.

Overall policy environment

Traders were asked about the impact of some policies to gauge their perception about the general business environment. For instance, most traders (over 90%) agree that licensing procedures are not a problem. Only about 11% also described high taxes as major or very serious problem (Table 15). On the other hand, more than a third (36%) indicated that they felt threatened by government action to import wheat and sell at subsidized prices. Most traders do not keep stocks and have no contractual obligations, hence they may not be affected by government interventions that tend to lower prices. On the other hand, lack of consistency in the policies of the government could be one of the reasons behind keeping limited stocks and constraining expansion of their business. Nevertheless, relatively more number of traders (42%) reported to have been affected by unexpected price changes over the last three years.

Table 15: Perceptions on licensing, taxes, wheat import, consultation and price intervention

		Percent
Is licensing procedure a problem	Yes	92.0
	No	8.0
	Total	100.0
What is your view about tax	Not a problem	44.0
	Mild or moderate problem	45.1
	Major problem	6.9
	Very serious problem	4.0
	Total	100.0
Has public wheat import and sell at subsidized prices affected your business?	Yes	36.0
	No	64.0
	Total	100.0
What is the extent to which business sector is consulted in designing rules and regulation?	Always	1.6
	Most of the time	12.0
	Sometimes	36.8
	Seldom	16.8
	Never	32.8
	Total	100.0
Has unexpected price intervention over the last 3 years affected your business?	Yes	41.6
	No	58.4
	Total	100.0

Source: Trader Survey, 2011

3.2.5 Constraints to growth

Traders were asked if growth and expansion has been an important objective of their business. The vast majority (about 88%) of the sample traders indicated that growth is an important objective for their business. However, the ambition to grow does not include moving into regional and international trade for most traders (66%). None of the traders has ever imported or exported grain partly because of government restrictions and partly due to large capital requirements as well as the high cost of logistics. With no large-scale grain trading firm in the market, growth and expansion is likely to be understood in a narrow or limited perspective of adding a few more employees to serve primarily small domestic market.

In response to a question that enquired about most important growth obstacles, the respondents identified several factors and the two most important were financial constraints and the problem of illegal traders. Limited access to finance is perceived as the most binding constraint by 48% of the respondents while illegal traders are viewed as the most important by 25% (Table 16). About 7% of the traders considered price instability as their most important constraint. Inadequate premise (7%) and lack of business support services (2%) were also mentioned as most important problems. Other problems identified include high price, lack of business skills and inadequate infrastructure.

Table 16: Most important obstacle to the growth/expansion of this business

	Percent of respondents
Financial constraints	47.8
The presence of illegal traders/brokers	24.7
Inadequate premise/working place	6.5
Price instability	6.9
Lack of demand	4.0
Lack of business support services	2.4
Others	7.6
Total	100.0

Source: Traders Survey, 2011

Traders were asked about the impact of the ongoing grain price inflation on their business. The vast majority (96%) consider high prices as a problem, rather than as an opportunity. Those who consider high price as a problem were further asked to explain the reasons: about 55% reported that high prices reduce demand or reduce volume of sales or reduce profitability (Table 17). Traders' margins are bound to decline with the decline in the volume of sales. Although it is generally claimed that demand for grains (basic necessities) is price inelastic, it appears that consumers, especially the poorer ones, are reducing their purchases in response to high prices. Many consumers are likely to shift their purchase from the most widely traded and most expensive cereals (e.g. *teff*) to cheaper and less traded ones (e.g. maize).

Another major problem of high price is its impact on working capital. About 27% complained that high prices create financial difficulties by increasing the cost of buying grain (Table 17). For some of the respondents (19%), the main problem of high prices is the price instability it creates. In the absence of access to finance, it appears that high grain prices rather induce contraction, not growth and expansion of grain trade businesses.

Table 17: Perceptions on current inflation (%)

Current inflation as:

Opportunity	4.0
Problem	96.0
Total	100

If perceived as a problem, indicate one main reason:

Decreases demand or reduce sales volume or reduces profitability	54.7
Creates financial shortage or increase the cost of grain purchase	26.5
Creates price instability	18.6
	100.0

Source: Trader Survey, 2011

4. Determinants of Growth

4.1 The basic model

We use changes in employment between establishment and survey period as a proxy for firm growth. Using this indicator, three categories of firms were identified: contracted, stagnated and expanded. In so doing, we estimated an ordered probit model to examine the main drivers of firm growth. The dependent variable takes three values, indicating the three categories of firms.

Firm growth can be influenced by a battery of factors such as finance, human capital, technology (or innovation) and other factors. In a more general form, the determinants of firm growth can be expressed as:

$$y_i = G(X_i, F_i, T_i)$$

Where, y_i is firm growth, X_i is a vector of owner-specific characteristics, F_i is a set of firm-specific factors, T_i is a vector of other factors such as credit, technology, infrastructure, etc. Specifically, firm performance can be modeled using an ordered probit approach (Greene, 1997), and assume that the observed firm performance can be generated by as latent variable y^* .

The latent variable is, in turn, related to a battery of observable and unobservable factors of the form:

$$y^* = Z' \beta + v$$

Where $Z = (X, F, T)$ is a vector of explanatory variables, β is a vector of parameters to be estimated and v is error term which follows a normal distribution. We then relate the latent variable to the observable variable y as:

$$y = \begin{cases} 1 & \text{if } y^* \leq \tau_1 \\ 2 & \text{if } \tau_1 < y^* \leq \tau_2 \\ 3 & \text{if } y^* > \tau_2 \end{cases}$$

Where \mathbb{E} is a threshold parameter which can be estimated together with other parameters in the model. The empirical model assumes the following form:

$$P(y = j / X) = \begin{cases} \Phi(\mathbb{E}_1 - X'_{\bullet}), & \text{if } j = 1 \\ \Phi(\mathbb{E}_2 - X'_{\bullet}) - \Phi(\mathbb{E}_1 - X'_{\bullet}), & \text{if } j = 2 \\ 1 - \Phi(\mathbb{E}_2 - X'_{\bullet}), & \text{if } j = 3 \end{cases}$$

Where, Φ is the cumulative normal density function and j is the number of categories (three in our case). Hence we estimate $P(y=j/X)$ model by including a set of explanatory variables which include firms' characteristics, financial variables and other owner-specific attributes. It should be noted that the coefficients estimated by these models cannot be interpreted as the marginal effect of the independent variable on the dependent variable. However, the coefficients can be interpreted by computing the marginal effects.⁸

Table 18: Variables included in the model

Variables	Description
<i>Dependent variables</i>	
Employment	Dummy variable: contracted, stagnated, and expanded
<i>Explanatory variables</i>	
I. Owner and firm characteristics	
Hhsex	Dummy variable: Owner/manager is male equals 1, otherwise 0
Ihheducat_1	Dummy variable: Owner/manager with less than or equal to 4 years of education equals 1, 0 otherwise (control variable)
Ihheducat_2	Dummy variable: Owner/manager with 5 to 8 years of education equals 1, 0 otherwise
Ihheducat_3	Dummy variable: Owner/manager with more than 9 years of education equals 1, 0 otherwise
Ihhagecat_1	Dummy variable: Owner/manager with less than or equal to 30 years of age equals 1, 0 otherwise (control variable)
Ihhagecat_2	Dummy variable: Owner/manager between 31 and 60 years of age

⁸ The marginal effects can be computed as:

$$\frac{\partial P(y=1/X)}{\partial X_l} = -_{\bullet l} \left[f(\mathbb{E}_{j-1} - X'_{\bullet}) - f(\mathbb{E}_j - X'_{\bullet}) \right] \text{ where } f \text{ is the derivative of}$$

the cumulative normal distribution function and X_l is the l-th element in X.

	equals 1, 0 otherwise
Ihhagecat_3	Dummy variable: Owner/manager 61 and above years old equals 1, 0 otherwise
Ifirmagec~1	Dummy variable: Firm age is less than or equal to 5 years equals 1, 0 otherwise (control)
Ifirmagec~2	Dummy variable: Firm age is 6 to 10 years equals 1, 0 otherwise
Ifirmagec~3	Dummy variable: Firm age is 11 to 20 years equals 1, 0 otherwise
Ifirmagec~4	Dummy variable: Firm age is 21 years and above equals 1, 0 otherwise
Bustart	Dummy variable: Business established through inheritance, purchase or other similar means equals 1, 0 other wise
Dinworkers1	Dummy: 1 if number of workers at start-up is less than three, 0 otherwise
Dinworkers2	Dummy: 1 if number of workers at start-up is between three and five, 0 otherwise
Dinworkers3	Dummy: 1 if number of workers at start-up is greater than or equal to five, 0 otherwise
Risktaker	Dummy variable: Owner/ manager described him/herself as high risk taker equals 1, 0 otherwise
Association	Dummy variable: Owner/ manager member of traders association equals 1, 0 otherwise
Proddv	Number of products handled by the firm (1-3 = 1; 4-5 = 2; and 6+ = 3
Incomedv	Dummy variable: All income from the grain trade equals 1, 0 otherwise (have other sources of income)

II. Access to finance

Creditformal	Dummy variable: Ever received external credit from formal sources (banks, MFIs, government projects NGOs, and saving and credit coops) equals 1, 0 otherwise
Creditinform	Dummy variable: Ever received external credit from informal sources (friends and relatives, , money lenders, , etc.) equals 1, 0 otherwise
	<i>Iqub</i> is the reference category

III. Access to market facility

Subcitycat	Dummy variable: Trader located in the central grain market (Addis Ketema) equals 1, 0 Otherwise
Storesc0	Initial store size divided by 100

IV. Policy and regulatory environment

Poorquality	Dummy variable: Poor quality or absence of grades and standards ranked as a problem (1 to 5) equals 1, 0 otherwise
Weakminfo	Dummy variable: Weak market information system ranked as a problem (1 to 5) equals 1, 0 otherwise
Weaklegal	Dummy variable: Weak legal system to enforce contracts ranked as a problem (1 to 5) equals 1, 0 otherwise
Highunstable	Dummy variable: High or unstable prices ranked as a problem (1 to 5) equals 1, 0 other wise
Pricdist	Dummy variable: Unexpected price distortion affected business over the last 3 years equals 1, 0 otherwise

4.2 Discussion of model results

The internal environment of the firms was examined using a number of factors: owner/manager age, owner/manager education, age of the firm, initial firm size (proxied by initial store size), attitude to risk, income diversification, product diversification, ownership of store, membership in association, business location, and how the business was started (Table 19). The likelihood of expansion is higher for older firms compared with young firms due to the former has a strong capacity in terms of assets and other resources, suggesting that older firms can have better resources and well-established clients and market opportunities compared with young firms. In addition, small firms have limited opportunity to learn in the course of their business operation.

Interestingly, firm size matters for firm growth, i.e. As for the education variables, only higher level of education (e.g. high school and above) is associated with higher firm growth, suggesting better education level of owners/ managers is strongly related to higher probability of firm growth. This also indicates that higher level of human capital is required for education to have a positive effect on firm growth as document in many empirical studies (e.g. Hanjra *et al.*, 2009).

Several variables, including association membership, attitude towards risk, and private ownership of store have the expected positive but insignificant coefficients. It would be recalled that members do not value highly the services of their association, confirming that association membership does not increase the likelihood of expansion. The income diversification variable is positive and statistically insignificant. On the other hand, diversification of products or commodities handled seems to be associated negatively with firm performance, suggesting specialization on a specific product can be associated with employment growth.

The external factors that may affect firm growth are broad and diverse and are often beyond the control of the firm: policy and regulatory environment, sources of external finance, access to market facilities and trader organization. Policy and regulatory environments are assessed using several variables,

mainly self-reported (subjective) problems of quality, grades and standards, policy unpredictability, constraints to market information, lack of legal services to enforce contracts, and distortions in market prices. Of these factors firm size, business location, access to finance, sudden distortions in market prices, and policy uncertainty strongly influence firm performance. Specifically, unexpected price distortion has a negative and highly significant coefficient. Traders who held the perception that prices are distorted (or had gone through such experience) seem to be more likely to refrain from investing in growth. They may avoid expansion to limit their exposure to price risks. Similarly, policy uncertainty hinders the likelihood of business expansion. The legal environment and government interventions affect the ability of firms to grow. In particular, unpredictable macro-economic conditions, resulting in part from poor policy management, frequent policy changes, and governance problems, are important in hindering business expansion. Without predictable government policies, it is very unlikely for firms to undertake investment activities to expand their businesses. A priority for government should be to reduce policy instability and inconsistency through better economic management and governance.

As already indicated, traders mainly use own sources but a few have accessed both formal and informal sources of external finance in the course of their operation. The coefficient of access to formal credit is negative, suggesting that external finance is negatively associated with firm growth. Given the small size of firms in terms of assets and other attributes, the effect of external financing on growth is stronger. This is due to the fact that smaller firms have limited collateral to offer and demand for smaller loans but face higher transaction costs and information asymmetries (e.g. Beck *et al.*, 2004b; Beck and Demirguc-Kunt, 2006). This suggests that the cost of external financing can be higher when firms are small. Higher collateral requirements in the formal financial institutions imply that banks are less willing to supply funds, thus making it more difficult to finance investments through bank loans as such investment requires long-term loans. In addition, the nature of credit allocation is such that it favours short-term loans at the expense of long-term financing. About 97% of loans from formal banks in Ethiopia require property collateral compared with Sub-Saharan Africa average of 85% (Demeke *et al.*, 2011). The average value of collateral required as proportion of the loan value

is much higher for Ethiopia (175%) compared with African average of 130% (Amha and Peck, 2010). This could necessitate greater reliance on informal sources to finance their business activities. The coefficient of informal credit is positively associated with firm growth and is statistically significant, indicating that informal finance play an important role in stimulating firm growth, especially when formal sources are inaccessible.

Access to market facility is measured indirectly based on whether the sample firms are located at the central market where there is a huge congestion or not (Sub-city). The results show that those traders located at the central market have lower likelihood of expansion. The facilities in other markets seem to provide better opportunities for expansion than the central market. The initial size has a positive coefficient in all the regression results. The result provides a strong support to the general perception that small efficient firms grow faster than their larger counterparts to overcome their initial scale disadvantage.

Table 19: Ordered probit results of determinants of traders' performance

Explanatory variables	I			II		
	Coef.	Robust Std. Err.	z	Coef.	Robust Std. Err.	z
Gender and education						
Dummy for gender (=1 if male)	0.3206	0.2027	1.58	0.2700	0.2103	1.28
Dummy for owner education: between 5 and 8 years	-0.1811	0.2607	-0.69	-0.0326	0.2711	-0.12
Dummy for owner education: more than 9 years	0.1644	0.2493	0.66	0.3723	0.2569	1.45
Age						
Between 31 and 60 years	-0.0968	0.2109	-0.46	-0.0378	0.2115	-0.18
More than 60 years	-0.5277	0.4437	-1.19	-0.3888	0.4330	-0.9
Between 6 and 10 years	0.0659	0.2294	0.29	-0.0408	0.2329	-0.18
Between 11 and 20 years	-0.0284	0.2465	-0.12	-0.1130	0.2432	-0.46
Above 20 years	0.5034*	0.2830	1.78	0.3749	0.2859	1.31
Capital						
Dummy for number of workers at start-up: between three and five	0.1006	0.1947	0.52	0.0621	0.1975	0.31
Dummy for number of workers at start-up: greater than or equal to five	-0.3334	0.2626	-1.27	-0.4061	0.2890	-1.41
Location, experience and risk						
Sub-city category (=1 if located in central grain market)	0.6523***	0.2144	-3.04	-0.4955**	0.2301	-2.15
Dummy for how business started-self	-0.0160	0.1814	-0.09	-0.1872	0.1882	-0.99
Dummy for previous experience	-0.0250	0.1616	-0.15	-0.2124	0.1649	-1.29
Dummy for risk (high risk taker=1)	0.0385	0.1849	0.21	0.1077	0.1931	0.56
Store size and membership						
Dummy for membership in trader association	-0.1638	0.2152	-0.76	-0.0748	0.2226	-0.34
Dummy for own store	-0.0148	0.2982	-0.05	0.1081	0.3062	0.35

Initial store size	0.3127***	0.0703	4.45	0.3149***	0.0819	3.84
Diversification indicators						
Product diversification	-0.2335*	0.1225	-1.91	-0.2107*	0.1243	-1.7
Income diversification	0.3019	0.1898	1.59	0.3140	0.2042	1.54
Access to finance						
Formal credit	-0.7690***	0.2387	-3.22			
Informal credit				1.1746***	0.1852	6.34
Regulatory and related environment						
Dummy for weak legal system	0.1381	0.3606	0.38	0.1640	0.4026	0.41
Dummy for weak market information	0.0199	0.2216	0.09	0.1124	0.2370	0.47
Dummy for poor quality or absence of grades	0.0558	0.1736	0.32	0.0125	0.1835	0.07
Dummy for unexpected price distortion	0.5266***	0.1648	3.19	0.6909***	0.1666	4.15
Dummy for policy unpredictability	0.2857*	0.1682	1.7	0.1731	0.1713	1.01
/cut1	-2.0207	0.4909		-1.3285	0.5165	
/cut2	0.5215	0.4999		1.4598	0.5447	
Number of observations				250		
Wald chi ² (25)	100.48			104.7		
Prob > chi ²	0.000			0.000		
Pseudo R ²	0.185			0.262		

***, $p < 0.001$, **, $p < 0.05$, *, $p < 0.10$

5. Conclusion

The central objectives of this study were to describe both internal and external factors affecting grain market improvement and development in Ethiopia, and to evaluate the relative impacts of the different factors on growth of grain traders.

The results of the sample survey reveal that grain traders have very primitive mode of business operation such as little equipment, few employees, weak human capital, absence of dynamism, etc. Changes in average employment and storage capacity between time of start-up and time of survey (2011) have been used as indicators of growth of grain trading enterprises. Both the average number of employees and warehouse capacity showed no or very little difference over time, an indication of stagnation. For instance, the majority of sample firms reported no change in warehouse expansion over the course of their existence. Such a small capacity of store indicates that the traders handle small quantities of grain and are not engaged in keeping stocks beyond their day to day sales and buying activities. In addition, they have little or no capacity to undertake temporal arbitrage. Competition fails to operate as a selection mechanism due to the existence of both internal and external factors which hamper firm performance. Lack of credit, weak human capital, shortage of management, lack of access to premises with suitable infrastructure, policy and regulatory constraints, and unfavorable price regimes, among others, hamper the growth of firms. Firms, especially small grain trading enterprises seldom graduate into larger-scale operations.

Although the policy and regulatory environments and infrastructural issues have been favourably rated, there is still much room for improvement. Government policies and institutions do matter for firm growth since unpredictable macro-economic conditions, resulting in part from poor policy management, frequent policy changes, and governance problems, are important causes of instability affecting firm growth. Without predictable government policies, it is very unlikely for firms to undertake investment activities to expand their businesses. A priority for government should be to reduce policy instability and inconsistency through better economic management and governance.

Overall, the central message of this study is that without renewed focus on promoting firm growth, especially grain traders through improving access to warehouses, relaxing credit constraints, and improving the macroeconomic and regulatory environment, not only grain traders but also rural and urban households will face a very uncertain and untenable future which will hamper the battle against poverty, food insecurity and ensure growth and transformation within the grain marketing sub-sector. It should be noted that transformational firm growth requires increased level of investment and rising productivity. This is achieved by establishing a strong enabling environment for private sector development which includes, among other things, macroeconomic stability, a robust legal and regulatory system (e.g. secure contract and property rights), improved access to finance, investment in education, promoting innovations and workforce skills, and infrastructure development. In order to unlock the full potential that improved trade practices play in the economy, traders must embrace new business models, be reorganized into more commercially oriented businesses and integrate their trade activities into more sophisticated supply chains that can effectively link them to producers and potential processors.

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