

Determinants of Informal Competition among Firms in Ethiopia

Abiy Serawitu

Ethiopian Civil Service University, Addis Ababa, Ethiopia
askabiy@gmail.com

Abstract

The study investigated the intensity of informal competition among firms in Ethiopia, using primary data sources from the 2015 World Bank Enterprise Surveys for Ethiopia (Ethiopia: Enterprise Survey 2015). The estimated linear probability model (LPM) revealed that the probability prevalence (intensity) of informal competition among firms in Ethiopia is about 38.5%. It indicated that informality is a key problem in Ethiopia. The study also found that the prevalence of the highest corruption, the burden of the tax rate, and credit access constraints were found to be positively and significantly affecting the informal competition of firms in Ethiopia. On the contrary, firm size is negatively and significantly affecting the informal competition of firms. Correspondingly, the study revealed that regular inspection and communication of tax officials with firms could not contribute to reducing the intensity of informality, even if most studies indicated that an increase in government enforcement of the tax code leads to reduced informality. As many studies indicated, the experience of top managers contributes a lot to reducing informality in an establishment; however, this study exhibited that it does not save firms from informality in Ethiopia. In a nutshell, more research should be conducted as to why tax inspections and the experience of top managers could not save firms from informality in Ethiopia.

Key words: intensity of informal competition

1. Introduction

Competition is an engine for economic growth in most markets since it induces higher rates of productivity growth; however, competition between formal and informal firms does not necessarily lead to productivity. Informal competition is harmful to overall economic performance since the cost advantage informal firms enjoy is a result of ignoring many or all business regulations. There are also cost disadvantages to informality. Some of these disadvantages stem from inaccessibility to formal credit markets and to the courts. This makes informal firms less efficient (Djankov et al., 2003). Formal firms operating in a context where informal firms are widespread are likely to be negatively affected by the operations of informal firms. While sometimes the informal sector itself has been a source of innovation (Radjou et al., 2012), On the other hand, informal producers may affect formal firms' innovation decisions through competition in the product market. By their very nature, informal firms face lower entry costs than formal firms since they are less affected by regulatory burdens imposed on formal firms (McKenzie, Seynabou Sakho, 2010).

The study by Endale (2022) demonstrated that a number of factors, including a high tax rate and corruption, are contributing to Ethiopia's growing informal computing intensity trend among businesses. Djankov et al. (2003) revealed that informal businesses enter into modest transactions with parties with whom they have a history of relationships in order to reduce potential losses due to the absence of legal protection that courts offer. However, small contracts typically entail large fixed expenses. Additionally, they concluded that informal enterprises only take advantage of a limited number of market opportunities since they restrict transactions to partners with whom they have a history of doing business. The cost of lowering uncertainty and protecting against losses in the unorganized sector—inefficiencies and constrained markets—is the price of reducing uncertainty and insuring against losses in the informal sector.

Even though most of the studies showed theoretically and empirically the negative impacts of the informal sector on the overall economy, its size, however, continues to grow very fast in developing countries (El-Hamidi 2011). The business environment plays a significant role in determining the nature and size of the cost advantages of informality. The higher the regulatory burden of being formal, the higher the savings from informality. This cost-benefit calculation affects the size of the informal sector as higher savings from being informal draw more firms to informality, resulting in a bigger informal sector. While the size of the informal sector is a vital factor in determining the competitive effects on formal firms, more in a market generally means a higher price. Competition regulation is, most importantly, a major determinant of the intensity of competition in the informal sector

(El-Hamidi, 2011).

The government's capacity to enforce regulations also matters in the evaluation of the cost of regulatory obligations firms face. An informal firm's chances of getting caught for not complying with laws and regulations are a direct function of the government's capacity to enforce them. The two points above on the determinants of the size and intensity of informal competition are the central focus of this paper.

1.1. Statement of the Problem

The study by Iriyama et al. (2016) exhibited that informal firms can operate more quickly by avoiding regulations and more cheaply by avoiding taxes and fees. When facing these informal competitors, formal firms respond by engaging in corruption payoffs to regulatory officials to follow informal firms to try to achieve equality in speed and cost.

Informal firms are most common in countries where the legal, economic, and regulatory systems are such that it is costly and procedurally challenging to register firms and operate in the realm of law (Godfrey, 2011). For instance, higher tax rates, corruption, extortion, and the high cost-benefit of achieving output have been shown to positively influence the extent of hidden business activity and informal activity (Johnson et al., 2000; Schneider and Enste, 2002; de Soto, 2000).

Informal competition remains relatively less researched and underexplored in developing countries like Ethiopia. Iriyama, Kishore, and Talukdar (2016), in their recent study, examined the potential competitive advantages of informal firms, including the ability to operate more quickly and at lower costs by avoiding regulations. The study found that one way formal firms respond to achieving parity in speed and low cost is to engage in corrupt activities such as payoffs to regulatory officials. The extant literature at different country levels has informed the determinants and intensity of informal completion in their respective economies; however, the intensity of informal completion among firms in Ethiopia has remained relatively less surveyed. Doing Business WB (2015) As far as the researcher is aware, no research has been done on this specific subject in Ethiopia. Yet, by examining the primary data source of the 2015 World Bank Enterprise Surveys for Ethiopia, this study attempts to close this gap.

1.2 Objectives of the Study

1.2.2. Specific Objectives

- a) To examine the intensity of informal compaction among firms in Ethiopia

b) To identify determinants of informality in Ethiopia

1.3 The Hypothesis of the Research

Hypothesis 1: Firm size is negatively related to informality.

Hypothesis 2: Tax rate is positively related to informality.

Hypothesis 3: Manager experience has a favorable effect on reducing informality.

2. Literature Review

Gonzalez and Lamina (2007) examined the characteristics of formal firms subject to the practices of competitors in the informal sector in 14 Latin American countries in 2006 using a probit regression model. The study assumed that formal and informal firms compete with each other and are not in segmented or separated markets, as suggested by the dual economic theory. The study revealed that formal firms most resembling informal ones are the ones most adversely affected by informal competition. These formal firms are usually small, credit-constrained firms operating in industries with low entry costs and serving the same kind of consumers as informal firms. They also concluded that informal competition is a threat, especially in countries with low government capacity and highly regulated.

Friesen and Wacker (2013) investigated the relationship between formal firms' access to finance and informal competition in 114 developing and transition countries over the period 2006–2011 using a nonlinear ordered response model. The study found that the more financially constrained formal firms are, the more they are subject to competition from the informal sector. Lastly, the study concluded that financial constraints are labeled as the top determinant of informal competition against firms. Variables such as corruption, high tax rates, and firm size were also found to be basic determinants in the study. .

Hendy and Zaki (2013) studied the probability of belonging to the informal sector as a function of firm age, tax rate, corruption, entrepreneur gender, age, and education, using a dataset on micro and small enterprises in Egypt and Turkey. The study concluded that education, high taxes, and corruption were considered the top reasons for informality.

Ali (2014) analyzed the multiplier effect associated with informality. The study concluded that once a firm joins the informal sector, the social stigma associated with operating informally and breaking rules decreases. Then, more firms and individuals are encouraged

to join this informal sector. The complexity of the entrance of new firms in terms of tax rates, regulatory burdens, and access to finance encourages firms to join the informal sector. As highlighted by De Soto (1990), informal enterprises are a consequence of government bureaucracy. As a result, participants in the informal sector in Egypt might choose to remain informal not only to avoid taxes and regulation but also due to the inability of the government to enforce law and regulation (Charmes, 2000).

Gonzalez and Lamanna (2007) conducted a study entitled *Who fears competition from informal firms? Evidence from Latin America with the 2006 World Bank Enterprise Surveys for Latin America* using a probit model. The study found that firm size, capacity utilization, number of buyers, exports, financial dependence, tax rate, government capacity, corruption, and access to finance are the major determinants of informal competition against firms. McCann and Bahl (2017) investigated the influence of competition from informal firms on new product development. Using logistic regression and the development of a new product as a dependent binary variable, The study used irregular payment prevalence, regulatory hopefulness, firm age and firm size as explanatory variables. The study concluded that irregular payment and firm age are the key determinants of informality.

Iriyama et al. (2016) found that the threat from informal competitors was largely associated with cost or speed advantages from avoiding entanglements with regulatory institutions. Whether this threat merits a response by the focal firms depends on how much of an advantage the focal firms perceive has been gained by informal competitors. When focal firms' managers are negative about the strength of the regulatory environment, they are likely to perceive the advantage gained by the avoidance activities of informal firms to be more significant. In contrast, optimism about the regulatory environment is associated with perceptions of less consequential

3. Research Methodology

3.1. Data Source and Sampling Procedure

Data from enterprise surveys is collected from key manufacturing and service sectors in every region of the world. This study used primary data sources from the 2015 World Bank Enterprise Surveys for Ethiopia (Ethiopia-Enterprise Survey 2015). The standardized Enterprise Survey questionnaire includes both objective and subjective questions referring to the business environment. Subjective questionnaires are designed based on the perceptions of the surveyed firms regarding the key factors that constrain their operations.

The questionnaire includes, among others, corruption, crime, informality, regulatory and tax considerations, gender, finance, infrastructure, innovation and technology, the workplace, firm characteristics, and the biggest obstacle.

Ethiopia Enterprise Survey 2015, by that time, used three-stage stratified random sampling. These stratifications were industry establishment, size, and region. Industry stratification was designed as follows: the population was stratified into four manufacturing industries and three service sectors. Size stratification was defined as follows: small (5 to 19 employees), medium (20 to 99 employees), and large (more than 99 employees). Whereas, regional stratification into six geographic regions: Addis Ababa and Dire Dawa city administrations, and Amhara, Oromia, SNNPR, and Tigray regional states. The total number of sampled establishments contacted for the survey was 33% (1056), and the ES covers about 848 establishments nationwide. Finally, the data set was cleaned by avoiding irregularities like I don't know answers before putting it into analysis.

3.2. Methods of Data Analysis

The study used descriptive and econometric methods to examine the relationship between explanatory and dependent variables.

3.2.1. Descriptive Statistics:

Descriptive statistics were utilized to assess the characteristics of the sample; this information was considered to augment the econometric analysis results. Descriptive analysis includes, among others, tools such as minimum, maximum, mean, percentage, standard deviation, and frequency distribution.

3.2.2. Econometric Model

The study employed binary probit regression mode in an explanatory research design. Regression for binary outcome variables was used in the study. Dependent variables with binary outcome variables have two possible values: 0 if informal computation is absent and 1 if it is.

$$y_i^* = X_i'\beta + U_i$$
$$y_i = \begin{cases} 1 & \text{if } y_i^* = X_i'\beta + U_i > 0 \end{cases}$$

$$0 \text{ if } y_i^* \leq 0$$

Where y_i^* is the binary latent variable, y_i is the dependent binary variable, reflecting the probability prevalence of informal competition among firms. It takes the value of one for the occurrence of informal competition and the value of zero otherwise. X 'is a vector of explanatory variables that determine informal competition among firms, and β is a vector of unknown parameters to be estimated from the probit model. Because the dependent variable is dichotomous, the model is chosen above alternative methods. Which assigns 0 if informal computation is not present and 1 if it is

Table1. Summary of Explanatory Variables

Variables	Measurement	Expected sign
Access to credit	Dummy (1 has service , 0 otherwise)	+
Access to export	Dummy (1 has access , 0 otherwise)	-
Tax burden	Dummy (1 highest , 0 otherwise)	+
Size of firm	Continuous (log of permanent employees)	-
Gender of top manager	Dummy (1 for female , 0 otherwise)	+
Access to communicate with tax officials	Dummy (1 has access , 0 otherwise)	-
Corruption impediment to current operation	Dummy (1 highest , 0 otherwise)	+
Financial constraint to current operation	Dummy (1 highest , 0 otherwise)	+
Age of firms	Continuous (number of years under operation)	+
Experience of top manager	Continuous (number of years staying in leading)	-

4. Results and Discussion

4.1. Descriptive analysis

Descriptive statistics such as mean, minimum and maximum, and standard deviations are used to describe the socio –economic characteristics of the sample Reponses under study.

Table2. Summary of factors characteristics

Variables	N	Mean	Std. Dev	Min	Max
Size of firms	512	94.40385	374.9571	1	7600

Gender of the top manager	512	.0885478	.2842578	0	1
Female (9%)					
Male ((91%)					
Age of firms in years	510	13.50885	12.85561	0	89
Experience of top manager in years	512	15.79682	10.71342	1	60
Percentage of firms direct export their sales (%)	512	5.809113	20.76637	1	100
Direct export (9.7%)					
Indirect export (90.3%)					
Percentage firms inspected by tax officials last year	512	1.423645	.4944401	1	2
Yes (57.6%)					
No (42.4%)					
No .of times the firm inspected by tax officials	466	5.178112	17.29779	1	300

Source: Own computation, using STATA 14

Out of the total sampled firms, female top manager accounts for 9% while the rest 91% are males. The sampled establishment on average obtains their sale directly from export is about 9.7%. The study indicated that the average size of firm is 94 employees with standard deviation of 374.957. The maximum is 7600 employees while the minimum is 1. The average age of the sampled establishment is about 13.5 years with maximum of 89 years and minimum of 0 years with standard deviation 12.40. The average experience of top manager is 16 years with standard deviation of 10.7134. Likewise, percentage of firms those are inspected and visited by tax officials last year was about 57.6%, on average they are inspected 5 times a year.

4.2. Econometrics Analysis

In order to compute the intensity of informal competition, a binary probit model was employed. The model had a log pseudo-likelihood of (-313.81816) after the third iteration and the Wald chi2 test statistics with 10 degrees of freedom =51.97. Prob> chi2 = 0.0000 revealed that the independent variables included in the model are adequately estimated (i.e., the model is adequate). In addition to this, the goodness-of-fit test was carried out to examine whether determining factors of informal competition estimated probability is fit to this type of regression or not. The result shows that the Pearson chi2(496) = 510.22 and Prob> chi 2 = 0.3284. As indicated by the goodness-of-fit (gof) tests after probit, the null that the model is fittest is not rejected at all levels of significance in the model, suggesting that the model is fit for the probit model.

Table3. Factors affecting informal competition

Variables	Coefficients	Robust SE	P> t	Marginal effects
Access to credit	.3507068***	.127184	0.006	.1358043
Access to export	-.3194113	.2061	0.121	-.1163837
Tax burden	.2765964*	.147023	0.060	.1076491
Size of firms	-.1784512***	.046435	0.000	-.0681911
Gender of the top manager	.136318	.2187715	0.539	.0511053
Access to communicate with tax officials	.2609864**	.120426	0.030	.0987957
Financial constraint to current operation	.0149718	.1264851	0.998	.0057198
Corruption impediment to current operation	.2717678**	.1373332	0.048	.1055688
Age of firms	.019107	.0747143	0.798	.0073013
Experience of top manager	.0160833***	.005939	0.007	.0061459
Cons.	-.4777195	.3170238	0.637	-

Source: Own computation, using STATA 14

*** Significant at 1%, ** at 5% and * at 10%

According to the estimated parameters of the aforementioned linear probability model (LPM), there is a probability of 38.5% that informal competition exists among Ethiopians Enterprises. At the 1% level of significance, the computed probit model likewise shows a significant and negative relationship between business size and informal completion, suggesting that informal competition is adversely affected by firm size. The study is consistent with a World Bank study on informality in Latin America” (p. 135; Perry et al., 2007). The analysis supports the hypothesis that there is a negative correlation between a firm's size and informality.

According to the marginal effect result, while other factors remain constant, an establishment with more permanent workers experiences a 0.00068% decrease in the

intensity of informal competition, which has a beneficial and considerable impact on informal competitiveness. The probit model's outcome demonstrated that as tax burdens rise, so does the level of informal completion among businesses. A potential explanation could be that formal enterprises are forced to become informal due to a higher tax rate, and informal firms continue to be informal. The study confirms the hypothesis that a high tax rate motivates informality.

The study also found that informal competitiveness is significantly impacted by an establishment's current financial restrictions. The outcome of the probit model demonstrated that informal competition among enterprises rises in accordance with severe limitations. The study is in line with Morrisson's (1995) findings, which found that limited access to financial services is one of the main obstacles keeping informal enterprises from remaining that way. One possible explanation could be that the increased difficulty in obtaining financing encourages formal enterprises to become informal and the remnants of informal firms to become informal. When all other factors remain equal, the marginal effect showed that the greatest financial limitation raises informal competition by 13.6% in comparison to enterprises that believe it to be the least significant barrier.

Likewise, companies that have received communication and inspections from tax authorities within the past year have seen 9.9% more informal than businesses that have not. The plausible reason might be that businesses that have frequent visits and inspections by tax authorities are counseled on how to conduct business formally in compliance with the tax code's laws and regulations, and they are more likely to save money by doing so. But in this instance, in a nation like Ethiopia, informality does not appear to decline since there isn't a strong enough framework in place to carry out routine inspections. The savings from informality increase with regulatory burdens. Nonetheless, the informal sector's expansion is influenced by the cost-benefit analysis, since more informality's cost reductions encourage more businesses to participate in it, growing the sector's size (Djankov et al., 2002; Schneider, 2000). The majority of countries with informal businesses are those whose legal and regulatory frameworks make it difficult and expensive for businesses to register and conduct legal business (Godfrey, 2011).

It was additionally found that the level of informal competition was positively and considerably influenced by the top manager's knowledge. The probit model's findings showed that when senior managers' experience levels rise, so does informality. According to the marginal effect result, formal competition increased by 0.6% for every year that top managers' experience increased. Even though the study's hypothesis was that managers' experiences would lead to a decline in informality, the actual results showed the contrary.

5. Conclusions and Recommendation

The study hypothesized that firm size is negatively and significantly related to informal competition. The study found that firm size is negatively related to informal competition. Increasing firm size obliged firms to utilize their maximum production capacity, which could assist them in decreasing prices, which in turn provided an incentive to overcome the intensity of informal competition. The study also hypothesized that the experience of top managers is negatively and significantly affecting informal competition. However, the result revealed that the experience of top managers is adversely affecting informal competition. That is to say, the experience of top managers does not save firms from being involved in informal competition.

Inspection and communication with tax officials, for instance, six times a year, do not seem to contribute to reducing the intensity of informal competition. The plausible reason could be that, in a developing country like Ethiopia, there is no full-fledged system that could help to monitor informality as a whole. The study

also found that male-headed firms are 10 times greater as compared to female-headed firms. This implies that women are not yet empowered in the sectors under study, and it requires due attention by the government.

Similarly, the average age of firms and the experience of top managers are adequate to obtain their sales directly from export. However, the prevalence average of firms that are engaging in these activities is about 9.7%. This could be explained by different reasons in different kinds of literature; however, it requires deep study for further researchers. Finally, the study found that the prevalence of the highest tax burden, corruption, and financial constraints are the top aggravating factors in the prevalence of informal competition in Ethiopia.

Concisely, the estimated linear probability model (LPM) revealed that the probability prevalence of informal competition in Ethiopia is about 38.5%. The result indicated that informality is a key problem and concerned government officials should pay due attention in order to revert back to the prevailing situation. Lastly, Based on the study's findings, lately, it is recommended to change the organizational structure as well as employees' and customers' perceptions of the negative effects of informal computing among firms in the country.

References

- Bruton, G. D., Ireland, R. D., & Ketchen Jr, D. J. (2012). Toward a research agenda on the informal economy. *Academy of Management Perspectives*, 26(3), 1-11.
- De Soto, H. (2000). *The mystery of capital: Why capitalism triumphs in the West and fails everywhere else*. Basic books.

- Djankov, S., McLiesh, C., & Ramalho, R. M. (2006). Regulation and growth. *Economics letters*, 92(3), 395-401.
- Djankov, S., R. La Porta, F. Lopez-de-Silanes, and A. Shleifer (2003), “Courts” *Quarterly Journal of Economics*, 118(2): 453-517.
- Djankov, S., R. La Porta, F. Lopez-de-Silanes, and A. Shleifer (2002), “The regulation of entry,” *Quarterly Journal of Economics*, 117(1): 1-37.
- Doing Business 2015 Going Beyond Efficiency Comparing Business regulations for domestic firms in 189 economies A World Bank Group Flagship Report.* (n.d.).
<https://doi.org/10.1596/978-1-4648-0351-2>
- Friesen, J., & Wacker, K. (2013). Do financially constrained firms suffer from more intense competition by the informal sector? Firm-level evidence from the World Bank enterprise surveys (No. 139). Courant Research Centre: Poverty, Equity and Growth-Discussion Papers.
- Godfrey PC. 2011. Toward a theory of the informal economy. *Academy of Management Annals* 5(1): 231–277
- González, A. S., & Lamanna, F. (2007). Who fears competition from informal firms? Evidence from Latin America. The World Bank.
- Hamidi, F. (2011). How do women entrepreneurs perform. *Empirical Evidence*.
- Hendy, R., & Zaki, C. (2013). On informality and productivity of micro and small enterprises: Evidence from MENA countries. *International Journal of Entrepreneurship and Small Business*, 19(4), 438-470.
- Iriyama A, Kishore R, Talukdar D. 2016. Playing dirty or building capability? Corruption and HR training as competitive actions to threats from informal and foreign firm rivals. *Strategic Management Journal* 37(10): 2152–2173.
- Johnson S, Kaufmann D, McMillan J, Woodruff C. 2000. Why do firms hide? Bribes and unofficial activity after communism. *Journal of Public Economics* 76(3): 495–520
- Johnson, S., D. Kaufmann, J. McMillan, and C. Woodruff (2000), “Why do firms hide?: Bribes and unofficial activity after communism”, *Journal of Public Economics*, 76 (3):495-520.
- McCann, B. T., & Bahl, M. (2017). The influence of competition from informal firms on new product development. *Strategic Management Journal*, 38(7), 1518-1535.
- McKenzie, D., & Sakho, Y. S. (2010). Does it pay firms to register for taxes? The impact of formality on firm profitability. *Journal of Development Economics*, 91(1), 15-24.
- McKenzie, D., Seynabou Sakho, Y., 2010. Does it pay firms to register for taxes? The impact of formality on firm profitability. *J. Dev. Econ.* 91 (1), 15–24

- Mendi, P., & Mudida, R. (2018). The effect on innovation of beginning informal: Empirical evidence from Kenya. *Technological Forecasting and Social Change*, 131, 326-335.
- Morrison, C. (1995), "What institutional framework for the informal sector?", OECD, Policy Brief No. 10.
- Nichter S, Goldmark L. 2009. Small firm growth in developing countries. *World Development* 37(9): 1453–1464.
- Perry, G.E., W.F. Maloney, O.S. Arias, P. Fajnzylber, A.D. Mason, and J. SaadvedraChanduvi (2007), "Informality: Exit and exclusion", *World Bank Latin America and Caribbean Studies*.
- Radjou, N., Prabhu, J., Ahuja, S., 2012. *Jugaad Innovation: Think Frugal, Be Flexible, Generate Breakthrough Growth*. Jossey-Bass business & management series, Wiley
- riyama A, Kishore R, Talukdar D. 2016. Playing dirty or building capability? Corruption and HR training as competitive actions to threats from informal and foreign firm rivals. *Strategic Management Journal* 37(10): 2152– 2173.
- Schneider F, Enste DH. 2002. *The Shadow Economy: An International Survey*. Cambridge University Press: New York.
- Schneider, F., & Enste, D. (2002). *Hiding in the shadows: the growth of the underground economy* (Vol. 30). *International Monetary Fund*. De Soto, H. (1989), *The Other Path: The Invisible Revolution in the Third World*. Harper Row, New York