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## **Growth Determinants of Urban Small Manufacturing Enterprises of Oromia Regional State, Ethiopia**

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### **Abstract**

The aim of this study is to identify growth determinants of small urban manufacturing enterprises of Oromia Regional State, Ethiopia. Primary data has been collected from three sampled cities of Oromia Regional State. 116 sample manufacturing enterprises have been surveyed in total to collect primary data using questionnaire. Multiple Linear Regressions has been employed to analyze the data. Explanatory variables employed include enterprise characteristics (EC), enterprise business characteristics (EBC) and manager characteristics (MC). Enterprise characteristics include initial employment size and age of the enterprise. Business debt finance, market area and work premise of the enterprise have been categorized under enterprise business practice characteristics. In addition, manager characteristics comprise age, sex, education level and prior industry related experience of the manager. The findings show that among enterprise characteristics, initial size of employment affects the small enterprise growth negatively whereas age has no statistically significant impact in the study area. Regarding enterprise characteristics, market area affects enterprise growth positively while the rest business debt and work premises have no significant impact on growth of enterprise in the study area. Similarly, prior experience and education level of the manager have a positive contribution on enterprise growth. But, according to the finding of this study, enterprise growth has no relation with age and sex of the manager.

**Keywords:** Small Enterprises, Manufacturing sector, Enterprise Growth, Growth Determinants, Urban Areas

## **Introduction**

The Federal Democratic Republic of Ethiopia (FDRE) is the largest land-locked country located in the Horn of Africa neighboring six African countries. The landmass of the country covers an area of about 1.2 million square kilometer and the total population in 2015, according to CSA (2009) projection, was expected to be 97 million. The nation is divided in to nine regional states and two city administrations.

Oromia, the study area of this research, is one of the regional states in Ethiopia with the total area of about 363 square km. The total population of the region was expected to be 36.5 million in 2015, which accounts 38 per cent of the total population of the country. The region is divided in to 18 administrative zones, 304 Districts. Out of these, 39 are towns structured with the level of districts and the rest 265 are rural districts.

Micro and small enterprise in Ethiopia or small and medium enterprise elsewhere has no unique and standard definition. The definition has been given in different ways by different researchers and organizations and it is also different between countries and yet within a country it changes through time. In defining it, variety of indicators employed. In most definitions total assets, number of workers employed, annual turnover and capital investment are used. However, in Ethiopia the definition of micro and small enterprises is given using total number of employed workers and/or total current total assets

Contribution of micro and small enterprises to economic development in creating a broader employment opportunity in both developed and developing countries is vital. Small and medium enterprises contribute by either manufacturing goods of value, or through provision of services. They do serve as means to bring economic transition without using high-tech and sophisticated technology only by using skill and talent of people Habtamu et. al., (2013; 128-139). Due to this fact, they are preferable to activities of the government towards poverty alleviation, employment creation, and income generation. Ethiopian Economics Association (EEA, 2015) also described micro and small enterprises as natural home of entrepreneur-ship. Most big business in Ethiopia have initially started as micro and small enterprises and then have grown to their maturity over long period of time by accumulating capital and business management experiences.

However, there are a number of factors determining the growth of enterprises. Different authors have been put forward different factors depending on the discipline of the study. Most of the studies argue that enterprise size and age are the major determinants of enterprise growth. Most empirical studies on the determinants of firm growth found that there is an inverse relationship between firm age and growth. This has been empirically supported by different studies such as Evens (1987), Dunne and Hughes (1994), Glancey (1998) and Yasuda (2005) cited in Radheshyam (2012). Different studies; Wijewardana and Tibbits (1999), Harbi (2005) and others found that there is an inverse relationship between age and growth of enterprises. They noted that older enterprises grow less rapidly than young enterprises.

In addition, studies by Hall (1987), Almus & Nelinger (2000) explain that the number of employees at start-up of an enterprise as one of the determinant factors of enterprise growth. They demonstrated that the correlation between initial seize of employment and growth of enterprise is negative. On the other hand, early studies by Hymer & Pashigan (1962) and others

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have found that there is no relation between enterprise growth and size of the firm. The other most important factor of enterprise growth is access to finance. Small enterprises face constraints in raising external finance. It makes enterprises to be able to pursue different growth opportunities (Wiklund et al., 2009). Also managerial characteristics and abilities such as age, gender, education level and prior industry specific experience of the manager argued as determinant factors of enterprise growth. Many authors in the area found a positive relationship between prior level of education and firm performance. There are some evidences like Taye (1998), Liedholm (2001) and Goedhuys (2002), stated that entrepreneurs whose prior work experience is related to the manufacturing industry are more successful at raising growth. Market size is also one of the determinant factors of enterprise growth. It is confirmed by different empirical studies assumed that there is a positive correlation between market size and growth of enterprises. Also access to industrial land has been major factors in firm growth and has a positive impact on enterprise growth (Ferede et al. (2015).

In recognizing their role in economic development, Ethiopian government has given due attention to promote micro and small enterprises sector development. Micro and small enterprises development policy strategies has articulated and put in to implementation since 2004. Manufacturing sector in particular is one of the policy priority areas of the government in the strategy. However, evidences show that the share of industrial sector in general and the manufacturing sector in particular in GDP of Ethiopia is still remains stable at the minimum. To promote the manufacturing sector, the role of small manufacturing enterprises is vital. Hence, to bring about these enterprises to the required growth level, attention should be given to factors affecting their growth.

In this regard, efforts made by the government to identify and consider these factors as a policy strategy in the study area, is insignificant. Also there are no clear evidences about factors attributing to growth of small enterprises in the study area.

Therefore, the aim of this study is to identify growth determinants of small manufacturing enterprises in Oromia Regional State, Ethiopia. Primary data has been collected from enterprises using structured questionnaire from 116 small manufacturing enterprises of the study area. Multiple Linear Regressions was employed to analyze the collected data. This paper therefore is presenting findings of the study in the subsequent sections.

### **Hypotheses**

This study is an attempt to test the following hypotheses.

1. The enterprises with large start-up grow at a lower rate
2. Firm growth decreases as firm age increases
3. Male – managed businesses exhibit higher growth than female manager
4. Growth is higher for enterprise whose managers are younger
5. Enterprises whose managers have higher level of education exhibit higher growth than managers with less education level.
6. Enterprises whose managers had experience in business in the same industry exhibit higher growth than those who had no such experience

7. Growth is higher for enterprises used external debt sources in addition to family or their own contributions.
8. Growth is higher for firms with relatively large market size
9. Growth is higher for enterprises having their own work space or made available by city administration for free

## **Objectives of the study**

The objective of this study is to identify major factors determining the growth of small manufacturing enterprises in urban areas of Oromia Regional State, Ethiopia.

## **Methodology of the Study**

### **Research Design**

The focus of this study is mainly on the growth determinants of manufacturing enterprises established before and during the year 2012 and operating till 2015 in urban areas of Oromia Regional State in Ethiopia. Different sampling and data collection tools have been designed before dealing with primary data collection. Data has been collected from managers of small manufacturing enterprises in the study area using survey method through questionnaire prepared prior to the collection of data.

### **The Study Area and Period**

Oromia Regional State is the region where the highest number of micro and small enterprises is registered and operating in Ethiopia. However, this study is limited to only small manufacturing enterprises operating in urban areas. Three cities: Bishoftu, Jimma and Shashemene were selected from Oromia Regional State as representative samples for this study. Among others, these cities are large in population size and it is assumed that relatively high economic activities are taking place in these cities as compared to others.

This study covers only those enterprises which have been established and started their businesses at least three years prior to the study period which means 2012. For this analysis the study didn't incorporate enterprises established after the given period because of the fact that the analysis was limited to only three years period of time till 2015. It applied number of permanent employment differences of enterprises between two years of the study period (2012 and 2015).

### **Data Types and Sources**

Primary data has been collected mainly to analyze the main growth determinants of small manufacturing enterprises in urban areas of Oromia Regional State. Primary data was collected from urban small manufacturing enterprises.

## **Sampling Technique and Procedure**

The entire populations of representative small manufacturing enterprises currently operating in the three cities (Bishoftu, Jimma and Shashemene) have been taken as samples from Oromia Regional state. These three cities were selected deliberately based on the certain basic criteria which include geographical locations within the region, population size, the size of target group, economic activities of the cities and others. The entire numbers of small manufacturing enterprises fulfilling the specified criteria for the study were taken. It is to mean that the primary data has been collected from managers of all small manufacturing enterprises currently operating in these three cities which were found to be eligible for this study. This study incorporates the enterprises operating only in urban areas of the region.

In this study, some years of operation have been considered essential after their establishment. Therefore, this study considered only those enterprises which were established up to 2012 (i.e. at least three years prior to the study period) and are operating in 2015 also.

## **Sample Size and Data Collection Tools**

Thus, according to the data from the Federal Micro and Small Enterprise Development Agency of Ethiopia (FeMSEDA, 2015), the total number of small manufacturing enterprises operating in cities of Oromia Regional State in the study period was 707. This is the sampling frame of enterprises identified for this study with the number of employee ranging from 6 to 30. But, the number of the small manufacturing enterprises eligible for this study and currently operating in all cities of Oromia Regional state were only 389. Among which, only 116 established their business in these three sampled cities. Therefore, for this study, 116 small manufacturing enterprises in the study area were considered. This sample size constitutes about 30 percent of all small manufacturing enterprise in cities of Oromia Regional State. In order to gather the primary data from the sampled small manufacturing enterprises of cities of Oromia Regional State this study has employed a survey method. In order to gather the necessary data, closed and open ended questionnaire was used.

## **Method of Data Analysis**

To estimate the coefficients and analyze the determinants of enterprise growth, Multiple Linear Regression model has been used. In multiple linear regression models, the dependent variable is explained by means of a set of independent variables. The multiple linear regression analysis was chosen because annual compound growth of the enterprises used as the dependent variable. The dependent variable is then the change in number of permanent employees within the given study period.

The aim of this study is to identify the major growth determinants of small manufacturing enterprises operating in Ethiopia specific to urban areas of Oromia Regional State. Hence, the data was collected from three major sample cities of Oromia regional State. Finally, the result has been analyzed using multiple regression method. So, this paper presented the hypothesis of the explanatory variables, the estimation of regression results and discussions of the study.

The average annual growth rate of employment is dependent variable in this study. Hence, it is calculated based on the number of employees at present year of 2015 and three years prior to the survey (2012)

### **Model Specification**

Evans empirical model (1987) was employed to estimate the impact of enterprise and manager characteristics on enterprise growth. To capture other factors affecting enterprise growth, dummy variables were incorporated in to this model.

The model is defined enterprise growth as:

$$[\ln S(t_1) - \ln S(t_0)]/d = \ln G(A(t)) + u_{(t)} \dots \dots \dots (1)$$

Where;

S - Size of the enterprise measured by number of employees

G - Growth function,

A - Age of the enterprise

t<sub>1</sub> - time where t<sub>1</sub> > t<sub>0</sub>,

d = 3; (t<sub>1</sub> - t<sub>0</sub>) the difference between the upper (2015) and lower limit (2012) of the study period.

u<sub>(t)</sub> - error term is normally distributed with zero mean and independent of A(t) and S(t).

This model assumes the u<sub>(t)</sub> follow the normal distribution with zero mean and constant variance σ<sup>2</sup>.

To consider the non linearity in the functional form of growth, the second order expansion of lnG(A(t) and S(t)) were estimated as:

$$\ln G = b_0 + b_1 \ln S + b_2 \ln A + b_3 (\ln S)^2 + b_4 (\ln A)^2 + b_5 (\ln S)(\ln A) + u_{(t)} \dots \dots \dots (2)$$

To make the model more comprehensive in its prediction, in addition to business characteristic such as age and size of the enterprises, enterprise business practices and manager characteristics were included in the model. Business characteristics (BC) include business debt, market size and work premises of the enterprise while manager characteristics (MC) included were experience, education level, age, and gender of the manager.

The final regression equation therefore has the following form:

$$[\ln S(t_1) - \ln S(t_0)]/d = b_0 + b_1 \ln S + b_2 \ln A + b_3 (\ln S)^2 + b_4 (\ln A)^2 + b_5 (\ln S)(\ln A) + \sum(BC, MC) + u_{(t)} \dots \dots \dots (3)$$



Table 1 Definition of Dependent and Independent Variables

Variable Name	Definition
	<b>Dependent Variable</b>
EMPGR (G)	<ul style="list-style-type: none"> <li>• Employment Growth (G): <math>[\ln S(t_1) - \ln S(t_0)]/d</math></li> </ul>
	<b>Independent Variables</b>
	<b>Enterprise Characteristics (EC)</b>
lnSIZE	<ul style="list-style-type: none"> <li>• Employment size at initial year of the study period <math>[\ln S(t_1)]</math></li> </ul>
lnAGEN	<ul style="list-style-type: none"> <li>• Age of the enterprise <math>[\ln(A)]</math></li> </ul>
	<b>Dummy Variables</b>
	<b>Manager Characteristics (MC)</b>
SEX	<ul style="list-style-type: none"> <li>• If the manager is male then 1; 0 otherwise</li> </ul>
AGE	<ul style="list-style-type: none"> <li>• If manager's age is less than 31 then 1; 0 otherwise</li> </ul>
EDUCMAN	<ul style="list-style-type: none"> <li>• If the manager has Technical, Vocational Education and Training (TVET) and college diploma and above then 1; 0 otherwise</li> </ul>
EXPR	<ul style="list-style-type: none"> <li>• If owner has previous experience in similar industry equal or greater than one year then 1; 0 otherwise</li> </ul>
	<b>Enterprise Business Practices (EBC)</b>
DEBTF	<ul style="list-style-type: none"> <li>• If there are other sources of financing such as bank loan in addition to Government Saving and Credit (SAC) then 1; 0 otherwise</li> </ul>
MKTSIZE	<ul style="list-style-type: none"> <li>• If the enterprise has other market places other than Adama Town then 1; 0 otherwise</li> </ul>
WORKPREM	<ul style="list-style-type: none"> <li>• If the working and sale area is own or offered from the city/government/ then 1; 0 otherwise</li> </ul>

## Results and Discussion

In this study the firm's growth rate is calculated as the log difference between the current number of employees and number of employees three years prior to the survey.

The first and second order terms, i.e. lnAGEN,  $(\lnAGEN)^2$ , lnSIZE and  $(\lnSIZE)^2$ , and their product  $(\lnSIZE \lnAGEN)$  are simply included to capture non-linearity and of no consequence to the results. But since the existence of  $(\lnSIZE)^2$ ,  $(\lnSAGEN)^2$  and  $(\lnSIZE)(\lnAGEN)$  detected the multi-co linearity problem in the regression, they were rejected from the regression to avert the problem

The coefficient of determination ( $R^2$ ) is equal to 0.7474, which implies that the model has good predictability. This model followed the normal distribution of error term with zero mean and constant variance. The variance Inflation Factor (VIF) of individual variables and also their average are less than ten (Average VIF = 1.50 < 10). This means that the model shows that no strong relationship between the chosen independent variables (i.e. no multi-collinearity was detected). The value of (VIF) is displayed in the table 1. There is no strong correlation coefficient observed between the two variables involved in the regression. The zero-order correlation has been examined and it doesn't show the existence of multi-collinearity In this study in order to regulate heteroskedasticity problem during regression the "Heteroskedasticity-Robust Standard Errors" method was employed. This method usually helps to adjust the heteroscedasticity

problems.

The following table (Table 2) displays the results of the econometric model analysis of the urban small manufacturing enterprises under investigation in the study area.

**Table 2 Regression Result**

Linear regression						
Number of obs = 116		F( 9, 106) = 33.85				
		Prob > F = 0.0000				
		R-squared = 0.7474				
		Root MSE = .08103				
G	Coef.	Std. Err.	Robust HC3 t	P> t	[95% Conf. Interval]	
SEX	-.0178535	.0220753	-0.81	0.420	-.06162	.025913
AGE	.0153631	.0208497	0.74	0.463	-.0259736	.0566997
EDUCMAN	.0815746	.0174343		0.000	.0470093	.1161399
			4.68***			
EXPR	.0547729	.0211145		0.011	.0129113	.0966345
			2.59***			
WORKPREM	.0212013	.0190886	1.11	0.269	-.0166438	.0590464
DEBTF	.0021643	.0164819	0.13	0.896	-.0305128	.0348413
MKTAREA	.038574	.0174696	2.21**	0.029	.0039388	.0732092
lnAGEN	-.0103713	.0276286	-0.38	0.708	-.0651476	.044405
lnSIZE13	-.2375611	.0250638		0.000	-.2872524	-.1878697
			-9.48***			
_cons	.4173069	.0785721	5.31	0.000	.26153	.5730838

Source: Author's Calculation

\*\*\*Significant at 1% significance level

\*\*Significant at 5% significance level

### Manager Characteristics (MC)

Both age and sex of the manager do not have statistically significant impact on growth pattern of urban small manufacturing enterprises in the study area even at 10% level of confidence. But, education level and the prior industry specific experience of the manager are statistically significant at 1% significant level. Having had a higher education like Technical and Vocational Education and Training (TVET) or college diploma and above rather than secondary and less school educations or less, has a significant impact on enterprise growth. The higher the level of education of the manager, the higher the possibility of enterprises to grow and similarly, industry related experience of the manager is positively affecting the growth of the enterprises. Keeping other characteristics constant, the previous industry related experience that enterprises managers acquired prior to starting up their current business influences the growth of small manufacturing enterprises positively.



### **Enterprise Business Practices (EBC)**

The estimated coefficient for market size is positive and statistically significant at 5 per cent level of confidence. The result shows that the larger the size of the enterprise's market, the higher the growth of the enterprise. It concludes that expanding to distant markets does positively contribute to the enterprise growth. The rest business practices of the enterprises included in this study do not have a significant impact on enterprise growth.

### **Enterprise Characteristics (EC)**

Age and size of enterprises were the principal explanatory variables of this study. This study found that the initial size of an enterprise has been found to be important in explaining growth of enterprises at 1% confidence level. The result shows the enterprises with large number of employees at start-up grow at lower rate. But, this study came up with the finding that there is no evidence that the age of the firm has an impact on enterprise growth in the study area even at 10% level of confidence.

### **Conclusion**

Among explanatory variables employed in this study, some significantly affect the growth trend of enterprises either positively or negatively, while others have no any significant impact. Variables such as education level of the manager, the prior industry related experience of the manager, market size of the enterprises affect the enterprise growth positively the initial sizes of enterprises affects the growth of enterprises. The rest of dependent variables included in the study such as sex and age of the manager, Work premises, debt finance and age of the enterprise do not have significant impact on enterprise growth. All of the urban small manufacturing enterprises surveyed in the study area were in the infant age. This is to mean that, as reported by managers of the enterprises, the minimum and maximum ages of the enterprises were ranged between 3 to 8 years. The maximum age (8 years) may not be large enough to enterprises to reach a point of diminishing return to enterprise as compared to ages in different empirical researches.

As seen in the Table 2, though estimated coefficient for source of financing or debt financing is positive, it is not statistically significant. The finding of this study is not consistent with the theory that holds more successful growing small and micro enterprises use more external sources of financing, such as financial institutions and individual investors, than do less successful firms. It disproves the conclusion by Herbi (2003) and others stated that availability of debt finance is expected to have a positive impact on enterprise growth. In Ethiopia the major source of debt finance for micro and small enterprises is Government Saving and Credit Institutions because of the problem associated with collateral requirements of formal banks. Hence, during the study period, most of the small manufacturing enterprises did not get access to these banks in the study area.

The government of Ethiopia in general and Oromia Regional State in particular, has made

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endeavor to bring about growth of manufacturing sector in targeting on small manufacturing enterprises. But still there is a gap at federal and region level in putting in to consideration factors affecting the growth of these enterprises. Therefore, the government needs to assess growth performance of these enterprises along with factors hindering their growth. It should be a priority area for policy makers to realize the endeavor that the Ethiopian government has been making to transform the economy from the agrarian to industrial economy.

## Reference

- Almus, M. and E. A. Nerlinger, 1999, Growth of New Technology-Based Firms: Which Factors Matter? *Journal of Small Business Economics* 13(2), 141-154
- Central Statistical Agency (CSA) (2009). Urban Employment Unemployment Survey 2009 Supervisor's Manual Central Statistical Agency, February 2009, Amharic version, Ethiopia, Addis Ababa.
- Ethiopian Economics Association (EEA) (2015). Small and Micro Enterprises (SMEs) Development in Ethiopia: Policies, Performances, Constraints and Prospects. EEA Research Brief. Journal of Issue No. 5 (2015), Addis Ababa, Ethiopia. Retrieved from <http://www.eeaecon.org> on Nov 26, 2015
- Evans, D.S. (1987). The Relationship Between Firm Growth, Size and Age: Estimate for 100 Manufacturing Industries. *The Journal of Industrial Economics* 35(6): 567-581
- FEMSEA (2015) Annual Statistics Bulletin. Micro and Small Development Sector . Addis Ababa, Ethiopia
- Ferede, T., Kebede, K. and Tarfasa, S. (2015), Economic growth and employment patterns, dominant sector, and firm profiles in Ethiopia: Opportunities, challenges and Prospects, R4D Working Paper 2015/2.
- Goedhuys, Michelin (2002). Employment Creation and Employment Quality in African Manufacturing Firms: International Labor Organization, Geneva, International Labor office
- Habtamu, T., Aregawi, G. and Nigus, A. (2013). Growth Determinants of micro and Small Enterprises: Evidence from Northern Ethiopia. *Journal of Economics and Sustainable Development*, 4(9), 128-139.
- Hall, B. (1987). The Relationship between Firm Size and Firm Growth in the US Manufacturing Sector, *Journal of Industrial Economics* 35(7): 583-606.
- Harabi, N. (2003). Determinants of Firm Growth: An Empirical Analysis from Morocco: Solothurn University of Applied Science: Northwestern, Switzerland
- Hymer S and Pashigan P. (1962). "Firm Size and Rate of Growth", *Journal of political economy*, 70(6), 556-569
- Liedholm, C. (2001) Small Firm Dynamics: Evidence from Africa and Latin America, the International Bank of Reconstruction and Development, Washington D.C., USA: The World Bank. Available: <http://siteresources.worldbank.org/> Accessed Aug 3, 2014
- Najib Harabi (2005) Determinants of Firm Growth: An Empirical Analysis from Morocco University of Applied Sciences, Northwestern Switzerland, July 2005
- Radheshyam C. (2012) Understanding the Determinants of Firm Growth in Young REISs. National University of Singapore, Architecture Drive, Singapore 117566
-

Taye Mengiste (1998). Age-Size Effects in Firm Growth and Productive Efficiency: The Case of Manufacturing Establishments in Ethiopia

Wijewardena, H. and G.E. Tibbits (1999), "Factors Contributing to the Growth of Small Manufacturing Firms: Data from Australia", *Journal of Small Business Management*, 37(2), 88-9

Wiklund J, Patzelt H and Shepherd D (2009). "Building an integrative model of small business growth", *Small Business Economics*, 32(4), 351 -374.