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***Minority Entrepreneurs  
and Private Sector Growth in Sub-Saharan Africa***

Vijaya Ramachandran  
and  
Manju Kedia Shah

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**Contact Information for Authors**

**Vijaya Ramachandran**  
**Overseas Development Council**  
**1875 Connecticut Avenue NW, Suite 1012**  
**Washington, DC 20009**  
**Telephone: 202-234-8701**  
**E-mail: vijaya@odc.org**

**Manju Kedia Shah**  
**The World Bank**  
**1818 H St. NW**  
**Washington, DC 20433**  
**Telephone: 202-473-9574**  
**E-mail: mshah@mindspring.com**

**Abstract**

This study focuses on the role of entrepreneurs in the private sector in sub-Saharan Africa. Using data from the Regional Program on Enterprise Development (RPED) and controlling for various factors, our analysis compares growth rates of indigenously owned African firms with firms owned by entrepreneurs of Asian or European descent, in Kenya, Zambia, Zimbabwe, and Tanzania. We find that after controlling for firm size and age, various entrepreneurial characteristics, and sector and country differences, minority (or non-indigenous) entrepreneur firms start out larger and grow significantly faster than indigenously-owned African firms. Our results are consistent with theories that argue that informational and financial networks created by minority entrepreneurs provide access to credit, information, and technology for members of these networks. We also find that *within* indigenously-owned African firms, entrepreneurs with secondary and/or university education realize a higher rate of growth; access to education presumably enables indigenous African entrepreneurs to develop managerial skills that serve as a substitute for the informational and financial networks created by minority entrepreneurs.



## **I. Introduction**

The development of the private sector in sub-Saharan Africa is of crucial importance to the overall rate of economic growth in the region. The role of minority entrepreneurs in the growth process is a much-debated question. These entrepreneurs control a major share of manufacturing resources in several sub-Saharan African countries. They are often accused of hindering the growth of indigenous private enterprise by engaging only in rent-seeking, using outdated equipment, and limiting their hiring of locals. Others have argued that they have played an invaluable role in the growth of the private sector by bringing into the country, better skills, financial resources, and networking channels. This paper compares the performance, measured in firm growth, of minority entrepreneur firms and indigenously owned African firms.<sup>1</sup> The goal is to control for various factors and then look at whether minority entrepreneurship is a significant determinant of firm growth.

This paper focuses on the importance of minority ownership in determining firm growth in sub-Saharan Africa, as compared with indigenously owned firms. The Regional Program on Enterprise Development (RPED) at the World Bank has conducted firm-level surveys in seven African countries, to increase our understanding of the microeconomic constraints affecting the growth and development of enterprises in sub-Saharan Africa. Firm level panel data was collected over a three year period between 1992-1994, for 200 firms in each of the following countries: Ghana, Kenya, Zimbabwe, Tanzania, Zambia, Cameroon and Cote d'Ivoire. Sampling

was done on the basis of size in terms of employment, such that each worker (rather than firm) had an equal probability of being drawn. The sampling method used was fixed interval sampling by sector. This method ensured that the sample covered the entire size distribution of firms, without being unduly skewed towards small firms.

The actual questionnaire used was customized by country. This paper uses data from the first round of the survey for four countries--Kenya, Zimbabwe, Zambia, and Tanzania. Ghana was not included because questions related to ethnicity of the entrepreneur were not included in the RPED questionnaire. The francophone countries in the RPED sample were also excluded because issues related to ethnicity of entrepreneurs are somewhat different in these countries. Approximately 200 firms across four sectors--textiles, wood and furniture, metalworking and food processing--were surveyed in each country; the subset of firms which are owned by entrepreneurs is analyzed to determine the impact of minority entrepreneurship on the rate of firm growth. Apart from the research on firm growth using the RPED data, there are several interesting studies that look at firm growth, as measured by change in employment in both developed and developing countries (Biggs and Srivastava, 1996, Evans (1987), Hall (1987), Hart and Oulton (1996), Mengistae (1998)). Our analysis seeks to extend the firm growth models described in these studies, in order to provide a closer look at the differences between minority ownership and indigenous African ownership.

## **II. Theory and Hypotheses: the role of minority entrepreneur**

The literature on the advantages of minority entrepreneurs poses interesting hypotheses regarding firm performance and growth. Leff argues that when entrepreneurial characteristics are included in the model, ethnic and religious factors have little influence on firm performance (Leff, 1979). Contradicting this view in his work on minority entrepreneurship, Kilby argues that minority entrepreneurs play a unique role in many economies around the world (Kilby, 1983). Kilby says that entrepreneurship in developing countries often entails overcoming inefficiencies in routine managerial functions such as interruptions in production, variance in quality, slow rate of throughput, and leakages of raw materials. Minority entrepreneurs, in his opinion, usually have a superior initial endowment of capital, knowledge of markets and technology, and acquired traditions that help raise productivity. External environmental parameters such as limited occupational choice, the never-distant threat of expulsion, and enforceable cooperation with fellow minority entrepreneurs, help to build networks of trust which provide access to scarce information, risk-spreading arrangements, favorable terms of credit and a larger pool of individuals to whom managerial responsibility can be delegated. Finally, Kilby observes that minority firms have successfully substituted domestic raw materials for imported materials, and replaced machine-controlled product quality with a system that combines close supervision and payment-by-results. Therefore, minority entrepreneurs have clear advantages over their local counterparts.

The importance of contractual mechanisms generated within a group is also crucial to providing access to inputs, technology, and finance. Networks provide contractual enforcement mechanisms that are crucial to lowering transactions costs in the marketplace. In his analysis of the Maghribi Traders' Coalition, Greif provides an in-depth view of the various contractual mechanisms created by a networked group of eleventh-century traders to lower the costs of doing business overseas (Greif, 1993). Greif argues that the Maghribi traders operated through overseas agents, who provided merchants with many trade-related services, including shipping, storing and transferring goods to the market, paying customs dues etc. Merchants operated through several agents at the same time thereby benefiting from different types of expertise and from reductions in costs. There were several opportunities for agents to embezzle capital within this system. However, historical documents show that reputation mechanisms effectively governed agency relations and that merchants conditioned future employment on past conduct and punished agents who cheated them. Furthermore, agents were willing to forgo the gains from cheating in order to preserve their reputation within the group. Thus, both merchants and traders existed in a coalition in which business was transacted only between members of the coalition. This example illustrates the types of reputation and contract enforcement mechanisms that govern minority entrepreneurs in sub-Saharan Africa. These mechanisms help to lower transactions costs, increase the volume of business, and speed up the flow of information across members of an ethnic group. As with the Maghribi traders, deviant behavior is easily observed and punished within the group and contracts are enforced via collective mechanisms.

Other models of ethnicity look at the success of ethnic groups such as the overseas Chinese in Asia (Hobday, 1995). According to Hobday, Chinese businesses rely heavily on personal relationships, sometimes referred to as *guanxi*. These relationships are increasingly strong as we move from home province in China to village, clan and immediate family. In the overseas Chinese model, family and village-level relationships provide the contractual mechanisms that both promote and enforce business and financial arrangements between members of this ethnic group. A study of Kenyan capitalists provides interesting anecdotal evidence, particularly regarding entrepreneurs of Asian descent (Himbara, 1994). Himbara argues that Asian entrepreneurs in Kenya gradually built an extensive network of large enterprises in several different industries that fueled the growth of the private sector throughout the twentieth century. Collective efforts through industrial associations such as the Federation of Indian Chambers of Commerce of Eastern Africa and the Association for the Promotion of Industries in East Africa headed by prominent industrialists of Asian descent, were instrumental in formulating policies that helped to generate growth in the private sector.

Finally, analyses undertaken by researchers using the RPED data look at access to finance across different ethnic groups in Kenya (Biggs and Raturi, 1997; Raturi and Swamy, 1997; Fafchamps, 1996). Biggs and Raturi find that belonging to an ethnic minority in Kenya does not affect access to formal sources of credit like overdraft facilities, but does affect access to supplier credit. The authors argue that the flow of information and contractual enforcement mechanisms

explain greater access to credit by members of ethnic minority groups.

In the econometric models that follow, we control for the various learning mechanisms that affect firm growth and then look at whether minority ownership is statistically significant in determining the rate of growth. Firm growth is measured as the rate of change in the number of workers between the start of production and the present.<sup>2</sup> Models of firm growth are divided into two groups--those that represent "stochastic" models of growth and those that represent "learning" models. Stochastic models describe firm growth as drawn from a distribution. Firms which draw high rates grow over time, and firm size and firm growth are independent of each other (Gibrat's Law). This class of models has been superseded by learning models that describe firm growth and firm efficiency to be correlated. Learning models emphasize the role of the manager in the learning process. Early learning models incorporate fixed or innate managerial capacity (Jovanovic, 1982) while later theoretical and empirical models allow for human capital formation to impact managerial efficiency and consequently, firm growth (Pakes and Ericson, 1987; Bates, 1990; Evans and Leighton, 1989; Biggs and Srivastava, 1996; McPherson, 1996). In contrast to stochastic models, the learning models predict that firm age and firm size are both negatively correlated with firm growth. In other words, as firms grow older and become larger, their rate of growth slows.

Following the firm growth studies cited above, we include firm age and firm size as independent variables in the model. We then enhance the model by including several characteristics of entrepreneurs including ethnicity to test of the importance of these variables in determining firm

growth. The learning mechanisms that we control for include previous experience of the entrepreneur, whether the entrepreneur has a secondary education, whether the entrepreneur has a university degree, and whether the entrepreneur has had technical training. We include two variables that are somewhat indirect learning mechanisms--whether the entrepreneur's family is in the same business and whether the entrepreneur owns another business concurrently.

The first set of regressions are run with the pooled sample, with dummies for whether entrepreneurs are European or Asian. We then disaggregate the sample into indigenous African firms and non-African firms in order to test for differences in the determinants of firm growth across these two types of firms.<sup>3</sup> Finally, we run the model with change in employment as well as initial firm size as dependent variables.

The basic econometric model is described below:

$$Y = A + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + \varepsilon$$

where  $Y = \text{change in employment} = [\ln(L_c) - \ln(L_i) / a]$

$L_c = \text{current employment}$ ,  $L_i = \text{initial employment}$  and  $a = \text{age of the firm}$

and

$X_1 = \text{initial employment}$

$X_2 = \text{age of the firm}$

$X_3 \text{ to } X_5 = \text{sector dummies}$

$X_4 = \text{previous experience of entrepreneur (log)}$

$X_5 = \text{whether entrepreneur has secondary education}$

$X_6$  = whether entrepreneur has university degree

$X_7$  = whether entrepreneur has technical training

$X_8$  = whether entrepreneur's family is in the same business

$X_9$  = whether entrepreneur owns another business concurrently

$X_{10}$  = whether entrepreneur is Asian (only included in pooled sample regressions)

$X_{11}$  = whether entrepreneur is European (only included in pooled sample regressions)

$X_{12}$  to  $X_{14}$  = country dummies

In regressions estimating the determinants of initial firm size, a measure of assets owned by the entrepreneur is included, to test the hypothesis that the wealth of the entrepreneur is positively correlated with the size of the firm established by the entrepreneur.

### III. Descriptive Statistics and Econometric Results

The RPED data set consists of 200 firms surveyed in each of seven countries; four countries (Kenya, Zambia, Zimbabwe, and Tanzania) with indigenous African, Asian, European, and Middle Eastern entrepreneurs were used in this analysis.<sup>4</sup> The non-indigenous entrepreneurs are people of Asian, European and Middle Eastern *descent*, referred to as minority entrepreneurs. The data in this paper are extracted from Round I of the RPED surveys, conducted in 1991-92. Only entrepreneur firms are selected; firms that are corporations or multinationals are not included, leaving us with a sample of 502 firms across four countries.

Firm growth is measured as a logarithmic function of change in employment, as described in the existing literature (Evans, 1987):

$$\text{Growth rate of the firm} = \frac{\ln(\text{current employment}) - \ln(\text{initial employment})}{\text{age of the firm}}$$

Average growth rates reveal of firms in the RPED sample reveal interesting differences in growth rate across size of firm and ethnicity of the firm owner. Average growth rates for each of the countries in the sample vary somewhat; they range from 6 percent in Tanzania to 12 percent in Zimbabwe for non-African entrepreneurs and from 6 percent to almost 10 percent for African entrepreneurs. Interesting differences are revealed when growth rates are compared across size classes. Large non-African firms (i.e. firms with over 100 workers) have growth rates between 0.14 and 4 percent, whereas African firms in this category record negative rates of growth in all four countries ranging from -1.4 percent to -16.4 percent. African and non-African firms in the

smallest size class grow at about the same rate (9-11 percent); the difference in growth rates becomes larger as firm size increases.

Tables I - XII describe the data used in this analysis. We disaggregate entrepreneurial characteristics by firm size and ethnicity in order to present a descriptive picture of the data set. Table I presents means of several variables included in the analysis. Average annual growth rate of employment varies between 6.8 percent for Tanzania to 12.4 percent for Zimbabwe (which also has the highest percentage of non-African owned firms). The percentage of firms owned by Asians is the highest for Kenya--slightly more than half--while 40 percent of Zimbabwean firms are owned by Europeans. The percentage of firms owned by women is the lowest for Tanzania (7.1 percent) and highest for Zimbabwe (19.4 percent). Slightly less than half of all entrepreneurs have completed high school in all countries except Tanzania where this number is close to 30 percent. The percentage of entrepreneurs who have completed a university degree is highest for Zimbabwe (26.1 percent) and lowest for Zambia (15.7 percent). The amount of previous experience in the industry is roughly similar across countries, with between 31 and 52 percent of entrepreneurs owning another business concurrently. Between 9 and 20 percent of entrepreneurs have parents in the same business. Firms in all four countries start out with less than 20 employees in all four countries but interestingly enough have very different levels of employment now. Entrepreneurs in the RPED sample are in their mid-forties and the average age of the firm is between 13 and 18 years.

Table II describes the sample broken down by ethnicity. There is some variation of ownership by sector. Almost 62 percent of the food sector is non-African. The textile and wood sectors have between 43 and 49 percent non-African ownership while the metal sector is almost 63 percent African. Ownership by country reflects the distribution of the non-African population; firm ownership in Kenya is almost 63 percent non-African while Tanzania has the lowest share of non-Africans. The distribution of ownership vs. firm-size is very revealing—only 15 percent of very small firms are owned by non-Africans. The share of firms in each category owned by non-Africans increases steadily with the size of the firm. Finally, almost 83 percent of firm-owners who have no formal education are African; over 67 percent of firm-owners with a university education are non-African.

Tables III and IV describe the ownership of very small and large firms in our sample, disaggregated by ethnicity of the firm owner. It is clear that very small firms are mostly owned by Africans in all four countries. Asians own large firms in Kenya, Tanzania and Zambia while Europeans are the dominant owners of large firms in Zimbabwe. Table V shows that the percentage of medium and large firms owned by women is very small in all four countries; female ownership is concentrated in the category of very small firms. Table VI shows the percentage of entrepreneurs with a university degree, disaggregated by firm size. We see a clear correlation between education and size; a much higher percentage of entrepreneurs managing medium and large firms have university degrees than those managing very small and small firms. Table VII shows that entrepreneurs of every ethnic group are mostly men; however, Africans

have by far the highest percentage of female entrepreneurship in every country. Table VIII shows the percentage of entrepreneurs whose parents are in the same business; Asians have a significantly higher percentage of entrepreneurs in this category than do other ethnic groups. Tables IX, X, and XI show that Asians and Europeans also have other advantages over their African counterparts; a significantly higher fraction of non-African entrepreneurs have university degrees, have worked in a foreign-owned or managed firm, and currently own another business. Table XII shows that more African entrepreneurs established their own businesses than their Asian and European counterparts; the latter have inherited or bought their businesses to a greater extent than Africans.

Tables XIII - XIV provide econometric estimations of changes in employment (or firm growth) across the whole sample, as well as in African and non-African firms. The model is set up to test the hypotheses described in the previous section.<sup>5</sup> Model I in Table XIII estimates change in employment (measured in the logarithmic form given earlier) as a function of initial size and age, and ethnicity of entrepreneur, controlling for sector and country differences. The econometric results confirm the earlier RPED findings that firm age and initial size are statistically significant and inversely correlated with change in employment. They also show that Asian and European firms are growing at a significantly higher rate than African firms. Both the Asian and European dummies are significant at the 1 percent level of confidence. The model also shows that Zimbabwe and Kenya have a higher rate of growth than Tanzania and Zambia.

Model II estimates change in employment by including a number of entrepreneurial characteristics, along with the variables in Model I. The purpose of this estimation is to test the hypotheses regarding entrepreneurial characteristics described in the previous section, as well as to see whether ethnicity of the entrepreneur remains significant even after these characteristics are included. The econometric results show that certain characteristics of the entrepreneur are important to generating firm growth; in particular secondary and university education are positive and highly significant determinants of growth. However, the results show that although the size of the coefficient on both dummies is reduced (by almost half for the Asian dummy and by about 20 percent for the European dummy), minority ethnicity continues to be a statistically significant determinant of growth.<sup>6</sup>

Table XIII disaggregates the data into African and non-African firms, in order to determine the significance of various entrepreneurial characteristics across the two groups. The results are very interesting in terms of the differences across the groups. The estimation for African firms reveals that education is a highly significant determinant of firm growth; African entrepreneurs with secondary and university education own firms that grow at a significantly higher rate than those who do not have secondary or university education. It is interesting to note that the coefficient on secondary education is 9 times the size of the coefficient on university education; presumably this reflects the high returns to secondary education in terms of employment generation.

Entrepreneurs who have basic skills are probably able to manage a larger workforce, keep accounts, and carry out the tasks necessary to expanding employment and output. The model also shows that entrepreneurs who own other businesses enjoy a higher rate of growth; this may

reflect both technological and managerial spillovers as well as a reduced capital constraint.

The results for the non-African model indicate that none of the entrepreneurial variables are significant. There are two possible explanations for this result. The first is that a relatively large fraction of entrepreneurs have secondary and university degrees as well as other businesses and parents in the same business. Thus, firm growth is not significantly affected by changes in any of these variables. The second explanation is that entrepreneurial characteristics are simply not important. Non-African firms enjoy a higher rate of firm growth due to the various advantages of being minority, such as access to informal networks, credit, and informal contractual mechanisms described in the literature cited in Section II.

Tables XV and XVI estimate the determinants of initial firm size for the whole sample, as well as for African and non-African firms. Model I estimates initial firm size as a function of previous experience of the entrepreneur and ethnicity of the entrepreneur, controlling for differences in sectors and countries. The results show that Asian and European firms start out with a significantly larger number of employees than African firms, and that firms in Kenya are smaller than their counterparts in Zambia, Zimbabwe, and Tanzania. Model II includes various entrepreneurial characteristics, including a dummy that measures assets of the entrepreneur (set to 1 if the entrepreneur owns a house).<sup>7</sup> This model reveals that entrepreneurs with a university education and a higher asset base enjoy a higher rate of firm growth. However, even after controlling for these and other entrepreneurial characteristics, the coefficient on the Asian and

European dummies remains significant at the 1 percent level of confidence. The size of the coefficient decreases only by 11 and 13 percent respectively, when compared with Model I.

Our results show that Asian and European entrepreneurs have a clear advantage over Africans in terms of levels of education attained, work experience, size of firm, and rate of firm growth. However, our econometric models point to the fact that despite the various gains from belonging to minority entrepreneur groups, *formal education* is significantly correlated with firm growth for African entrepreneurs. Investment in secondary and university education is key to raising the rate of firm growth for African entrepreneurs. A higher level of education results in better managerial skills including the ability to hire and manage larger numbers of people, the capacity to maintain accounts and records, and to access new technology. Education and firm growth are clearly correlated for African firms in the RPED sample; our analysis indicates that investing in education will have a high payoff in terms of employment growth.

Our results are consistent with the arguments presented in Section II regarding minority entrepreneurs and their access to financial and informational networks. Indigenous African entrepreneurs do not have access to the types of networks created by Indian and white-owned firms that provide contractual mechanisms for access to credit, information and other inputs that generate firm growth. Formal education at the secondary and university level appears to serve as a *substitute* for access to these networks. Thus, investment in education, including higher education, may serve a very useful purpose in terms of generating employment in the industrial

sector in Africa. The general consensus in the literature on investment in education is there is over-investment in higher education in Africa. However, if growth in employment generated by entrepreneurial firms is an important policy objective, education appears to serve as a critical substitute for the “airtight” networks created by minority entrepreneurs. Further research into these issues will help us better identify the determinants of private sector development in Africa, the types of education services that are most useful, and the means by which education services can be targeted toward those who need it most.

**Table I: Descriptive Statistics of the RPED Sample**

	<b>Kenya</b>	<b>Zimbabwe</b>	<b>Zambia</b>	<b>Tanzania</b>
Mean growth rate (log)	8.5	12.4	7.9	6.8
% Firms owned by Africans	46.5	41.0	61.1	74.2
% Firms owned by Asians	52.4	15.7	25.7	23.9
% Firms owned by Europeans	0.5	40.3	11.4	0.0
% Firms owned by women	7.7	19.4	11.4	7.1
% Entrepreneurs with secondary education	45.4	47.8	47.0	29.9
% Entrepreneurs with university degree	23.7	26.1	15.7	18.8
% Entrepreneurs with previous experience in the industry	62.9	63.4	62.9	64.7
% Entrepreneurs who own another business	31.9	51.5	39.5	34.7
% Entrepreneurs whose parents are in the same business	19.9	18.7	14.9	9.4
Age of the firm	17.2	17.6	14.8	13.6
Average initial employment	16.8	16.6	17.4	16.9
Average current employment	62.7	180.0	36.2	31.4
Age of entrepreneur	45.9	46.4	45.4	43.6
Number of observations	195	134	167	170

**Table II: Descriptive data disaggregated by ethnicity**

	<b>African</b>	<b>Non-African</b>
	<i>Percentage of firms in each category</i>	
	<i>(Actual numbers of observations are in parentheses)</i>	
<i>By Sector</i>		
Food	38.2 (42)	61.8 (68)
Textile	51.5 (88)	48.5 (83)
Wood	56.9 (78)	43.1 (59)
Metal	62.4 (78)	37.6 (47)
<i>By Country</i>		
Kenya	37.1 (59)	62.9 (100)
Zimbabwe	40.0 (42)	60.0 (63)
Zambia	59.7 (80)	40.3 (54)
Tanzania	72.4 (105)	27.6 (40)
<i>By Size</i>		
< 10	84.7 (166)	15.3 (30)
10-49	49.5 (94)	50.5 (96)
50-99	21.1 (16)	78.9 (60)
100+	12.4 (10)	87.7 (71)
<i>By Education level</i>		
No formal education	82.4 (14)	17.7 (3)
Primary	75.6 (90)	24.4 (29)
Secondary	49.2 (88)	50.8 (91)
University	32.6 (42)	67.4 (87)
Technical	52.0 (51)	47.9 (47)

**Table III: Ownership of very small firms**

	Kenya	Tanzania	Zambia	Zimbabwe
	(Percentage)			
Ethnicity of owner				
African	79.3	93.7	90.5	85.0
Asian	19.5	5.1	6.4	7.5
European	0.0	--	3.2	7.5
Middle Eastern	1.2	1.3	0.0	0.0

**Table IV: Ownership of largest firms**

	Kenya	Tanzania	Zambia	Zimbabwe
	(Percentage)			
Ethnicity of owner				
African	3.6	30.0	36.4	8.3
Asian	96.4	60.0	45.5	13.9
European	0.0	---	18.2	69.4
Middle Eastern	0.0	10.0	0.0	8.3

**Table V: Percentage of female ownership of African firms**

	Kenya	Tanzania	Zambia	Zimbabwe
Size of firm				
Very small	15.7	11.3	11.1	30.0
Small	2.0	4.6	15.9	34.3
Medium	3.1	0.0	4.2	4.4
Large	0.0	0.0	0.0	2.8

**Table VI: Percentage of entrepreneurs with a university degree**

	Kenya	Tanzania	Zambia	Zimbabwe
Size of firm				
Very small	8.4	2.5	4.8	7.5
Small	32.7	18.2	10.1	25.7
Medium	28.1	27.3	8.7	26.1
Large	46.7	46.2	27.7	47.2

**Table VII: Percentage of female entrepreneurs**

Ethnicity	Kenya	Tanzania	Zambia	Zimbabwe
African	17.2	8.3	16.7	32.7
Asian	0.0	5.1	2.3	9.5
European	0.0	---	5.3	9.3
Middle Eastern	0.0	0.0	0.0	25.0

**Table VIII: Percentage of entrepreneurs with parents who are in the business**

Ethnicity	Kenya	Tanzania	Zambia	Zimbabwe
African	8.8	5.8	17.7	6.3
Asian	50.9	55.6	40.0	60.0
European	0.0	---	25.0	45.5
Middle Eastern	0.0	100.0	0.0	50.0

**Table IX: Percentage of entrepreneurs who have experience in a foreign owned or managed firm**

Ethnicity	Kenya	Tanzania	Zambia	Zimbabwe
African	19.1	9.5	37.3	14.8
Asian	27.9	20.7	25.0	21.4
European	0.0	33.3	66.7	15.4
Middle Eastern	0.0	60.0	0.0	45.0

**Table X: Percentage with university degree**

Ethnicity	Kenya	Tanzania	Zambia	Zimbabwe
African	11.5	8.3	5.0	3.6
Asian	32.9	25.6	9.3	52.4
European	0.0	----	5.3	37.0
Middle Eastern	0.0	0.0	0.0	50.0

**Table XI: Percentage of entrepreneurs who currently own another business**

Ethnicity	Kenya	Tanzania	Zambia	Zimbabwe
African	22.1	23.9	33.3	36.4
Asian	40.6	61.5	74.4	57.1
European	100.0	---	42.1	62.9
Middle Eastern	0.0	33.3	66.7	75.0

**Table XII: Percentage of entrepreneurs who established the business themselves**

Ethnicity	Kenya	Tanzania	Zambia	Zimbabwe
African	87.2	85.1	82.4	85.5
Asian	65.9	61.5	58.1	38.1
European	100.0	---	68.4	38.9
Middle Eastern	100.0	100.0	100.0	50.0

**Table XIII: The Determinants of Change in Employment**

	<b>Model I</b>	<b>Model II</b>
constant	0.29(0.03)**	0.28(0.03)**
log(initial empl.)	-0.03(0.004)**	0.36(0.004)**
log(age)	-0.077(0.01)**	-0.77(0.01)**
food	0.002(0.015)	-0.006(0.02)
wood	-0.00(0.01)	0.004(0.01)
metal	-0.004(0.015)	-0.003(0.015)
log(experience)		-0.002(0.004)
secondary educ.		0.45(0.01)**
university deg.		0.05(0.01)**
tech training		-0.0004(0.01)
family business		0.018(0.01)+
other business		0.016(0.01)
Asian	0.049(0.01)**	0.025(0.01)*
European	0.066(0.018)**	0.052(0.019)**
Zimbabwe	0.065(0.022)**	0.06(0.02)**
Zambia	0.020(0.013)	0.01(0.01)
Kenya	0.032(0.013)*	0.03(0.01)**
n	502	502
R-squared	0.32	0.35
F-statistic	22.7	16.62
Breusch-Pagan chi-sq.	422.3	443.5

**Table XIV: The Determinants of Change in Employment: African vs. Non-African firms**

	<b>African</b>	<b>Non-African</b>
constant	0.27(0.04)**	0.33(0.05)**
log(initial empl.)	-0.04(0.006)**	-0.035(0.005)**
log(age)	-0.09(0.01)**	-0.61(0.01)**
food	-0.002(0.03)	-0.02(0.02)
wood	0.02(0.02)	-0.01(0.01)
metal	0.02(0.02)	-0.03(0.02)
log(experience)	-0.0003(0.006)	0.0002(0.005)
secondary educ.	0.074(0.02)**	0.005(0.01)
university deg.	0.098(0.019)**	0.01(0.01)
tech training	-0.001(0.02)	0.002(0.01)
family business	0.027(0.02)	-0.006(0.01)
other business	0.03(0.01)**	0.001(0.01)
Zimbabwe	0.09(0.03)**	0.05(0.02)**
Zambia	0.01(0.01)	0.003(0.02)
Kenya	0.01(0.02)	0.03(0.02)
n	262	240
R-squared	0.42	0.32
F-statistic	12.63	76.49
Breusch-Pagan chi-sq.	192.9	408.1

**Table XV: The Determinants of Initial Firm Size**

	<b>Model I</b>	<b>Model II</b>
constant	1.70(0.16)**	1.50(0.17)**
log(experience)	-0.01(0.04)	0.01(0.04)
food	0.12(0.15)	0.01(0.15)
wood	-0.19(0.14)	-0.21(0.14)
metal	-0.26(0.14)	-0.31(0.14)*
secondary educ.		0.12(0.12)
university deg.		0.55(0.15)**
tech training		0.20(0.14)
family business		-0.13(0.12)
assets		0.30(0.10)**
Asian	1.27(0.12)**	1.13(0.14)**
European	1.02(0.18)**	0.89(0.19)**
Zimbabwe	-0.18(0.18)	-0.31(0.17)+
Zambia	0.04(0.14)	-0.04(0.14)
Kenya	-0.38(0.15)**	-0.39(0.14)**
n	502	502
R-squared	0.22	0.25
F-statistic	16.40	12.94
Breusch-Pagan chi-sq.	12.62	26.54

**Table XVI: The Determinants of Initial Firm Size: African vs. Non-African firms**

	<b>African</b>	<b>Non-African</b>
constant	1.14(0.17)**	3.13(0.40)**
log(previous empl.)	0.12(0.06)*	-0.06(0.06)
food	0.34(0.24)	-0.31(0.21)
wood	-0.10(0.15)	-0.27(0.24)
metal	0.02(0.16)	-0.75(0.23)**
secondary educ.	0.19(0.14)	-0.09(0.20)
university deg.	1.15(0.25)**	0.11(0.21)
tech training	0.19(0.17)	0.08(0.23)
family business	-0.17(0.14)	-0.06(0.19)
asset	0.35(0.14)**	0.08(0.16)
Zimbabwe	-0.19(0.19)	-0.35(0.30)
Zambia	-0.24(0.15)	0.24(0.28)
Kenya	-0.42(0.16)*	-0.34(0.26)
n	262	240
R-squared	0.17	0.36
F-statistic	54.02	17.44
Breusch-Pagan chi-sq.	13.22	23.48

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<sup>1</sup> We refer to minority entrepreneurs (of Asian and European descent) as “non-African” and to indigenous entrepreneurs as “African” throughout the paper. This is for purposes of analysis only; many non-African entrepreneurs have African citizenship.

<sup>2</sup> Growth is calculated using employment rather than turnover data because that series is more reliable and complete. Startup employment and sales data were based on recall information; most firms were able to provide recall employment data, but not sales. Also, employment is the preferred measure used in most studies on firm growth.

<sup>3</sup> By entrepreneur firms we mean firms that are 100 percent privately owned. These firms are owned by a proprietor i.e. They are owner-entrepreneur firms. We exclude both publicly quoted companies as well as private limited companies that are not owned by an individual, because we focus our efforts on testing the significance of minority ethnicity. We do not find evidence of joint ethnic ownership in our sample.

<sup>4</sup> As there are very few Middle Eastern firms in the sample, they were grouped with European firms for purposes of the analysis.

<sup>5</sup> Only surviving firms are used in the analysis. Our data do not allow us to take into account the problem of sample attrition. However, Hall (1987) points out that there are two possible biases arising from this problem. The first is that small firms that have slow or negative growth are more likely to disappear from the sample than are large firms, thereby causing sample selection bias. The second is that some of the most rapidly growing small firms may not be present at the beginning of the period, which results in a bias that runs in the opposite direction. Hall carefully controls for sample attrition and finds that it does not change her results. We acknowledge that we are unable to control for sample attrition but are also aware that our results may not be biased in a particular direction.

<sup>6</sup> Both models are statically significant as a whole (the F-statistic is significant at the 1 per cent level of confidence). Also, standard errors are corrected for heteroskedasticity with the Breusch-Pagan  $\chi^2$  reported in the table. Gender of the entrepreneur was included in earlier regressions to test the hypothesis that female entrepreneurs engage in income-smoothing and are consequently more risk averse (Downing, 1990). Our results reject this hypothesis (the coefficient on the gender dummy was insignificant); however, we have very few observations of female entrepreneurs in our data and therefore do not include this variable in our final regressions.

<sup>7</sup> We have used *current* assets of the entrepreneur because we do not have information about assets owned when the firm was being established. However, we posit that current assets are highly correlated with past assets and therefore serve as a reasonable proxy.

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