RISK AS A CONSTRAINT TO MICRO-ENTERPRISE GROWTH

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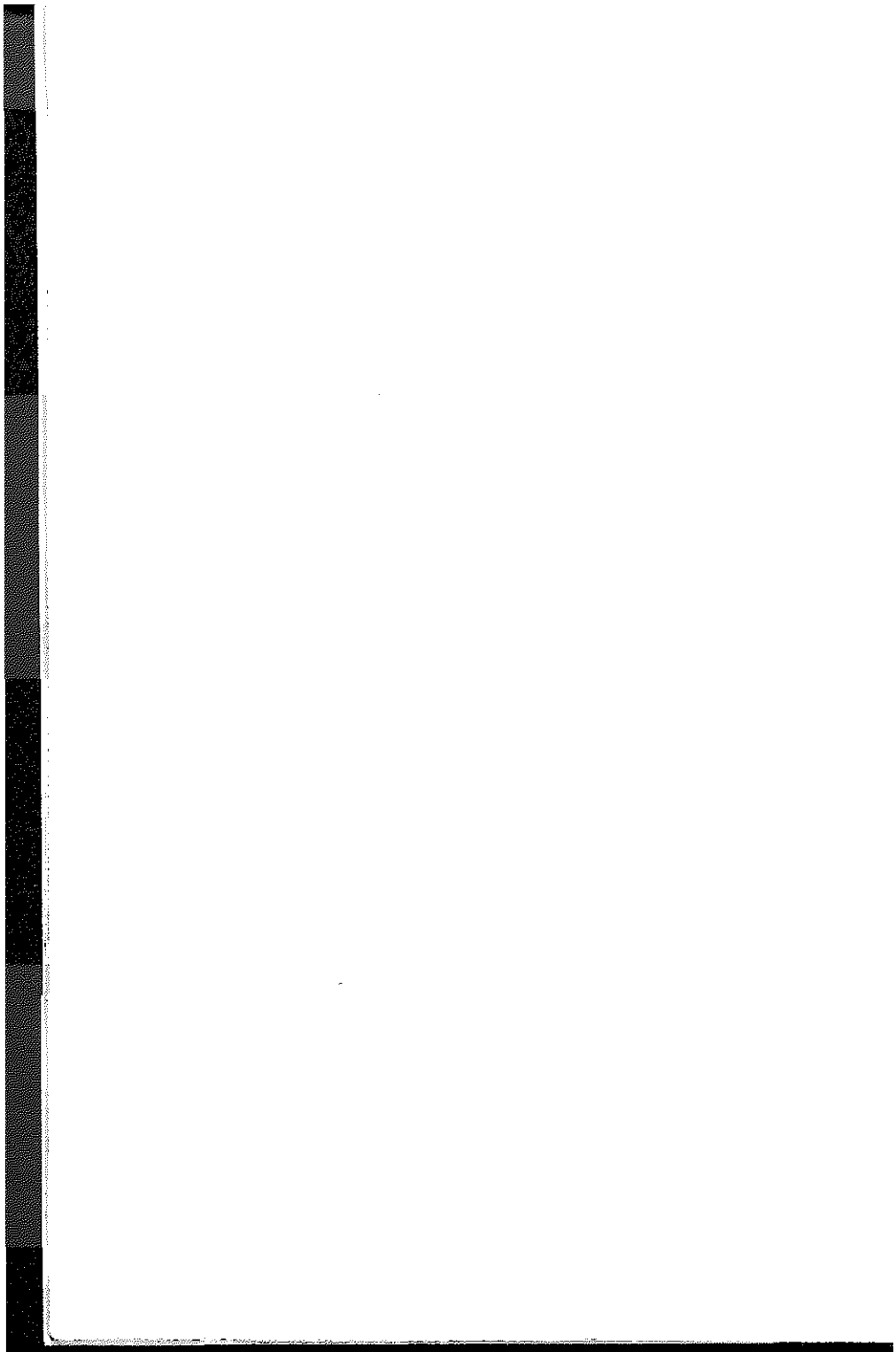
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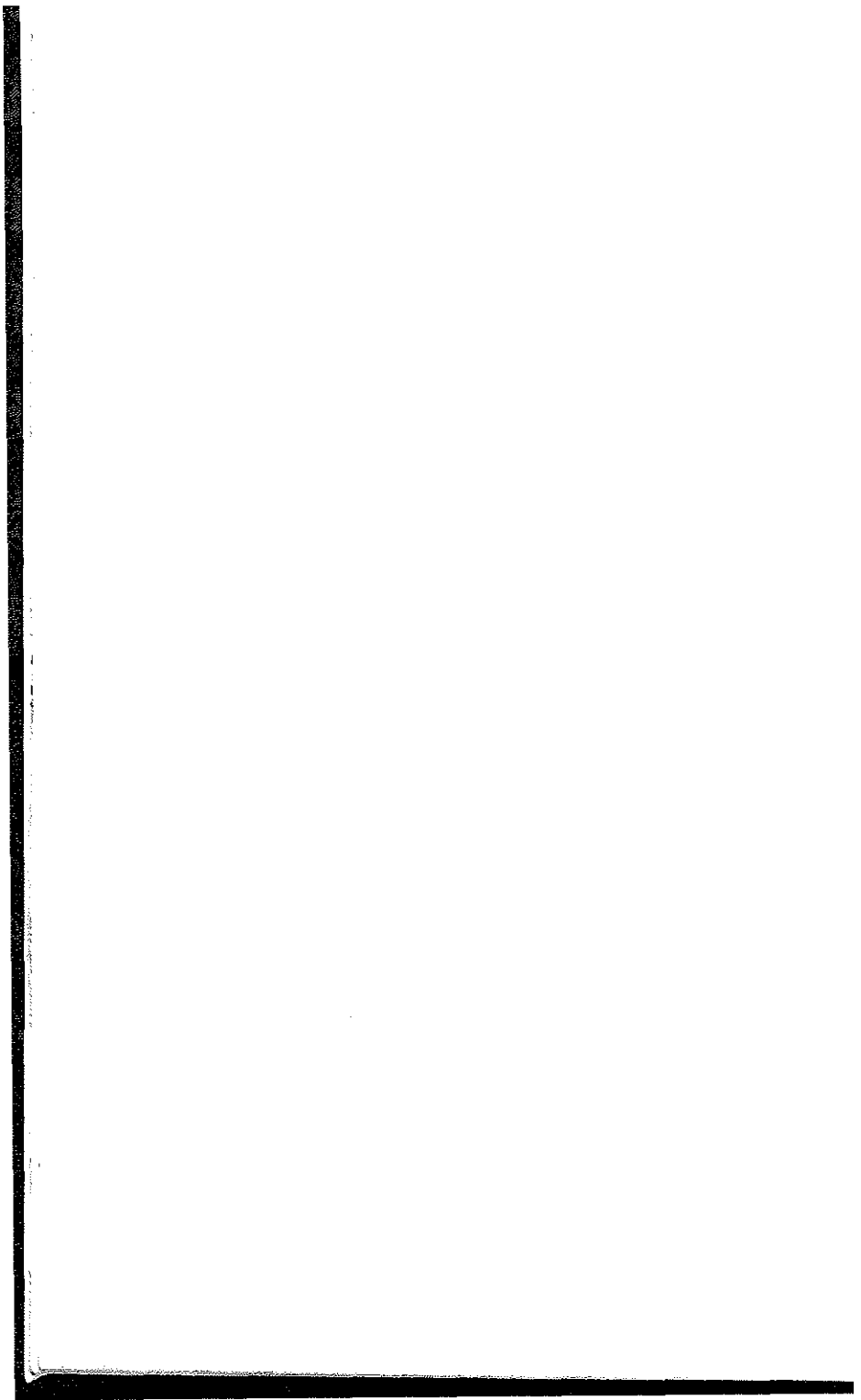
CHAPTER I - INTRODUCTION

Since independence, most African governments have pursued a policy aimed at the development of a modern industrial sector similar to those of the developed western countries in order to achieve fast economic growth and to create employment. Despite all kinds of support, this sector has generally failed to deliver its own delineated goals and objectives (Liedholm and Chuta, 1985). In the last two decades, attention has shifted to small businesses as the engine for regional and national economic development and as a source of employment (Tellegen, 1993).

Rapid population growth has led to a number of problems to urban and rural households. In the rural areas, rapid population growth has led to increasing pressure on arable land and many rural households are not able to grow enough food as acreage per household decreases. In the urban areas, as a result of rural-urban migration in search of jobs and other amenities, urban areas are congested and majority of the migrants do not get jobs since there are only a few jobs available. This has led most people to look for alternative sources of income in order to satisfy their basic needs. One common option for most households has been to start a micro enterprise (i.e a firm with upto 10 employees).

Micro enterprises have evolved and become an important source of income to both the rural and urban population. Chuta and Liedholm (1979), researching on small scale enterprises in Sierra Leone, Taiwan, Guatemala, Mexico,

Colombia, South Korea, Pakistan, Kenya and Nigeria found that small business activities provide primary and secondary employment for 30-50 per cent of the labour force in developing countries. In the Kenyan context, it is estimated that non-farm activities employ approximately 30 per cent of the rural labour force and account for approximately 50 per cent of total income earnings (Government of Kenya, 1992).

Despite their importance, micro enterprises have been found not to expand or grow into small scale enterprises having between 11-50 employees (World Bank, 1994). This study focused on the role of risk and risk aversion since this is a constraint that has received relatively less attention compared to other constraints. The other objective was to illustrate the use of Binswanger model in a non-farm enterprise.

CHAPTER 2 - LITERATURE REVIEW

A lot has been written on the constraints faced by households who want to start a business and have it grow. Most often mentioned are the limited purchasing power especially in the rural areas, lack of appropriate technology, lack of physical infrastructure, lack of management skills and lack of capital (Alila, 1993; Liedholm and Chuta, 1976; Levy, 1993; Felsenstein and Schwartz, 1993).

Binswanger (1980), in his study of farmers attitude towards risk in rural India, found a large concentration of farmers with intermediate to moderate risk aversion. Similarly Dillon and Scandizzo (1978), researching on farmers' attitude towards risks in North-East Brazil found a wide range of risk attitudes. Nearly equal numbers of farmers were in the risk averse, neutral and preferring categories.

Anderson (1975), in his research to programme for efficient planning against non-normal risk observed that risk may tend to act as an impediment to adoption of improved practices. An entrepreneur whose output is close to minimum standard level must be concerned not only with the most probable level of output using a new method but also with its range of variability. If he thinks it has a chance of leaving him below his minimum level then, he will not try it.

Business owners' responses to risk and uncertainty inhibit growth of their firms (McCormick, 1992). In her paper entitled "risk and firm growth" among Nairobi enterprises, she points out that there is the ever present possibility of widespread economic or political collapse or personal misfortune as well as the fear of unknown future. There are also production and market risks. In the same study, McCormick observed that entrepreneurs measures which are undertaken to minimise risk include going into small and flexible businesses, safe product lines, diversified holdings and unused collateral. These and other methods of risk aversion are likely to incur a certain cost especially reduction in profit, but tend to provide greater security.

Hans and Ozay (1994) looking at the management of risk in informal trade in Indonesia note that the riskiness of the informal sector trading can be demonstrated by the business failure rate. They go further to note that the basic cause of business failure is the extremely risky market conditions facing traders. They identify the sources of risk to be fluctuations in market conditions, cultural pressure to redistribute profits to kin, neighbours and government officials, the traders' own limited understanding of such key concepts as income, cost and profit, their failure to impute cost of own -labour or unpaid family labour and inadequate depreciation of working capital. The two also observe the counterstrategy of small scale businessmen to risk which they observe as risk avoidance in the following ways: By working long hours, diversify their operations by indulging in mixed trading, they seek

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supplementary income from agriculture or elsewhere, they trade in small
quantities but above all they assume many costs of trading themselves.
To reduce risk of enterprise failure, small scale traders attempt to minimise
working capital (Casson, 1991). In his research on entrepreneurship: A model
of risky innovation under capital constraints, he notes that own savings still
appear to be the major source of finance for informal trade. Moneylenders is an
additional source of working capital. Bank loans are not often used. He
interprets the limited use of formal bank loans as a deliberate risk-avoidance
strategy. The risk involved in receiving loans from moneylenders or other
informal sources of credit is much lower, though interest rates are higher. In
case of defaulting on payments the moneylenders are willing to grant extensions
without much ado, whereas banks insist on foreclosures and bureaucratic
actions. From the review above, it is noted that research has been done on risk
as a constraint to small scale businesses elsewhere, but very little has been done
in Kenya. This research was intended to fill this gap.

CHAPTER3 – THEORIES OF FIRM DYNAMICS

The question on what constraints micro enterprises from growing into small scale enterprises requires an understanding of theoretical dynamics of firm growth. This section briefly discusses a number of theoretical models of firm dynamics of growth.

3.1 Jovanovic Model

This model was developed by Jovanovic (1982). Jovanovic argues that risk arises because business activities are inherently risk and also because individuals are unsure of their management abilities. He assumes that these abilities are better assessed by engaging in the business world and observing how well one performs. As one gradually learns more about his or her actual abilities, business attitudes and practices also change over time.

Jovanovic model, though an important step towards a truly dynamic theory of the firm, is limited. The entrepreneur is assumed to simply learn more about his or her exogenously given level of managerial ability. No provision is made for the entrepreneur to enhance this ability through education or training. It is widely acknowledged that education, training and certain socio-demographic variables are among the key determinants of enterprise growth.

3.2 Theory of Risk Bearing and Judgmental Decision Making

Maximising expected utility is the predominant foundation of risk analysis (Arrow, 1970). This concept asserts that a particular alternative is preferred to another as long as the expected utility of the first alternative is greater. Thus the best or optimal solution to a particular problem would be that feasible solution with the maximum expected utility.

Cantillon (1755), demonstrated that contracts reallocate risk. A merchant who purchases supplies at a price which is fixed independently of resale value insures the seller against subsequent fluctuations in price. If the merchant could resell the product forward at the same time that he purchased it, then risk could be avoided, but as a service to customers sales are normally effected sport, at the customer's convenience, from goods held in stock. Thus the merchant becomes a specialised bearer of risk. A manufacturer can also become a risk bearer by purchasing a worker's labour before he sells the product of that labour. In this way Cantillon's scheme of thought divides society into two main classes - the risk taking entrepreneurs and the non-entrepreneurial consumers and workers. Knight (1921) extends Cantillon's insights using a subjectivist perspective. He points out that situations without precedent create uncertainty. The decision maker must employ subjective

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probabilities rather than objective relative frequencies in this case. Different people may form different probability estimates. A confident individual who recognises that his own beliefs differ from the common view may perceive an opportunity for speculation. In particular, if he is more optimistic than others then he can exploit an opportunity that others do not recognise. Their pessimistic evaluation discourages them from competing with him. From his own point of view, their ignorance acts as a barrier to entry-though of course if their beliefs turn out to be right, then it is his over-confidence that leads him into the losses instead. Where there is no obvious correct decision rule that can be implemented, it then calls for judgement. Judgement may be defined by exclusion. This is a service that enhances the quality of decisions in novel, complex and ambiguous situations which require an urgent decision.

3.3 Theory of Firm Formation Under Uncertainty

The theory of firm formation by Kihlstorm and Laffont (1979) assumes that all entrepreneurs have access to the same risky technology and receive all profits from their firms. In the equilibrium, more risk averse individuals become workers while the less risk averse become entrepreneurs. Less risk averse entrepreneurs run larger firms. The two constructed a competitive general equilibrium theory of the firm under uncertainty which is based on an entrepreneurial model having its roots in the work of Knight (1921). In the model individuals are assumed to have a choice between operating a risky firm

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or working for a riskless wage. There are many other factors which should influence this choice. The most important ones would include entrepreneurial ability, labour skills, attitudes towards risk, and initial access to the capital required to create a firm. The two researchers focus on risk aversion as the determinant which explains who becomes an entrepreneur and who works as a labourer. Another question which can be investigated using the entrepreneurial model concerns the determinants of the distributions of firm size. Specifically, an entrepreneur's attitudes toward risk can be related to the firm size which he operates. While it might be conjectured that more risk averse entrepreneurs run smaller firms, this is not always true. It is from this theory that the model which is used is derived as it attempts to link risk and firm size. It also is the most appropriate theoretical framework for this study since it assumes risk aversion as the most important determinant of firm growth.

CHAPTER 4 - METHODOLOGY

4.1 Sampling

The type of enterprise chosen is tailoring and dress making. This is an enterprise that requires relatively little capital and entry into the business is relatively easy. Skills can be acquired easily through apprenticeship or in a formal training institution like a village polytechnic. An attempt was made to have a complete inventory of all the tailoring and dressmaking enterprises. This was achieved through a survey of the town as well as the division chosen. It is expected that majority of the enterprises were located except those that were closed on the days of inventory taking or those that are home based. The total population was approximately 240 and a sample of 67 enterprises was randomly taken for study.

4.2 Data Collection and Means of Analysis

All the data required was collected using a questionnaire applied to the sample chosen from the population.

To establish entrepreneurs' attitudes towards risk, the model used by Binswanger (1980) described below is employed. Relationship between enterprise growth and attitude towards risk was determined through classifying

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of risk categories into three. Extreme and severe (O and A) formed the most risk averse group, intermediate and moderate (B and C) formed the middle group and slight to neutral and neutral to negative (E and F) formed the least risk averse group (see table 1 below). These groups were then compared to growth in business which was also divided into three categories (negative, zero and positive growth).

4.3 The Model

It is difficult to measure risk directly due to its subjectivity and complexity. What one entrepreneur sees as risky may not be risky to another entrepreneur. Indirect approaches are used to measure risk by many researchers and this is true also for this research. The attitude towards risk is used as a proxy to measure how risk averse an entrepreneur is.

The approach used in this study to measure entrepreneurs' attitudes towards risk is that employed by Binswanger (1980). The basic approach is experimental. It measures attitudes by observing the reactions of individuals to a set of actual one-period gambles. The study was carried out in 240 rural households. Data collected included wealth, age, schooling, salary, sex, land rented as well as the measure of attitude towards risk. The results indicate a large concentration of farmers with intermediate to moderate risk aversion. Agricultural economists have measured parameters of utility functions by simulated gambling rather than actual ones except Binswanger. The present

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research will use actual gambles as in the case of Binswanger so that the results may to a large degree reflect the actual attitudes of respondents towards risk. To overcome moral problems involved in gambling, the gambling will be limited so that the worst possible outcome is zero gain, and it thus involves gifts to respondents. Because many respondents may have few years of education and some may be illiterate, the experiment had to be simple. The game was therefore based on coin tosses.

Table 1 below explains the basic method.

Head Choice	Tails Low Payoff	Risk Aversion High Payoff	Class
O	50	50	Extreme
A	45	95	Severe
B	40	120	Intermediate
C	30	150	Moderate
E	10	190	Slight to Neutral
F	0	200	Neutral to negative

It must be recognised that extrapolating the findings of such an approach to real business decisions may face theoretical challenges (Moscardi and De Janvry, 1977). One such challenge results from the fact that the respondents have different degrees of utility or disutility for gambling. As a result attempts at relating measures of risk aversion to explanatory variables have been only partially successful (Scandizzo and Dillon, 1978). Binswanger (1980), testing to see whether behaviour with gift money and own money differs found that nine out of ten individuals chose the same alternative as in the immediately preceding game, while one individual out of ten became more risk averse. Binswanger (1980) also found that after an individual participated in a game, their responses to hypothetical games without the use of money did not differ significantly from their choices in games with significant outcomes where they were offered relatively more money. Despite the weaknesses that this method may have, the researcher considered this to be the best suited model for this study theoretically and in terms of costs and time available for the research. It is also the simplest model which the entrepreneurs can comprehend.

CHAPTER 5 - RESULTS AND DISCUSSION

5.1 Results

This section presents the results of the survey in the following order. The first part deals with general characteristics of the entrepreneurs and the enterprise. It is followed by a brief section of the indicators which suggest that the enterprises are operated in a risky environment. This is followed by a brief analysis of the relationship between business growth and risk aversion. Finally, this chapter ends with a conclusion.

After analysing the data, it emerged that there were no significant differences between the rural and the urban locations and the results are reported jointly except where there were distinct differences.

There were 19 women as compared to 48 men in the sample. The mean age of the businesses is 5.4 years while the minimum is 0.6 years and the maximum is 16 years. The mean number of permanent employees for the whole sample size is 0.6 while the minimum is 0 and the highest number employed is 8. This variable (number of permanent employees) is used to represent enterprise size. Income from the business and/or capital invested would have been better variables but their sensitivity or difficulty in obtaining them made the researcher to use employment as a measure of enterprise size.

There are a number of indicators that reveal the riskiness of the environment in which these entrepreneurs operate in. As a source of livelihood, the business provides most of the basic necessities of life which include food,

rent, clothing, school fees and medical fees. Entrepreneurs would be very cautious in undertaking new ventures in the business that would increase uncertainties in the enterprise. They may for example forego high paying but uncertain investments for low paying but certain investments. It was also established that apart from the nuclear family of the entrepreneur, parents, brothers and sisters, grandparents, in-laws heavily depend on the enterprise to meet their life's basic needs. This may imply that the failure of a business would have disastrous consequences not only on a family but the extended family as well.

The main source of capital for both urban and rural areas is own savings and assistance from parents (relatives) or friends. Only two entrepreneurs had taken a loan to finance their enterprises. Some entrepreneurs knew where they could obtain a loan but did not borrow due to reasons which they gave as fear of business failure therefore not being able to repay the loan, high interest rates and bureaucracies in getting a loan. A large number of them did not even bother to find out where they could obtain a loan despite their having some form of collateral that would be used to borrow a loan. The reason could be that they have little knowledge of loans (lack of awareness) or they have seen others borrow and could not repay resulting in their assets being auctioned. This would lead to fear such that they would not seek a loan to improve the performance of their businesses.

At least each of the entrepreneurs knew one or more other entrepreneurs who had closed down their businesses. The most commonly cited

reasons for closure were given as low demand, use of income from enterprises to meet family needs, mismanagement and stiff competition from other entrepreneurs. One entrepreneur could count as many as ten other entrepreneurs who had closed down their businesses. In certain months a number of businesses are closed down due to low demand. This is true for both rural and urban areas but is slightly higher in the rural areas as they involve themselves in farming. There was also wide divergencies between expected and actual income. Fluctuations in incomes from the enterprises are high and do not follow any particular pattern.

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Table 2: Relationship Between Business Growth and Risk Aversion

Business Growth	Risk Aversion		
	1	2	3
	category O and A	category B and C	category E and F
Negative	1 (4%)	2 (6%)	1 (9%)
Zero	21 (87%)	26 (82%)	7 (64%)
Positive	2 (9%)	4 (12%)	3 (27%)
Total	24 (100%)	32 (100%)	11 (100%)

Source: Author's own compilation from primary data collected

The table indicates that high risk takers either win or loose (grow or reduce in size) while the risk averse stay stable. This is expected since in most cases where returns are high the risks are also high. Those who take risks have higher profits or higher losses and this is directly related to the growth of their businesses. On the contrary, the risk averse have low profits or losses and therefore less growth or decline.

5.2 Conclusion

A number of factors discussed above reveal that the business environment in which enterprises operate is very risky. There is a high probability of business failure.

The results obtained in this research are similar to those obtained by Binswanger (1980) when he applied the risk model to farmers. This is possibly due to similar characteristics (small size of farm or business, objective of feeding the family, little or no separation between the enterprise and the individual/household and others) of the farmers and the entrepreneurs. It is therefore possible to use the Binswanger model in a non-farm enterprise.

Previously, many programs that have targeted small enterprises have not fully taken into consideration the aspect of risk. This may have led to a number of these programs failing or not achieving the desired effects. Any programs therefore designed to assist small scale entrepreneurs should take into consideration the aspect of risk since this variable has an influence on firm size.

BIBLIOGRAPHY

Alila P.O. "Informal Credit and Rural Sector Enterprises", Institute for Development Studies, University of Nairobi, 1993.

Altaf, Z. Entrepreneurship in the Third World: Risk and Uncertainty in Industry in Pakistan, Croom Helm, London, 1988.

Arrow, K. "Essays in the Theory of Risk Bearing," Amsterdam: North Holland, 1970.

Binswanger, H. "Attitudes Towards Risk: Experimental Measurement in Rural India." *American Journal of Agricultural Economics*, **62**:395-407, 1980.

Brink L. and B. Mccarl, "The Tradeoff Between Expected Return and Risk Among Cornbelt Farmers." *American Journal of Agricultural Economics*, **60**:259-63, 1978.

Felsenstein D. and Schwartz D. "Constraints to Small Business Development Across the Life Cycle: Some Evidence from Peripheral Areas in Israel," Unpublished Paper, 1993.

Casson, M.C. "Entrepreneurship: A Model of Risky Innovation Under Capital Constraints," Unpublished Paper, Discussion Papers in Economics, University of Reading.

Dillon, J.L. and P. Scandizzo. "Risk Attitudes of Subsistence Farmers in North-Eastern Brazil: A Sampling Approach." *American Journal of Agricultural Economics*, **60**:425-35, 1978.

Fisher, P. M. "Risk Aversion by Small Scale Farmers - Can it be Measured," M. A. Research Paper, University of Nairobi, 1977.

Knight, F. H. "Risk, Uncertainty and Profit", Chicago University Press, 1921.

Lambert, D. K. and B. A. McCarl. " Risk Modelling Using Direct Solution of Non-linear Approximations of the Utility Function," *American Journal of Agricultural Economics*, 67: 846-52, 1985.

Levy, B. "Obstacles to Developing Indigenous Small and Medium Enterprises: An Empirical Assessment," The World Bank Economic Review, 7: 65-84, 1993.

Liedholm, C. and Mead, D.C, "Dynamics of Micro Enterprises: Research Issues and Approaches," Gemini Working Paper No. 12: Gemini: Maryland, 1991.

McCormick, D. "Why Small Firms Stay Small," Institute for Development Studies, University of Nairobi, 1993.

Moscardi, E. and A. de Janvry. "Attitudes Towards Risk Among Peasants: An Econometric Approach," *American Journal of Agricultural Economics*, 59:710-16, 1977.

Pindyck, R.S. and D.L. Rubinfeld. "Econometric Models and Economic Forecasts," Second Edition, 1981.

Government of Kenya, Small Enterprises and Jua-Kali Development in Kenya, Sessional Paper No.2 of 1992, Nairobi Government, Printer.

Smidts, A. "Decision Making Under Risk : A Study of Models and Measurement Procedures With Special Reference to the Farmers Marketing Behaviour," PhD. Thesis, Wageningen Agricultural University, 1990.

Tellegen, N. Rural Employment in Sub-Saharan Africa: A Bibliography, African Studies Centre, The Netherlands, Working Paper, 18:1-40, 1993.

Wiens, T. "Peasant Risk Aversion and Allocative Behaviour: A Quadratic Programming Experiment." *American Journal of Agricultural Economics*, 58:629-35, 1976.

Wolgin, J.M. " Resource Allocation and Risk: A Case Study of Small Holder Agriculture in Kenya." *American Journal of Agricultural Economics*, 57:622-630, 1975.