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WHY SMALL FIRMS STAY SMALL  
Risk and Growth in Nairobi's Small-Scale Manufacturing

by

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ABSTRACT

Despite abundant literature on the social and economic benefits of encouraging tiny "informal" firms, scholars generally agree that somewhat larger enterprises create more unskilled jobs, use resources more efficiently, and are better at building technological capacity. Yet the vast majority of firms will never grow beyond six workers. This paper argues that one very significant reason why small firms stay small is risk.

In Nairobi -- and probably elsewhere -- the economic and social consequences of business failure are extremely high. Not surprisingly, entrepreneurs try to protect themselves from failure and, in the process, ensure that their firms will remain small. Our research identified four risk-management strategies that work separately and together to discourage firm growth. First, many entrepreneurs manage risk through flexibility. By working in rent-free quarters, using family labour and little capital, they minimise fixed costs and maximise opportunities for additional income. Second, many small manufacturers also avoid risk by manufacturing standard products for a known market. Third, successful entrepreneurs frequently diversify their income and assets rather than expanding a single enterprise. Finally, most prefer to preserve their land and other assets unencumbered by debt. These rational responses to a risky business environment ensure that most firms will stay very small and, in the process, work against formation of a dynamic manufacturing sector.

Policymakers are challenged to improve the "enabling environment" by creating broad policies conducive to firm growth and by targeting specific policies and programmes to small-scale industry. Kenya needs macroeconomic and social policies that indirectly encourage firm growth by removing or reducing business and background risks. The country also needs an industrial policy that provides positive incentives for enterprising business owners ready and willing to expand employment, improve efficiency, and upgrade their technology and their workers' skills.

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## INTRODUCTION

In Nairobi, as in many cities in Africa, Asia, and Latin America, small-scale manufacturers use simple tools and technology to produce basic goods for local people and specialty items for the tourist and export markets. Some are *jua kali* artisans; others work in market stalls or small workshops.<sup>2</sup> The firms are very small: few will ever have more than six workers.<sup>3</sup> Many businesses, including some of the smallest, give their owners a reasonable income. But are they the best means of developing the economy? Research in Kenya and elsewhere suggests not. Proliferation of tiny units seems less likely to promote stable and equitable development than a manufacturing sector that includes more medium-scale enterprises. Since most firms start small, this means encouraging growth. To establish appropriate policies, policymakers first need to know why small firms stay small. The theoretical and empirical literature offer many possible explanations. This paper focuses on one of these -- risk -- and presents evidence of its impact on the size of Nairobi's small manufacturers.

The paper has four parts. Part 1 summarises the theoretical arguments for increasing the proportion of medium-size firms. Part 2 reviews factors known to inhibit firm growth, exploring in detail the effects of risk. Part 3 presents evidence that entrepreneurs' risk management strategies prevent the growth of micro-manufacturers into small and medium enterprises. Finally,





Part 4 considers the policy implications of the findings. Before taking up the substantive discussion, a word on size is in order.

Both measurement and classification into size categories are problematic. Size is measured in different ways. A gauge combining employment, capital, and output is theoretically best, but the unavailability or unreliability of capital and output figures frequently force us to use categories based on employment alone. Discussion of small and medium enterprises also presumes agreement on size classifications. Yet "small" and "large" mean quite different things in industrialised and developing countries. Even for developing countries, size categories vary from one place and one researcher to another.<sup>4</sup> My empirical analysis uses four categories: *very small* businesses have six or fewer workers, *small* enterprises have 7-10 workers, *medium-size* firms have 11-50 workers, and *large enterprises* have over 50 workers. The theoretical discussion follows the same classification as far as possible, but also recognises that many factors -- including the sometimes imprecise definition of a "regular worker" -- makes exact classification difficult. On the positive side, the resulting flexible class boundaries allow comparisons of firms that are really quite similar. Thus, for example, the study considers a "cottage shop" with 1-5 workers equivalent to a "very small" enterprise with up to six workers. Category differences are noted as necessary.

#### 1. THE ARGUMENT FOR MORE SMALL- AND MEDIUM-SIZE ENTERPRISES

Firm size, in itself, has little economic consequence. Its importance lies in its relationship to development and, in particular, to the goals of industrialisation. Studies indicate that firms of different sizes contribute differently to absorption of unskilled labour, efficient resource use, and development of technological capacity. A manufacturing sector with a mix of firm sizes improves prospects for stable, equitable growth.

#### Distribution of Firm Sizes

In the simplified world of textbook economic theory all firms in an industry are the same size. The theory assumes that an unlimited number of firms have access to the same technology for producing a good. If this technology exhibits decreasing returns to scale beyond some point, all firms would be the size corresponding to the minimum point on the long-run average cost schedule. In fact, in both industrialised and developing countries, firms of various sizes coexist even within an industry. Most industry size distributions tend to be highly skewed, with a few large firms and many small ones.

The industrial size distributions of developed and developing countries differ in one important respect. Staley and Morse (1965, p. 22) long ago identified the "missing middle" in developing country industry. They observed that foreign

investment and capital-intensive technologies allow some factories to start large, while the scarcity of local capital ensures that most new indigenous firms will be small. The first stages of industrialisation, therefore, are characterised by a "hollow" or "excluded" middle in the size structure. They predicted that, as the most successful small firms grow, the hollow would fill in and the distribution of employment across firm sizes come to resemble that of industrialised countries.

Yet in many countries, even after twenty, thirty, or more years of building an industrial sector, the "missing middle" remains.<sup>5</sup> The availability of significant amounts of merchant capital, direct investment by the state, and the allocation of public funds for indigenisation measures have allowed the formation of large manufacturing firms in Africa (Swainson 1980, Kennedy 1988). At the other end of the spectrum are the thousands of businesses that begin with minimal capital and remain very small. The middle range remains virtually empty.

Table 1: Distribution of Manufacturing Employment among Cottage Shop, Small and Medium Industry, and Large Industry: Selected Economies and Years (percent)

Economy	Year	Cottage Shop (1-4 workers)	Small-medium Industry (5-99 workers)	Large Industry (100+ workers)
United States	1967	1	22	77
Japan	1975	19 <sup>a</sup>	37 <sup>b</sup>	44
Colombia	1973	49	16 <sup>f</sup>	35 <sup>g</sup>
Korea	1975	36	17	47
Turkey	1977	50	14 <sup>f</sup>	36 <sup>g</sup>
Philippines	1975	66 <sup>a</sup>	8 <sup>b</sup>	26
Nigeria	1972	59 <sup>d</sup>	15 <sup>b</sup>	26
Kenya	1969	49	10	41
Kenya (garment industry, Nairobi only)	1989	42 <sup>c</sup>	11 <sup>d</sup>	47 <sup>e</sup>

Source: Data for United States, Japan, Korea, Philippines, and Kenya (1969) are as compiled from a variety of sources by Cortes, Berry, and Ishaq (1987, Table 1-1). Nigerian data are from Page (1979, p. 2). Data for Turkey and Colombia come from Anderson (1982, p. 916). Data for Kenyan garment industry (1989) are from my own census.

NOTES:

- a Establishments with 1-9 workers.
- b Establishments with 10-99 workers.
- c Establishments with 1-6 workers.
- d Establishments with 7-50 workers.
- e Establishments with more than 50 workers.
- f Establishments with 5-49 workers.
- g Establishments with 50 or more workers.

Although data in Table 1 are not strictly comparable because they come from different years and, in some cases, use slightly different size



McCormick. *Why Small Firms Stay Small*, WP 483

categories, they illustrate this "hollow" for several developing countries' industrial structures. For example, nearly half of Kenya's 1969 manufacturing employment was in enterprises with fewer than five workers, 41 percent was in large-scale, and a mere ten percent fell in the small-medium category. A recent survey of the garment industry in Nairobi suggests that the distribution of employment has changed little in 20 years.

Numbers of firms presents a somewhat different picture. In both industrialised and developing countries, the typical distribution of firms in an industry has a pronounced rightward skew with a few large firms and many small ones. In Nairobi's garment industry, for example, 94 percent of the firms are very small, 4.6 percent small and medium, and 1.4 percent large.

#### Firm Size and Development Goals

Is the apparent overabundance of tiny firms a problem for developing countries? Available evidence suggests that a manufacturing sector dominated by tiny units cannot contribute fully to development. By increasing the proportion of medium enterprises, a country can better achieve three major development aims: employment creation, efficient production, and technological development.

#### *Employment Creation*

Because few developing countries can absorb their rapidly growing populations into agricultural production, they must look to industry for

McCormick, *Why Small Firms Stay Small*, WP 483

employment opportunities. Industry's employment creation capability rests on two key variables: labour intensity and worker skill requirements. Both vary with firm size, though not in the direct linear relationship small enterprise advocates generally assume. Small industry is widely believed to be more labour intensive than large. Furthermore, it is assumed that the labour used in small firms is largely unskilled. If both are true, then investment in small firms should produce more jobs for unskilled workers than investment in large firms.

This analysis, while broadly accurate, ignores two important facts. First, the relationship between firm size and labour intensity is not uniformly decreasing. Second, the smallest firms often require workers to have more skills than slightly larger firms. Little (1987) reports that when industry data are disaggregated, smaller firms are less likely to show as more labour intensive than large. The greater the disaggregation, the less frequently were smaller enterprises found to be more labour intensive (Little, Mazumdar, and Page 1987, p. 125). Furthermore, even without disaggregation, the smallest size group (fewer than 10 workers) was not the most labour intensive. Little (1987, p. 212) also reports that in the three industries studied, the proportion of unskilled workers tended to rise as the size of firms rose into the medium range (around 25 workers). Thus medium size industry -- not microenterprise -- seems best able to provide jobs for unskilled workers.

#### *Efficiency*

The second argument for more medium-size firms is their efficient use

of resources. Enterprises with fewer than ten workers rarely have high capital productivity or technical efficiency. Studies of Korean and Indian industries show that very small firms are not the most productive users of capital (Little 1987, p. 209). Colombian data comparing total factor productivity as measured by benefit-cost ratios found medium-size firms more productive than small ones (Cortes, Berry, and Ishaq 1987, p. 134). Our own findings based on a survey of Nairobi's garment manufacturers focus on worker productivity and indicate that workers in small and medium firms are significantly more productive than those in very small units (See Table 2).

Table 2: Nairobi Garment Manufacturers: Value-added per worker, by size of firm

Firm size	Value-added per worker per year (K.shs)
1 person	21,528
2-3 person	17,151
4-6 person	22,169
7-10 person	34,698
11-50 person	35,621
over 50 persons	34,724

Significance of F-statistic for difference in means is .0013.

The greater efficiency of small and medium enterprises is especially important in labour-abundant, capital-scarce economies.

*Technological Development*

The technological improvement that occurs in the process of growth from very small to small and medium enterprise seems especially beneficial to the developing country since it represents the fruit of local learning. Firms that remain very small can contribute little to the development of technology in the industry. They always use the simplest technology available and, even if they have innovative ideas, may lack the capital to develop them for use elsewhere. Slightly larger firms, on the other hand, tend to adopt more sophisticated processes (Cortes, Berry, and Ishaq 1987, p. 202).

Thus, theory and the experience of other developing countries suggest that firms should be encouraged to grow beyond microenterprise toward the medium range to enable the manufacturing sector to provide more jobs for those with few skills, improve its use of scarce resources, and open the way for technological development. Although a thorough testing of these arguments on Kenyan manufacturing data is beyond the scope of this paper, preliminary indications are that Kenyan industry is similar enough to that of other developing countries to make a case for increasing the proportion of small and medium enterprises. Nevertheless, most businesses remain very small. The theoretical and empirical literature suggests a number of economic, policy, historical, and cultural reasons why this is so.



## 2. GROWTH OR STAGNATION

Firms grow because those directing them value expansion and are able to seize opportunities and overcome obstacles on the path to a larger enterprise. Firms stagnate when growth brings little reward or when the barriers seem insurmountable. If growth will benefit the economy, then policymakers must ease the way or -- to use a favourite phrase from Kenya's current Development Plan -- "create an enabling environment" for firm growth (Kenya 1988). Effective policies must be grounded on an understanding of the economic and non-economic factors promoting and discouraging small-firm expansion.

### Economic Benefits of Growth

Economic rewards, though not the only reason for firm growth, are powerful incentives. The promise of scale, size, or growth economies impels entrepreneurs to expand output and/or to move into new product lines.

### *Scale Economies*

Economies of scale are an obvious economic incentive to firm growth. In some industries, increasing returns to scale promise greater output without proportionate cost increases. The range of efficient firm sizes depends on the exact shape of an industry's production function. Where average costs are nearly independent of size, a wide range of sizes would be expected, whereas a strongly U-shaped average cost curve should produce a narrower range. A monotonically and strongly decreasing curve provides the strongest incentive to growth. Empirical results from India suggest that in developing economies,

McCormick. *Why Small Firms Stay Small*, WF 483

constant returns to scale are as common the classic U-shaped average cost curve (Little, Mazumdar, and Page 1967, pp. 173-80). Thus in many industries, lack of scale economies could leave business owners indifferent to growth. If other growth incentives are weak or missing, and barriers are formidable, firms will remain small.

Even when scale economies exist, their effect on firm growth can be difficult to assess. One problem is that, even within the same industry firms may use different technologies. Where labour is relatively expensive, larger, capital-intensive firms may produce a given level of output at a lower marginal cost than smaller labour-intensive firms, but smaller firms' greater flexibility in meeting changes in supply or demand markets may give them lower average costs. It is impossible in such industries to identify a single optimal firm size (Mills 1984, Brock and Evans 1986).

The notion of an industry production function also ignores differences in product mix among firms of different sizes. In metal work, for example, the smallest firms often concentrate on making simple stoves and cooking utensils from scrap metal while larger ones manufacture iron gates, doors, and windows using new materials and more advanced technology. Larger firms' higher profits may, therefore, be due as much to the market for their more sophisticated products as to lower per unit output costs.

#### *Economies of Size and Economies of Growth*

Discussion of the production function and economies of scale focus on the manufacture of a single product or a narrow range of products. Yet larger firms producing many items have advantages even when product-specific scale

McCormick, *Why Small Firms Stay Small*, WP 483

economies are weak or non-existent (Penrose 1959, p. 89; Scherer 1980, p. 83; Storper and Walker 1989, pp. 130-31). Larger firms can afford to have machinery in reserve, thus avoiding costly production delays. The workforce in a larger firm can become more proficient at their tasks. Larger firms can afford specialised administrative and financial personnel who can devote themselves to increasing efficiency. Thus a larger firm can sometimes produce more cheaply than a smaller one, simply because it is large. Small firms, seeing these economies of size, are encouraged to grow.

Penrose (1959, pp. 100-102) identified another incentive to growth in the growth process itself. She observed that under some circumstances a particular firm may be able to exploit a profitable opportunity better than any other firm, larger or smaller. The unused knowledge and productive services existing within that firm -- what Penrose calls "economies of growth" -- encourage expansion. Such economies are transitory, disappearing once the business establishes the new activities and integrates them into the operations.

#### The Risky Business Environment

The size of a firm at any given moment is the result of continuous conscious and unconscious decisions. Economies of scale and growth are important, especially when expansion is being actively considered. Yet other factors may be equally crucial in the day-to-day operations that ultimately determine firm size. This paper emphasises the particular role of one of these -- the risky business environment -- in deterring growth. The paper's central thesis is that business owners' responses to risk and uncertainty inhibit

McCormick, *Why Small Firms Stay Small*, WP 495

growth of their firms. The thesis raises several conceptual and empirical questions. What are risk and uncertainty? How do most people respond to risk? How do business owners' risk management strategies prevent their firms from growing?

Risk and uncertainty are common words with technical meanings. In modern decision theory, uncertainty is a state of mind in which the individual perceives alternative outcomes to a particular action (Roumasset 1979, p. 4). Knight's ([1921] 1985) classic treatise distinguished "risks," for which the probabilities of the outcomes can be estimated, from "uncertainty," which deals with situations that do not permit quantitative determination of probability. Yet if we assume that experienced business owners can make subjective probability estimates for most events likely to affect their businesses, the distinction becomes practically unimportant. We will, therefore, use the terms "risk" and "uncertainty" interchangeably.

Small-scale manufacturers face two main types of risk. The first, which Lipton (1979, p. 352) calls "background risk," is the ever present possibility of widespread economic or political collapse or personal misfortune. The second type relates directly to the business and includes production and market risks. Because in less developed countries risks are relatively large, incomes low, and risk-spreading options few, attitudes to risk can be important determinants of decision-making (Moscardi and de Janvry 1977, Newberry and Stiglitz 1981, p. 105).

#### *Responses to Risk*

Individuals may embrace risk or shun it. Most are somewhat risk-averse,



preferring riskless or low-risk situations. Risk aversion actually covers several distinct attitudes with different resulting behaviours (Lipton 1972). One form is fluctuation aversion, in which an individual prefers a lower certain return to a variable one with a higher expected value.<sup>6</sup> A second type of risk aversion is the safety first approach in which risk is the probability that returns will fall below some "disaster level" (Roumasset 1979, pp. 95-100). A "safety-first" notion of risk aversion seems a plausible description of small business behaviour. Under a safety-first model, business owners' risk management strategies would be aimed at insuring some predetermined minimum income. Yet a third theoretical model may come closer to describing actual business behaviour. Day (1979) delineates a process of "cautious suboptimising" with feedback. The model has three central ingredients: safety, danger, and experience. The individual -- in our case, a business owner -- perceives a safety zone of familiar patterns and activities, and senses danger in contemplating departures from it. Feelings of danger may arise from the background or business risks already described, or more generally from lack of information and understanding of the environment. In this model, decision-makers prefer to choose from among options in the safety zone. When no feasible choices lie in the safety zone, they move out, but only to the option closest to the safety-zone boundary. Unlike fluctuation aversion or a safety-first approach, the model provides for feedback. Experience may enlarge or reduce an individual's safety zone, and, at the same time, the individual's choices influence the environment.

Owners of small businesses in developing countries are probably similar to small farmers, whom a growing literature suggests are moderate to

intermediate risk averters (Roumasset 1973, Rinswanger and Sillers 1983). The similarity of farmers' background risks to those of small manufacturers as well as their common cultural roots support the notion that small business owners are risk averters.

Three general strategies are open to risk averse business owners: they can spread the risk, avoid it, or seek compensation. Risk spreading, corresponding to Knight's ([1921] 1985, pp. 239-47) notions of grouping and diffusion, involves dispersing potential losses among many. Sharing losses through insurance is an obvious and common form of risk spreading. Another is diversification.

Avoidance is the second method of dealing with uncertainty. Business owners can avoid risk by choosing predictable activities over more speculative ones or by adopting structures and methods of operation that allow them to minimise unavoidable losses. One risk-avoiding strategy is to produce goods or services yielding a stable income; another is to specialise in areas for which the enterprise has substantial reserves of expertise (Penrose 1959, p. 140). Since a major source of risk is the unknown future, businesses also avoid risk by amassing information that will improve their predictive ability. A fourth risk avoidance strategy is flexibility (McCormick 1988, 1991). The flexible business is ready to move in whatever direction will increase profits or minimise losses.

When risks cannot be shared or avoided, rational people expect compensation. The standard textbook explanation of interest rate differences relates the additional return to the increased risks involved in speculative investments. For businesses, the "principle of increasing risk" states that as

McCormick, *Why Small Firms Stay Small*, WP 483

a firm expands its investment, the risk of a given chance of loss becomes more serious with each increment of investment (Penrose 1959, p. 57; Kalecki 1937). The business owner who continues to invest under such circumstances will expect higher returns for additional risk.

#### *Risk and Firm Growth*

Under uncertain conditions firms tend to operate at suboptimal sizes (Lipton 1979, pp. 347-48). Entrepreneurs may either to adopt conservative financial policies and restrict expansion, or to plan their expansion to minimise risk (Penrose 1959, pp. 61-64). In the first case, the effect of risk on growth is direct and obvious. The indirect effects of the second are no less real. Business owners, baulking at further risk, look for ways to expand their interests without increasing risk. Possibilities include diversifying activities, protecting themselves by backward or forward integration, or adopting short-run flexible programmes easily modified when conditions change.

All of these will be explored in detail for the Nairobi case.

#### *Other Growth Constraints*

Highlighting risk does not deny the importance of other barriers to growth. Entrepreneurship, access to scarce resources, the competitive market, the costs of growth, the legal and policy environment, historical and cultural factors, and simple luck are theoretically and practically important. I hope in a later paper to explore their empirical significance to small manufacturing in Nairobi. The following brief overview is intended only to

provide a backdrop for the central issue of risk and risk aversion.

Entrepreneurship is key to the growth or stagnation of individual firms. Of greater concern here, however, are the ways general patterns of entrepreneurial behaviour affect small manufacturing enterprise as a whole. In particular, we need to examine whether entrepreneurial failure plays a significant role in the "missing middle." Answering this question presents several challenges. The first is definitional. Entrepreneurship is, as Penrose (1959, p. 33) observed, a "slippery concept, not easy to work into formal economic analysis." Establishing theoretical links between entrepreneurship and firm growth require a clarity about entrepreneurship that so far seems lacking. Approaches and definitions vary widely. Knight's risk-bearing entrepreneur stands in a different relationship to firm growth than Schumpeter's innovator, Kirzner's alert decision-maker, or Kilby's manager (Knight [1921] 1985; Schumpeter [1911] 1934; Kirzner 1985; Kilby 1971, 1988). The scholar must, therefore, first choose a definition that appears appropriate to the circumstances being studied before entering into empirical analysis.

A second difficulty arises from the different patterns of entrepreneurial behaviour. An enterprising individual can choose to focus on a single business or to become involved in many activities. Only in the first case does linking entrepreneurship with the growth of a particular firm make sense. Yet, Marris and Somerset's (1971) observations suggest that the second pattern -- what Penrose (1959) called the "empire builder" type of entrepreneurship -- may be more common in Kenya. Any attempt to build a coherent theory will have to deal with the variations in entrepreneurial



behaviour that actually exist in Kenyan small enterprise.

Finally, the theory must recognise the effect of the political, social, and economic setting of the firm on entrepreneurial behaviour. Much Western literature assumes that firm growth is always a desirable goal and is, therefore, a measure of entrepreneurial ability. Yet our earlier discussion of risk suggests that such an assumption may not always be justified in developing economies. In some settings, a wise entrepreneur may opt for less growth, even if the economy would benefit from more larger firms. Attempts to link entrepreneurship with firm growth must, therefore, recognise the distinction between individual and social costs and benefits.

Firms can grow only if they can get sufficient capital, labour, and materials. Thus both economic theory and political economy have identified access to the means of production as a factor in firm success. The basic economic analysis of the relationship of access to firm size shows how firms with bigger endowments of a scarce factor of production can produce a given level of output at lower cost and will, therefore, have excess profits enabling them to grow (Brock and Evans 1989, Lucas 1978, Viner 1931). Some scholars writing on the "informal sector" have also addressed this issue. They tend to attribute limited access to market imperfections and to prescribe policy action to improve markets (Truu and Black 1980, Nihan 1980, Chuta and Liedholm 1985). In my view, the problem is more fundamental. Access to the means of production -- and therefore of accumulation and reproduction -- constitute what I believe to be the essence of social class in the African context. In an earlier paper I argued that Roemer's (1986) definition of social class as "differential ownership of or access to the means of

production" is most appropriate for African societies (McCormick 1989). Better access -- i.e., higher class -- will facilitate expansion. Many blame the proliferation of small firms on excessive competition. Existing firms fail to grow large and new small firms constantly enter into a stagnant or slowly growing market. Much of the "informal-sector" literature contends that new firms enter the market because individuals with little hope of formal employment start informal businesses to survive (ILO 1972, Hart 1973, Steel 1977, Nihan 1980, House 1981, Fields 1990). Generally low incomes and poor economic conditions hold demand down, so these businesses compete for a very limited market. Low or negative income elasticities of demand for some products may further reduce demand and inhibit growth (Truu and Black 1980).

Aspects of this argument are clearly accurate, yet in its usual form, it ignores the role of risk and risk aversion in creating and maintaining the competitive situation. Many industries in developing countries come close to perfect competition, with the many small producers who make nearly identical products charging similar prices and barely able to make a profit. Yet the products are manufactures which, if differentiated, might offer better profit opportunities. I believe that business owners' risk management strategies contribute to maintaining the excessively competitive markets that make accumulation and firm growth very difficult.

The costs of growth can also discourage expansion. Penrose (1959 pp. 45-46) argued that management's inability to cope with all the planning and leadership problems associated with moving from one size to another constrains growth in the short run. Thus expansion may slow or stop at least temporarily while management adjusts. The uneven growth produces different firms sizes at

McCormick, *Why Small Firms Stay Small*, WP 483

any point in time. Lucas (1967), focusing on capital rather than managerial adjustment, argued similarly that if changing firm size is costly, firms will stagger their expansion over time.

That the law and government policy can promote or retard the establishment and growth of businesses is undisputed. Recent studies suggest seven broad categories of law that can block entry into self-employment or constrain firms' growth: licensing and registration; regulation of premises; labour laws; taxes; debt collection; lack of legal protection for product innovations; and foreign trade restrictions (Kibwana 1989; Juma 1989; House, Ikiara, and McCormick 1990). In many countries, certain laws and regulations are not enforced against the smallest businesses. Yet law has an impact even when not enforced. One significant impact may be to increase the uncertainty of the business environment. After all, who knows when the government will decide to enforce these laws?

Public policy can facilitate or short-circuit the growth of enterprises. It is important here to examine the total policy environment: policies directly aimed at the promotion of small-scale enterprises, broader macroeconomic and mesoeconomic policies, and even specific policies aimed at other sectors. For example, macroeconomic policies designed to encourage manufactured exports, while directly affecting only large-scale industry, may assist small firms by making more subcontracting arrangements available to them. Similarly policies leading to improved farm incomes may reduce the supply of labour (and increase its cost) to small firms by keeping more young people working in the rural areas. Meso policies -- intermediate policies affecting income distribution and general well-being -- are especially

important where people lack sufficient primary incomes to obtain the goods and services needed for a decent level of human development (United Nations 1990, p. 44). Their effect on business is indirect, but significant.

Our discussion of entrepreneurship has already pointed to the possible role of history and culture in promoting or constraining firm growth. My injection of these variables into the discussion indicates my analytical perspective. "Pure" market economics is ahistorical, focusing on the present equilibrium of various elements. While analyses of equilibria provide useful information, they are insufficient to explain the overall development process. Their limitations are most obvious when economic changes predicted from some positive alteration in the opportunity horizon do not take place (Austen 1987, p. 2). In such cases, one can frequently find historical factors that explain present economic patterns. Thus, in Kenya for example, Western attitudes and values embodied in the colonial school system deprived many girls of educational opportunities and set a particular type of curriculum for those who did go to school (Robertson 1985). This bit of colonial history helps to explain why most small-scale manufacturers in Nairobi in the 1980s are male and why women entrepreneurs are concentrated in one sector (McCormick 1988). While believing in the importance of history in facilitating or impeding change, my conviction that human beings are free and capable of overcoming obstacles leads me to eschew anything resembling historical determinism.

Culture's role in promoting or restraining firm growth seems more problematic, probably because of a growing recognition that culture is "in process" (Rollwagen 1986). Nonetheless, even in rapidly changing societies, some system of shared ideals, values, and standards of behaviour undoubtedly



McCormick, *Why Small Firms Stay Small*, WP 483

influences the way people approach their economic choices.

Firm growth is partially explained by luck. Some firms get large simply by the luck of the draw; most grow only a little or not at all. Models defining firm sales at a point in time as proportionate to past sales plus a multiplicative random disturbance yield a distribution of firm sizes that bears a striking resemblance to the real-world size distribution (Simon and Bonini 1958, Scherer 1980). Once a firm has grown and established a lead over its competitors, it is difficult to displace. The random growth process, therefore, leads to a skewed distribution that is likely to persist in the long run.<sup>8</sup>

The growth or stagnation of any particular firm is due to some combination of risk and other factors. In particular, they depend on the economic or other value placed on expansion, the nature and magnitude of the incentives and obstacles, and the owner's entrepreneurial ability. The following pages touch on all of these, but emphasise the deterrent effects of risk on firm growth.

### 3. RISK AND SMALL-SCALE ENTERPRISE

Small-scale entrepreneurs in Nairobi are probably no more risk-averse than most people, but they operate in an especially uncertain environment. Small manufacturers face serious background and business risks. The stakes are high. Failure can impoverish an entrepreneur's entire family. The owner of a small enterprise has few of the benefits and safeguards accorded permanent employees of government and large private organisations or even those

McCormick, *Why Small Firms Stay Small*, WP 483

available to small business in industrialised countries. Kenya has neither unemployment nor welfare programmes, and public housing is almost non-existent. Children with unpaid fees or "contributions" must usually withdraw from school. Medical care at government hospitals and dispensaries is free, but patients must usually purchase the simplest medicines. To survive, people in small business must rely on themselves and whatever support they can muster from family and friends.

Two separate surveys, one of small-scale manufacturing in Nairobi's Eastlands and the other of garment producers throughout the city, suggest that risk and uncertainty play a major role in keeping firms small. The first survey, conducted in early 1986, covered all small-scale manufacturers operating in the Eastlands of Nairobi (McCormick 1988, 1991). Of 2,866 firms with ten or fewer workers, 39% made garments or other textile products, 16% were in carpentry, 23% in metalwork, and 22% in miscellaneous manufacturing activities. Very small firms predominated: 60% were single-person enterprises; 98% had six or fewer workers. Most entrepreneurs (77%) were male, though 45% of the textile businesses were owned by women. Businesses surveyed ranged from informal, *jua kali* enterprises to small workshops and factories. To capture something of their heterogeneity, I ranked each firm along a formality continuum with seven dimensions: business site, size, relationship to civil authority, technology, skill level of workers, management, and relationship to other enterprises (McCormick 1987).<sup>1</sup> The second survey, covering garment manufacturers of all sizes located anywhere in Nairobi, took place in 1989-90. Again most firms were very small (See Table 1). Nearly three-quarters (73%) of the owners of small and very small businesses are women. For convenience, in

McCormick, *Why Small Firms Stay Small*, WP 433

the pages that follow, the small manufacturers surveyed in 1986 will be called "Eastlands small manufacturers," and the clothing manufacturers studied in 1989-90 are identified as "Nairobi garment producers."

The data from both surveys suggest that small businesses stay small because their owners' risk management strategies directly or indirectly restrict growth. The link between risk and small size is evident in at least four distinct patterns of entrepreneurial behaviour: (1) the small-and-flexible business, (2) the "safe" product line, (3) diversified holdings, and (4) unused collateral. We will discuss each phenomenon separately, recognising nonetheless that business owners frequently use several strategies simultaneously.

#### The Small-and-Flexible Firm

Risk and uncertainty shape the operations of many of Nairobi's small manufacturers, giving rise to what I call the "small-and-flexible" model of enterprise. Two common risk management strategies combine to determine the model. By staying small, businesses avoid the risk of major loss. At the same time, their flexible structure allows them to shift quickly in the face of a changing environment.

#### *Managing Risk Through Flexibility*

Flexibility figured in the earliest studies of small enterprise and has recently become the cornerstone of a new paradigm of industrialisation. Informal-sector research has long noted the ability of individual participants to adapt to changing circumstances. Hart's (1973) central thesis, for example,

McCormick, *Why Small Firms Stay Small*, WP 483

was that urban migrants' informal occupations are a response to lack of sufficiently remunerative work. Small firms also adapt, using various strategies: low-paid or unpaid labour (Bernard 1980; Charms 1980; Banerjee 1982; Berry 1985), free or inexpensive work-places (Nihan 1980; Ndua and Ng'ethe 1984; Noormohamed 1985), low capital intensity (Schmitz 1982), subcontracts (Roberts 1978; Abadie 1982; Peattie 1982; Schmitz 1982), and use of family members in the business (Child and Kempe 1973; Zarenda 1980; House 1981; Mathias 1983; Lipton 1984). Their specific tactics -- growing out of particular historical, social, and economic circumstances -- are less important than their overall strategy. Small businesses survive an uncertain environment by being highly flexible.

The recent recognition of the value of flexibility in developed-country industry has spawned a new paradigm: flexible specialisation. Revolving around a landmark treatise by Piore and Sabel (1984), the theory contrasts the mass production model with flexible specialisation. Piore and Sabel (1984) argue that the key to prosperity lies in moving away from rigid mass production of standardised goods towards a more innovative and flexible system of multipurpose machines operated by skilled workers able to respond to continuous change. Flexible specialisation links firms of various sizes through subcontracting. Schmitz (1989) emphasises that flexible specialisation is not so much about size of firms as about relationships between them. The flexible specialisation paradigm has three important implications for small-scale industry. The model first emphasises that, even in advanced countries, competitiveness requires the capacity to adapt to disruptive circumstances (Schmitz 1989, p. 24). Second, by overcoming the view that equates industrial



progress with mass production, the model offers a positive place for small-scale production in the industrialisation process (Schmitz 1989, p. 21).<sup>10</sup> Finally, it highlights an often-missed distinction between flexibility of individual firms and the collective efficiency of a group of firms.

With this theoretical backdrop, we can return to the hypothesis that the flexibility of small manufacturing firms in Nairobi enables them to survive and succeed. Using the Eastlands small manufacturing data, I operationalised flexibility in terms of commonly observed tactics, then examined the relationship of flexibility to profitability.<sup>11</sup> Three flexibility tactics predominated: working in rent-free quarters, following a family organisational pattern, and minimising capital investment.<sup>12</sup> Business owners thus appear to reduce risk by lowering fixed costs and increasing opportunities for additional income.

About a quarter (23 percent) of the Eastlands small manufacturers pay no rent. Most are located on City Council land traditionally used by certain artisanal groups. Other *jua kali* operators set up shop along a road or in any vacant space. All trade the benefits of free space for the costs of sudden harassment or eviction.

Family organisation contributes to flexibility mostly by reducing wage costs and allowing business owners to diversify by taking other work. Drawing on Lipton's (1984) notion of the family mode of production, I defined a family firm as either a single-person business or a larger firm with family involvement. Non-family firms are businesses of more than one person in which the owner is not related to any other worker. Businesses using family members as workers either pay no wage, or combine a small cash wage with free room and

board. Familial organisation enhances flexibility by allowing the owner to leave the business to fulfil other obligations. Eastlands small manufacturers, like the motor mechanics Perry (1985, pp 153-154) observed in Nigeria, spend much time away from their businesses. Raw materials must be purchased, contacts with customers made, and, in some cases, the farm at home managed. If one's brother, sister, or spouse remains to operate the business, such absences seem less likely to have undesired consequences. Single-person firms allow the owners to take other employment when business is slow, and increase their workforce by hiring casual labourers or getting help from family members at peak seasons.

The third component of the flexibility variable is the level of capital. Firms with simple tools and equipment can easily shift their location. Very simple technology also holds down fixed costs by avoiding expenses of maintenance, protection, and the opportunity costs of invested funds. Firms with little physical capital can also alter their product mix to meet changing demand or input availability. For example, Elizabeth Adiyi, one of the few female metal workers among the Eastlands manufacturers, is both trader and manufacturer.<sup>13</sup> She buys empty metal drums from factories in Nairobi's Industrial Area. Some she resells to traders or other metal workers who convert them into *jikos* (small charcoal stoves), cooking pots, and basins; others she fashions into tubs by cutting the drums into two, painting them, and adding handles. When demand for tubs is high, as it is in drought when animals require feeding, Mrs. Adiyi is primarily a manufacturer. At other times, she mostly trades. Because she has little capital, she is able to shift her activities without the worry of leaving expensive equipment idle.

McCormick, *Why Small Firms Stay Small*, WP 483

For her, having less capital brings greater flexibility.

The composite flexibility variable -- the total scores for rent-free site, family mode of production, and low capitalisation -- shows that profitable firms have higher flexibility scores than unprofitable ones (see Table 3).<sup>14</sup> Profitable firms in the less formal range of the formality continuum had a mean score of 2.1, against 1.7 for unprofitable firms. More formal firms were, in general, less flexible. Profitable firms in this range averaged 1.3; unprofitable firms averaged 0.8. Thus for both groups of firms, greater flexibility is associated with profitability.<sup>15</sup>

Profitable firms are also smaller than unprofitable ones. A size measure combining employment and capital equipment averaged 5.4 for profitable businesses and 7.2 for unprofitable ones.<sup>16</sup> Profitable businesses were significantly smaller, on average, even within subgroupings of less or more formal businesses.

Table 3: Eastlands Small Manufacturers: Summaries of Size and Flexibility by Profitability and Formality

Group	Variable				Cases n
	Size		Flexibility		
	Mean	Std Dev	Mean	Std Dev	
Profitable	5.4	3.2	1.7	.89	164
Less formal	3.9	2.7	2.1	.83	83
More formal	6.9	3.0	1.3	.74	81
Not profitable	7.2	2.4	1.3	.93	84
Less formal	5.8	2.1	1.7	.89	41
More formal	8.5	1.9	0.8	.74	42
TOTAL	6.0	3.1	1.6	.93	248

- Notes: 1. Significance of the F-statistic for difference in means is .0001 for size and .0004 for flexibility.  
 2. Weighting results in fractional cases, and the rounded numbers of cases do not always add to the total.

*The Small-and-Flexible Model*

The emerging "small-and-flexible model" was tested using both data sets. The initial analysis compared the actual classification of Eastlands manufacturing firms into profitable and unprofitable to the classification obtained through discriminant analysis with size, flexibility, and business age as discriminating variables. Because size was one of the dimensions of formality, I thought that the size-flexibility relationship might differ for more and less formal firms. The third discriminating variable, the business' age, was added because the high incidence of unprofitability among newer firms



made age relevant for predicting the correct placement of a firm.<sup>17</sup> Separate discriminant functions were generated for upper and lower halves of the formality continuum.

The discriminant analysis reinforced the case for the small-and-flexible model as a good description of the behaviour of small manufacturers in the Eastlands. The two discriminant functions correctly classified 80 percent of the firms (see Table 4).<sup>18</sup> With two groups one might expect to classify 50 percent of the cases correctly by chance alone. The higher values of both the canonical correlation and tau statistics suggest that the small-and-flexible model predicts profitability better for less formal than for more formal firms (see Table 4).<sup>19</sup>

Table 4: Eastlands Small Manufacturers: Classification of Firms by Profitability

	Profitability Test		--- Classification ---			
	Satisfied	Not Satisfied	Incorrect	Correct	%	Tau
Less Formal	83	41	17	108	86.3	.742
More Formal	81	42	33	91	78.7	.468
TOTAL	164	84	50	198	80.0	.605

Note. Weighting results in fractional cases, and the rounded numbers of cases do not always add to the total.

In the Nairobi garment producers' survey, financial information gathered in multiple interviews allowed firms to be categorised as unprofitable, marginally profitable, and very profitable.<sup>20</sup> The small-and-flexible model was tested by comparing two groups -- unprofitable and very profitable firms --

McCormick, *Why Small Firms Stay Small*, WP 483

- against the groups produced by a discriminant model using the same three variables. The results support the explanatory value of the model and underscore the importance of the size-flexibility relationship. Even though garment firms are less likely than metal workers or carpenters to score high in flexibility, the basic relationship was confirmed: very profitable firms tend to be both smaller and more flexible than unprofitable firms. The discriminant analysis resulted in an overall correct classification of 71 percent, a success rate somewhat lower than that achieved for the general case.

Table 5: Nairobi Garment Producers: Group Means for Unprofitable and Very Profitable Firms

Group	Firms (n)	Variable:		
		FLEX	AGECAT	SIZE
Unprofitable	26	.52752	2.13542	9.28946
Very profitable	44	.70243	1.50321	9.02764

The model points to a dilemma facing business owners and policymakers. To grow, a business must accumulate capital, increasing fixed costs and often introducing more advanced technology. Yet risk of loss is least when a business is highly flexible. The fact that small, flexible firms are most likely to succeed has serious implications, not only for the business owners themselves, but also for Kenya's economic development.

McCormick, *Why Small Firms Stay Small*, p. 483

"Safe" Products

Observers in Nairobi and elsewhere have remarked on the identical products made by small businesses. While some attribute this to technological weakness, lack of imagination, or insufficient market information, it may rather be another form of risk avoidance. Knight ([1921] 1985, p. 240) long ago suggested that entrepreneurs deal with uncertainty by directing their activities along lines involving minimal uncertainty. Making products with an assured market is one such a strategy.

Thus, Eastlands metal workers produce cooking utensils, charcoal stoves, metal boxes, small hardware, metal furniture, metal door and window frames, and iron gates. Carpenters mostly make basic wood furniture: tables, chairs, beds, stools, and wood-framed sofa sets. Tailors fashion standard men's, women's and children's clothing. Nairobians use all these products daily. Product designs are generally conservative and, according to King and Abuodha (1991), 90 percent are aimed at the large low-priced market.

Few businesses venture into unknown areas. A metal worker, interviewed in 1986, is probably typical. John Omollo's (not his real name) Madini Metal Works, located in Eastleigh, just across from the Mathare Valley slum area, regularly produces iron window and door frames, gates, beds, and metal framed sofa sets. At certain times of year it also makes school desks and seats. A Nairobi-based development organisation has been encouraging metal workers to manufacture wheel chairs. Although Mr. Omollo has the design and felt certain he could make one, he would not start production without a firm order. He cited the high cost of materials and his unfamiliarity with the market as the reasons for his reluctance.

Risk and Return

Closer study of Nairobi's garment industry supports the connection between risk and firm size and highlights a third risk management strategy: demanding a risk premium. The data in Table 6 suggest that lack of compensation for increasing risk may also keep small firms small. Total net income rises with enterprise size, but other profitability measures show no such uniform improvement for larger businesses. The largest size category appears to belie the size-income relationship, but their figures may reflect the tendency of some of the largest -- and perhaps most profitable -- businesses to understate their revenues rather than genuinely lower net incomes. For the first five size categories, the trend is clear. Turning, however, from absolute to relative profits, the picture changes. Again leaving aside the largest size category, the rate of profit shows no significant difference among the five groups. The rate of return on capital drops through the first four categories, and only improves for the medium and large firms. At the same time, larger businesses require more resources. Working and fixed capital requirements increase steadily with size of the business.



Table 6: Nairobi Garment Producers: Selected Capital and Profit Indicators (mean values)

Firm size	Firms (n)	Mean Amounts				Profit Rate (%)	Return on Capital (%)
		Income (K.shs)	Net Capital (K.shs)	Working Equipment (K.shs)			
1-person	91	46,752	3,750	10,880	43.2	395	
2-3 persons	111	65,591	13,465	18,082	37.0	259	
4-6 persons	50	265,846	33,437	49,330	24.5	243	
7-10 persons	8	652,659	127,619	167,518	28.3	182	
11-50 persons	4	7,395,332	142,857	374,075	41.7	350	
50+ persons	4	1,854,215	588,500	7,163,675	3.8	1710	
overall	268	244,296	27,305	128,799	36.1	324	
F-statistic	n.a.	7.33	24.89	15.96	1.45	1.94	
significance of F	n.a.	.0001	.0001	.0001	.2054	.0875	

These figures suggest that a business with five or six employees has little incentive to grow larger. Growth will require additional investment in equipment and working capital at the same or lower rates of return. In a relatively safe business environment, entrepreneurs might reasonably continue to invest at a constant rate of return. But, as we have already seen, Nairobi's business environment is risky, making rational investors require higher returns. For the entrepreneur with enough capital to enter the clothing industry with a large business, the returns appear attractive. But for the small business returns at the next size level offer little inducement to expand. More attractive is the prospect of beginning a second small business with a similar rate of return on capital and the added benefit of spreading the risks. Another business -- or even a house or rural land -- offer economic security in the event of failure of the first business. They are also a potential source of collateral for business borrowing, though, as we will see, they are rarely used as such.

#### Unused Collateral

Many studies point to lack of capital as a constraint to small business growth. Yet the problem may not be what it first appears to be. Nearly half (48.2 percent) of the Eastlands small manufacturers expressed a need for low interest loans for working capital, and nearly a third (31.6 percent) want loans for purchase of equipment. Observers of Kenyan small enterprise frequently blame rigidities in the banking system for the inability of small-enterprise to borrow (Centre Project 1989, p. 50; Kabwegyere 1977, pp. 65-66; Kenya 1991). In particular they cite the requirement of physical collateral as a major stumbling block. Yet many owners of small businesses own land or other assets that would be acceptable collateral. Their obvious reluctance to secure a business loan with these assets is a response to a risky environment (Ng'ethe and Wahome 1987, p. 162). The Eastlands manufacturers and Nairobi garment producers exhibit similar risk aversion. Among the Nairobi garment producers, for example, nearly half (47.3 percent) own land, but two-thirds of these have never attempted to use their land as collateral for a business loan.<sup>22</sup>

#### Conclusions

What, then, can we conclude about why small firms stay small? Business owners' risk-management strategies suggest several possible answers. First, small manufacturing firms stay small because smallness and flexibility protect the business owner against the hazards of the Nairobi business environment. Second, their preference for "safe" products with a known and fairly certain market leads to intense competition that limits profits and growth potential. Third, the absence of a risk premium in industry rates of return on capital

McCormick, *Why Small Firms Stay Small*, WP 483

encourages diversification rather than business expansion. Finally, business owners' reluctance to collateralise their assets for business borrowing limits the capital available for expansion.

The preponderance of very small firms is sometimes portrayed as evidence of the failure of African entrepreneurship (Marris and Somerset 1971, pp. 123-24). The data on Eastlands small manufacturers and Nairobi garment producers suggest that small size may rather be the result of moderately risk-averse business owners using rational risk management strategies to steer small flexible businesses through the uncertain waters of the Kenyan economy.

#### 4. POLICY IMPLICATIONS

To improve employment, efficiency, and technological development, policymakers must design policies and programmes that counter entrepreneurs' risk aversion and enable more firms to grow into the small and medium range. Genuinely helpful policies require creativity. Policy support of small-industry frequently emphasises supply-side inputs, i.e., provision of a variety of services to small firms to encourage their development. While useful, these are insufficient. The government's stated commitment to an "enabling environment" for small-scale manufacturing and *jua kali* enterprises comes closer to the real need (Kenya 1986, p. 55; Kenya 1988, p. 165; Kenya 1991). What may not yet be fully recognised, however, is that a truly enabling environment must be less risky. Appropriate policy must address both background and business risks, reducing the need for counterproductive risk management strategies. A subsequent paper will address policy issues in more detail. The following are some "discussion starters" for policy change and programme development aimed at

reducing the negative impact of risk.

#### Risk and the Policy Agenda

The findings suggest four broad areas for the policy agenda: reducing background risk, facilitating risk spreading, compensating for increasing risk, and a thorough examination of existing policies and programmes for potential effects on the riskiness of small enterprise.

#### *Reducing Background Risk*

A less hostile environment would reduce the incentives for smallness. Both macroeconomic reform and improvement in intermediate or meso policies affecting individual and household well-being should benefit small enterprise.

Macroeconomic policy -- policies aimed at influencing the price level, employment, and total output -- have three major effects on risk. First, coherent macropolicy should stabilise an economy, reducing the fluctuation risks that arise from oscillating price, employment, and output levels. Second, macropolicy aimed at increasing the overall rate of growth or at shifting the distribution of income toward poorer segments of the population can increase demand for the products of small enterprise, thus reducing the risk of realising an income below the critical "safety-first" level. Third, trade policies, by affecting the availability of inputs, competition from imports, and access to wider markets, can make the business environment more predictable.

If the consequences of failure were less dire, business owners might invest more. Thus, intermediate, or meso policies that cover the level and structure of expenditure for social programmes have a vital indirect effect on



McCormick, *Why Small Firms Stay Small*, WP 483

business. Illness, fire, loss of a family member's job may force an entrepreneur to dip into a business's working capital. The general need to maintain flexibility blocks purchases of needed materials or equipment. Providing basic needs -- health care, food, education, housing, and other amenities -- reduces background risks for small businesses. And a less risky environment encourages investment and capital accumulation.

#### *Facilitating Risk Spreading*

Businesses might be encouraged to venture out in different directions if they could be protected from some of the risks of failure. Business owners currently protect themselves, as we have seen, by concentrating in "safe" market areas, by staying small and/or by diversifying into other businesses or types of investments. Government could encourage movement into new areas by sharing the risks of change with small-scale entrepreneurs. The government could, for example, subsidise small enterprises' efforts at new product development and marketing, the initiation of new technologies to improve productivity, or employment expansion. Government's initial risk sharing would expand the safety zones of business owners following the cautious suboptimising model of risk aversion. The government might also consider tax rebates or subsidies to large industries that subcontract to small firms or develop incentives to encourage networking of related small industries.

Since employment is so crucial in Kenya, we detail one possible programme addressing the employment issue. Established businesses with four or five employees need incentives to expand employment. One approach might be to link wages paid young school leavers to loan eligibility. A job bank of school

McCormick, *Why Small Firms Stay Small*. WP 483

leavers willing to work for a set wage in small-scale industry could be established. Then small firms meeting minimal age and size qualifications could be granted low interest loans for equipment or working capital upon submission of proof that they have hired workers from the job bank. Obviously such a scheme would have to be very carefully designed and administered to avoid being politicised or mired in corruption.

*Compensating for Higher Levels of Risk*

We have observed that small businesses are discouraged from expanding because of lack of appropriate compensation for the added risk involved in "putting their eggs in one basket." Policy, therefore, should be aimed at improving returns to capital for small and medium firms. Increasing net incomes or lowering capital costs will achieve this aim. To promote growth, the government could offer businesses the opportunity to expand facilities easily. For example, they might rent workshop space at rates that decrease per unit with the amount leased. Subsidised loans for purchase of capital equipment or rebates on wages paid to job-bank registrants would also reduce costs and improve returns to capital.

Table 7: Stated Needs of Eastlands Small Manufacturers

Need	--- Firms Stating Need ---	
	Number	%
Low interest loans for working capital	121	48.2
Better places to work	132	53.4(a)
Assistance in getting raw materials	91	36.7
Loans or grants for purchase of better equipment	78	31.6
Assistance in getting products to export market	49	19.8
Technical assistance to help make better products	41	16.4
Freedom to work without harassment	19	7.8

Based on 1986 survey only.

(a) There were significant differences among groups in this response, depending on present type of worksite. The value of the eta statistic in the cross-tabulation of this question with the workplace variable is .33554.

Note: Total number of responses exceeds the number of cases because business owners gave more than one reply.

*Impact on Risk of Existing Policies, Programmes, and Implementation*

Recognition of the key role of risk in keeping small business small must be followed by a reevaluation of existing policies, programmes, and

McCormick, *Why Small Firms Stay Small*. WP 483

implementation for their effects on background and business risks. Top priority should be given to rationalising policy implementation so that business owners know what to expect.

#### Conclusions

That risky environments can be managed is clear from the success of some of the small-scale entrepreneurs in this study. The problem is that firm level risk-management strategies can counter broader goals of industrialisation and development. It is precisely here that policy intervention can be most useful. Government initiatives can shift individual incentives to promote corporate goals. The suggestions offered in this section are illustrative rather than exhaustive. All of the specific proposals may be rejected. What is more important is that the basic finding -- that risk is a major reason why small firms stay small -- be translated into practical action.



NOTES

1. Many people made this research possible. The 1986 field research in Kenya was funded by a grant under the Fulbright Programme. The American Association of University Women supported the initial analysis and writing with an American Dissertation Fellowship, and The Johns Hopkins University supplied additional fellowship assistance. The Joint Committee on African Studies of the American Council of Learned Societies and the Social Science Research Council, with funds from the National Endowment for the Humanities and the Ford Foundation, supported the 1989 field work. The Ford Foundation's Nairobi office provided a grant for related library research. Many individuals offered advice, criticism, and moral support. I am especially grateful to M.S. Mukras, Kabiru Kinyanjui, Njuguna Ng'ethe, Michael Schatzberg, Gerrishon Ikiara, and William House.
2. The Swahili words *jua kali* mean "harsh sun" and are commonly used in Kenya to describe businesses located out of doors.
3. In developing countries the vast majority of establishments are independent enterprises. We can, therefore, safely use the terms "firm," "establishment," "business" and "enterprise" interchangeably.
4. While it is impossible to review all the categorisations of firm size found in the literature, a few examples will illustrate the problem. A classic study by Staley and Morse (1965) divide developing country manufacturing firms into three size categories: "very small" with 1-9 employees, "small" with 11-99 employees, and "large" with 100 or more employees. Two data sets -- the Kenya Government Statistics (Kenya 1988, 1990) and the set of studies by Chuta and Liedholm (1985) -- use only two categories: "large" and "small." Happily, they also agree on the firms to include in each: "small" consists of firms with fewer than 50 employees; those with 50 or more are "large". The World Bank studies consider 100 workers as the cutoff for "large" and consider those with 50 to 99 employees to be "medium" and with fewer than 50 workers, "small." Within the "small" category they sometimes subdivide, using "very small" to indicate any firm with fewer than ten workers, and "cottage shops" or "household industries" to describe those with fewer than five workers (Page 1979, Anderson 1982, Little, Mazumdar, and Page 1987; Little 1987; Cortes, Berry, and Ishaq 1987). The fact that some count "employees" and others "workers" further complicates comparisons.

5. The term "missing middle," although clearly traceable to Stailey and Morse, has more recently been popularised by the World Bank's (1989) study, *Sub-Saharan Africa: From Crisis to Sustainable Growth*. Some, like Marsden (1990), deny its existence. The Kenya government (Kenya 1991, p. 4) recognises that, even compared to other developing countries, Kenya has few manufacturing firms employing 10-50 persons. Obviously differences in measures of size, groupings into categories of small, medium, and large, as well as in countries selected for study will produce different results.
6. Lipton (1979, p. 346) defines risk aversion as the psychological predisposition to avoid fair bets and fluctuation aversion as the psychological disposition to avoid unsteady outcomes. The concept of fluctuation aversion underlies the economic modelling of the risk averse individual as one with a concave utility function. See Newberry and Stiglitz (1981, pp. 69-76) for a good summary of the utility approach.
7. The ILO's Kenya mission (ILO 1972) popularised the term "informal sector." While intuitively useful, the term does not represent a clearly definable subset of small businesses and is, therefore, analytically difficult to apply. I do not use the term.
8. Scherer (1980 pp. 145-47) uses a simulation model incorporating the assumptions of Gibrat's law of proportionate growth to illustrate this process. He assumed a fixed population of firms and an identical distribution of growth rates confronting each firm regardless of firm size or the firm's past growth history. Scherer also incorporated a "bankruptcy rule" causing a firm to drop out of the industry permanently if its sales fell below a certain level. Starting with 50 firms, each with the same first year sales and the same average growth rate over the long run, Scherer ran 16 simulations of industry performance. The statistical variations in performance around the average rate of growth gave some firms an early advantage and resulted after 80 to 100 years in the familiar highly skewed overall distribution. The fact that Scherer's results show much less concentration after 20 or 40 years suggests that luck cannot fully explain the skewed distribution of newer industries or of industries in newly industrialising countries.
9. Some studies of very small enterprises identify two groups of firms: the typical "informal" business characterised by low earnings, low skills, strong competition, and ease of entry, and slightly larger small businesses with a positive surplus and a capacity to accumulate capital (Steel 1977, Nihan 1980, House 1981, Fields 1990). I prefer to conceptualise the differences as forming a continuum from least to most formal (McCormick 1987). See McCormick (1988, pp. 115-135, 228-304) for a detailed presentation of the rationale and the construction of scales for each dimension of formality.

10. Penrose's (1959) previous identification of the "interstices" of manufacturing as the domain of small enterprise is a forerunner to this notion.
11. It was impossible to estimate annual profits or losses for the Eastlands small manufacturers. Over half (55 percent) of the respondents keep no written records. The use of a cross-sectional survey also limited the usefulness of financial data. Finally, although the survey asked only about income from product sales, some businesses had other income, such as training fees or charges for repairs. Lacking a reliable net income figure, I constructed a dichotomous variable based on the satisfaction of at least one of two conditions: the longevity of the business, and the profit or loss calculated for the survey month. Together, the two measures formed the profitability test. A business was considered profitable if its net income for the survey month was non-negative or if the business had been the primary support of its owner for at least four years. The rationale for the components of the profitability test, including the four-year cutoff, are discussed in detail in McCormick 1988, pp. 202-28 and 359-80. By this test, 164 of the 248 firms (147 operated by men and 17, by women) were profitable.
12. Although subcontracting and manipulating the apprenticeship system may also increase flexibility, they were not among the main risk-management strategies for the Eastlands small manufacturers.
13. All of the respondents mentioned by name are real people. The information is taken from survey questionnaires, follow-up interviews, and, in some cases, informal conversations. The names used are pseudonyms; locations are approximate.
14. The variable FLEX was defined by assigning one point to each of the three component variables:
  - (1) Security of access to workspace (1 = workspace just used; 0 = all other responses),
  - (2) Family mode of production (1 = single-person firm or larger firm employing family labour; 0 = all other), and
  - (3) Capital per worker (1 = depreciated value of physical capital less than k shs. 2,000; 0 = higher capital).
15. Though not surprising, this result is not mathematically obvious since formality and flexibility are mutually independent.
16. The SIZE variable combines measures of workforce and capital sizes. Each was measured on a ten-point scale, giving a composite variable with a theoretical range of 0 to 20. The actual range is 0.29 to 16.99, with a mean of 6.00 and median of 6.16.

Workforce size was based on a definition of the full-time-equivalent workforce variable,  $WKRS = FTW + .8PTW + .5T + .66C$ , where FTW is the



and a median of 2.0. The variable was then rescaled by dividing each value by 3.422.

Capital size was based on the depreciated value of capital equipment, using a ten-year life, and straight-line depreciation. Observed values ranged from 0 through K.shs. 72,240, with more than half the businesses having capital worth less than K.shs. 800. Because of the highly skewed distribution, the capital size was defined to be twice the log of the depreciated value of equipment except that where capital had zero value, zero was used in place of the meaningless log (0).

A more complete discussion of the rationale for the construction of these variables can be found in McCormick 1982.

17. The businesses were divided into three age categories: less than four years old, four to ten years, and over ten years. The first category's upper limit was set at four years because of high failure rates in the first three years of business (Itac 1980, Hull 1986). For a more complete discussion of the issue of firm longevity, see McCormick (1988, pp. 218 ff).
18. The canonical correlations of the functions were .6529 and .4276 respectively, indicating that they are fairly successful in separating the cases into two groups (Klecka 1980, pp. 36-37).
19. *Tau* is a proportional reduction in error statistic that compared the the discriminant function's classification errors with the errors that would result from random assignment of cases. For example, the *tau* of .605 shown in Table 4 indicates that classification based on the discriminating variables made 60.5% fewer errors that would be expected if cases were randomly assigned to a category.
20. The variable PROFIT was set equal to 0 for businesses at least one year old with income insufficient to cover owners' salaries and either low rates of profit and capital accumulation, or negative net income. At the other end of the spectrum, businesses with profits equal to at least three times the owners' salaries and profit rates of 30 percent or more were coded 2. For all other businesses, PROFIT was set equal to 1.
21. The standardised canonical discriminant function coefficients were as follows:

FLEX	-.40117
AGECAT	.92573
SIZE	.04786

The canonical correlation coefficient was .3811. Chi squared at 3



McCormick, *Why Small Firms Stay Small*, WP 433

degrees of freedom was 10.473 for a significance of .0149. The tau statistic of .4 indicates that classification using the discriminant function results in 40% fewer errors than would have occurred by random assignment into two groups.

22. Although 47.3% of the Eastlands manufacturers own land, only 27.7% currently have a title deed. Probably only those who can prove ownership with a title deed can obtain bank credit. Even so, only half of those with collateral have applied for loans.

Appendix A  
RESEARCH METHODOLOGY

The research was conducted in two distinct segments: the first in early 1986; the second, from January 1989 through December 1990. Each part involved a sample survey of business owners. The weaknesses of the survey method, particularly when researcher and respondents come from different cultures, are well known (O'Barr 1974, Hopkins and Mitchell 1974). Nevertheless in the relatively uncharted territory of small-scale production, surveys are an invaluable means of establishing the broad contours of a population. To compensate for the deficiencies of the basic method, I added informal interviews of non-randomly selected individuals.

1986 Survey

Because my definition of small enterprise cut across categories of formal and informal sector used by the Kenyan Central Bureau of Statistics, the only way to ensure a valid list for sampling purposes was to take my own census. Six enumerators (four men and two women) walked Nairobi's Eastlands, visiting markets, shopping centres, and residential areas. The result was a list of firms in Eastlands engaged in any type of manufacturing, and having ten or fewer workers. The listing included each business's name, the name and sex of the owner, the business's location, the particular activity performed, and the number of workers. The area surveyed, which is roughly triangular in shape, extends from Kariokor, Shauri Moyo, and Kaloleni on the west, to Dandora, Umoja, and Buru Buru on the east, and includes the heavily populated

Table A.1: Stratified Random Sample, 1986 Survey

Group	Sample	Population	
	Number of Firms	Total Number of Firms	%
one-person firms	80	1,706	4.69
2-3 person firms	82	811	10.11
4-6 person firms	61	292	21.23
7+ person firms	25	57	42.10
TOTAL SAMPLE	248	2,866	8.65

Hypothesizing unequal success rates for firms of different degrees of formality, I used stratified random sampling with four strata based on number of workers in the business. The number of firms to be selected from each stratum was estimated using a procedure designed to ensure adequate representation by sampling smaller strata more heavily (Moser and Kalton 1971, p. 146-52). After numbering firms sequentially in each size category, I used random numbers to select business owners for interview. The proportion taken from each stratum ranges from 4.69% of the one-person firms up to 42.1% of the largest businesses, with an overall sample of 8.65% of the population (see Table A.1). Interviews were conducted in the language most comfortable to the respondent, but all answers were recorded in English. I later selected eleven cases for informal interviews, hoping to gain additional insights into the distinguishing characteristics of female-owned businesses. differences among

McCormick, *Why Small Firms Stay Small*, WP 483

trade groups, and common operating problems. The four women and seven men chosen non-randomly included four textile workers, three metal workers, a carpenter, a shoemaker, a wood carver, and a basket maker who serves as officer of a women's cooperative.

#### 1989-90 Research

The 1989-90 research dealt with clothing manufacturers of all sizes. The methodology was similar to that used earlier with two exceptions: the geographic boundaries were extended to include all of Nairobi, and a series of short follow-up interviews was administered over a period of 15 months after completing the initial interviews.

Six enumerators (three men and three women) took the census by walking through the city centre and markets, shopping centres, and residential areas in other parts of the city. Because of the nature of Nairobi's industrial area, large scale firms were harder to locate than smaller ones. We, therefore, supplemented the "walk through" with a list of clothing manufacturers compiled from various government and private sources.

The sampling methodology was identical to that used in 1986, using the same four size categories for the smallest firms with additional categories for medium and large businesses. The sample and population are listed in Table A.2. A Kiswahili version of the questionnaire ensured that interviews in English and Swahili would be identical.



Table A.2: Stratified Random Sample, 1989-90 Survey

Group	Sample	Population	
	Number of Firms	Total Number of Firms	% in Sample
one-person firms	61	747	8.17
2-3 person firms	101	909	11.11
4-6 person firms	56	413	13.23
7-10 person firms	21	68	30.88
11-50 person firms	14	32	43.75
over 50 persons	15	30	50.00
TOTAL SAMPLE	268	2,200	12.18

After the initial lengthy interview, each firm was revisited up to three times over 15 months. The follow-up interviews provided information on equipment acquisitions and retirements, current production, financial information, and operating problems. We also learned that 21 businesses ceased operating between the first interview and December 1990. During the course of the research I personally conducted approximately twenty formal or informal interviews.

#### Data Analysis

I used the Statistical Package for the Social Sciences (SPSS/PC+) for most of the quantitative analyses, drawing for theoretical background on a variety of sources. General works include Bialock (1981), Agarwal (1986), and Norusis (1986a, 1986b); for discriminant analysis, I drew heavily on Dillon and Goldstein (1984) and Klecka (1980).

Appendix B

VARIABLE DEFINITIONS

Flexibility	Index based on the three ways Nairobi small manufacturers most often maintain flexibility, with one point assigned for each practice: workspace "just used"; single-person firm or larger firm employing family labour; low capital per worker (depreciated value less than K.sh 2,000 in 1986, less than K.sh 2,500 in 1989).
Business Age	The number of years since the business began. A related variable, age category, grouped businesses as less than four years old, four to ten years old, and over ten years old.
Size	A composite index giving equal weight to employment size and the depreciated value of capital equipment.
Profit/ Profitability	<p>For Eastlands manufacturers (1986), profit or profitability is defined as a dichotomous variable taking the value of one if either of the following were satisfied: the business had been the owner's only source of support for four years or more, or calculated net income (including depreciation and owners' salaries) was positive.</p> <p>For Nairobi garment producers (1989-90), a variable categorizing firms into three groups on the basis of annual net income and rate of growth. Firms were unprofitable, moderately profitable, and very profitable.</p>
Net Income	The difference between estimated annual total firm revenues and total expenses, excluding owners' salaries and depreciation on equipment.
Rate of Profit	Net income divided by total firm revenues.
Total Equipment	Undepreciated total value of machinery and equipment.

McCormick, *Why Small Firms Stay Small*, WP 483

Rate of Return on Capital	Annual net income divided by total capital.
Total Capital	The sum of total equipment, working capital, and inventories.
Working Capital	Cash in the bank or on hand at the time of the initial interview.
Initial Capital	The value of cash, materials, and equipment in hand when the business began.
Workers	A measure of full-time equivalent workers, including regular workers plus fractions of casual labourers and trainees.
Revenues per Worker	Sales revenues divided by the number of workers.
Value Added per Worker	The sum of labour costs, other expenses, and estimated owners' salaries divided by the number of workers.

McCormick, *Why Small Firms Stay Small*, WP 483

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