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REALISING OPTIMAL GROWTH IN KENYA'S INFORMAL MANUFACTURING
SUBSECTOR THROUGH TRAINING AND EDUCATIONAL PATHS.

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CHARLES ARUODHA
INSTITUTE FOR DEVELOPMENT STUDIES
UNIVERSITY OF NAIROBI
P.O. BOX 30197
NAIROBI

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REALISING OPTIMAL GROWTH IN KENYA'S INFORMAL
THROUGH TRAINING & EDUCATIONAL PACKAGES

BY

CHARLES ABUODHA

ABSTRACT

Education and training policy in Kenya has emphasised self-employment as a remedy for unemployment. Currently self-employment for the Kenyan majority is viewed as synonymous with entrepreneurship in the informal sector (I.S.). This paper examines the effects of education and training on the informal-sector development and demonstrates the effects of various combinations of education and training on firm performance.

Two sets of data are utilised: one, comprising I.S. entrepreneurs' returns to the Ministry of Technical Training and Applied Technology and the other, a survey of informal firms in Githiga area of Kiambu and Nairobi area.

The findings show that, with the exception of higher-education-levels, there is no significant difference in firm performance (measured by income), between those entrepreneurs with no education or primary level only, and those with secondary level education. Similarly no statistical difference in performance emerged across training types. This could be attributed partly to factors that affect firm performance, not related to training, such as accessibility to informal or formal sources of credit.

Technical training provides 'informals' with considerable advantages over their counterparts in innovation, machine acquisition, and general technical skills. These can be translated into profits given more training to increased accessibility to credit.

IDS Information Resource Unit
University of Sussex
Falmer, Brighton BN1 9RE, UK
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INTRODUCTION

Informal sector development and national policy for education and training have gradually become **intertwined**. Consensus on the vital role played by Education and Training (E&T) in national development emerged in the 1950's. Recognition of the importance of the informal sector took longer. But by the mid 1980s, the seeds sown by the ILO report (ILO 1972) had matured into a development strategy. The growing emphasis on small enterprise gave added impetus to E&T policy. The relationship between education and training and the informal sector is twofold: E&T policy can enhance I.S. activities, and the I.S. CAN ABSORB E&T graduates.

Before 1984, E&T policy in Kenya was geared towards developing a modern sector workforce thus reducing unemployment and increasing national productivity. Recipients of E&T accepted it as a means to enhancing their managerial and technical skills, improving employment opportunities, and increasing their wages. These potential benefits kept the demand for E&T high and its objectives consistent with national needs. Since the mid 1980s dwindling job opportunities have called for new policy initiatives for school graduates. Self-employment became the central theme for E&T policy. Policy-makers, believing in the absorptive capacity of the I.S., made it a target for vocational, technical and entrepreneurial training. This paper evaluates the E&T and I.S. policy alliance, and how these policies will affect the informal sector.

Relationship between E&T and Development.

This section highlights major issues on education and training (E&T's) importance to national development. E&T affects economic development by alternating intergenerational income distribution patterns, labour productivity and determining levels of both underemployment and employment. However it is important to note that socio-political factors are equally important in analysing E&T policy.

Previous methodologies, World Bank's inclusive, have not yielded solutions to the complex problems of choosing the most efficient and productive education investment or delineating the effects of E&T from other development tools. Abstract variables such as cognitive skills of labour make it more difficult to measure the effects of E&T. It is in recognition of this fact that we also review some methodologies undertaken by various researchers.

E&T and Intergenerational Equality:

The relationship between income disparities and development was first noted by Simon Kuznets in 1950. Education plays a definite role in determining income disparities by shifting underutilised and lowly paid labour from agriculture to industry and by effecting the distribution of educational opportunities. The inter-relationship between education and inequality becomes clearer when individual countries are compared. Several studies conclude that the higher the level of educational inequalities, the greater the income inequality and vice versa (Psacharopoulos 1978, Ahluwalia 1976, and Winegarden 1979).

There are others that point to the contrary. Jallade (1984), Fields (1978) notes that there are countries where higher inequalities exist with increased involvement in education. One example given is the increase in inequalities in developing countries despite the rise in education participation. Carnoy (1979) and Psacharopoulos (1986) attribute these differences in research findings to differences in timing of educational policy and timing of research work on inequality. They note that in the long run increased educational participation causes reduced inequality despite contradictory findings in the short run effects. Evidence on Kenya suggest that in the absence of government intervention, educational expansion does have a positive effect on income inequalities in the modern sector (Knight et al: 1990).

E&T and Productivity

The proposition that education is a tool to development dates back to the classical era. Empirical work in this field began in the early 60's. Some of the early researches were undertaken by Schultz (1961), Denison (1962) Kruger (1968). Schultz used the rate of return approach. Productivity was measured by economic growth. He compared the rate of return to physical and human capital in the United States. He noted that education contributed a substantial percentage of economic growth. Several studies using the same methodology show that the contribution for most LDCs tends to be higher for individual countries. These studies make the assumption that labour units are paid according to their productivity, thus labour incomes reflect labour productivity.

This need not be the case.

Denison, used the national accounting methodology to determine this inter-relationship. He presumed that output should be divided between capital and labour. He used the simple homogenous Cobb Douglas production functions.

$$Y = F(K, L)$$

WHERE K is Capital, L Labour, and Y National Output. He noted there was a large residual that did not accrue to labour or capital. He attributed this residual to the effects of education and training. Denison assumed the existence of a simple homogenous production function. In an economy there are several different production functions, varying from sector to sector, industry to industry and firm to firm. This makes Denison's model invalid. Failure to take account of other determinants of income biases the effects of education. Equating marginal products of factors of production, (i.e. the assumption of homogenous production functions) makes these studies a first step to analysing effects of education. Similar criticisms were put across by Bowman (1980), Nelson (1981) and Mattar et al (1982).

Hicks (1980), using econometric analysis noted that literacy and life expectancy (factors strongly affected by education) have significant effects on economic growth. This has also had its criticisms. Some argue that the inter-relationship could be explained by the fact that nations with higher incomes spend more in education rather than the higher educational expenditure affects productivity thus incomes. More rigorous research by Wheeler (1980) and Marris (1982) concluded that education has strong direct and indirect positive effects on productivity and economic growth. Psacharopoulos (1981 and 1985), using both social cost benefit and private rate of return analysis, noted that education does have direct effects on productivity. He also found that social returns are consistently lower than private rates of return, social and private rates of return for primary schooling are higher than rates of return to secondary or higher education, the rate of return of education are higher in developing than in developed countries and lastly that the rate of return to investments in education is higher than the average rate of return to physical capital for developing countries but not necessarily for developed economies. In general, the effects of education and productivity occur indirectly through improved health, nutrition and fertility, and directly through higher cognitive skills acquired through education.

Though economic research on the role of education and training concentrates on productivity and equity, its role in national development goes beyond these two acronyms. Research concurs that education (particularly women education) lowers fertility and improves intergenerational cognitive and physical development of children, which have positive effects on national development. Theoretically, E&T policy can also restructure unemployment in the country or result in reduced total unemployment if geared towards self employment. This aspect is analysed in this paper.

This paper hopes to:

- a) to document as much as possible the effects of the '8.4.4' school system, in reference to the Kamunge report that 'skills applicable in the informal sector can be studied and developed through formal education',
- b) to document education levels of entrepreneurs in the informal sector, and analyse the importance of education to firm performance in the sector,
- c) document the types of training, attained by I.S. entrepreneurs and ascertain the adequacy of their training to the sector's development and
- d) analyse Kenya's training policy, with regard to the achieving of increased entrepreneurship, increased employment technological innovation and increased productivity.

Section 2:

METHODOLOGY and CONCEPTS

Concepts:

This section seeks to explain some terms used in the text. 'No education' refers to those individuals with less than four years of primary education. 'Primary education' combines those with four to eight years of primary education. 'Secondary education' refers to all those with at least 9 years of schooling. Diploma and university levels are given their own separate standing and is referred to as 'Tertiary'.

'No training' refers to those with no form of post-education vocational training, and no post secondary education. Formal industrial training 'OJT' refers to those without vocational training at whatever level, and who only obtained their training on-the-job training in formal sector industries. They did not attempt to obtain informal training before starting business. If, for some any informal training was acquired, it was obtained while working in the informal sector. 'Vocational Institutional Training' (VIT) refers to those entrepreneurs who obtained training in vocational institutes of technology only. This excludes diploma level training. Diploma level training includes all those which diploma level training from institutions. An important distinction is made later in this paper between those with 'Diplomas but not in the field of their current jobs'. Those referred to as holding diplomas in the field of training are those who use technical know-how obtained during training in production (e.g. an entrepreneur with a diploma in mechanical engineering working in his metal workshop). Those not in the field of training are those engaged in businesses, which have no relation with technology acquired in training (e.g. a nurse owning a tailoring firm).

Methodology

In our methodology, both secondary and primary data were used. A primary data set of 67 firms gathered from Nairobi area and Githiga areas of Kiambu District were used. This was done to allow for both rural and urban representation. The areas of choice in Nairobi included: Gikomba, Eastleigh-Pumwani, and Kimathi areas. Only Githiga area in Kiambu District was chosen for the rural dimension. The secondary data set comprises reports to the Ministry of Technical Training and Applied Technology (MTTAT). Questionnaires were

stratified by district and randomly sampled. This comprised a total of 220 firms. These not only serve as a check process to our sample results but are also a solid information base. Results from analysis of the secondary data is referred to as Large Sample results or simply labelled (L.S.). The primary data are referred to in the entire paper as small sample results or (S.S). In cases where the two are presented together, the S.S. figures are put in brackets. The study uses frequency distribution analysis, cross tabulations, and basic statistical tests as its unit of analysis.

Limitation of the Study:

There are three main economic methods of analysing educational effects. These are: the accounting method, rate of return and econometric analysis. Even where reasonable data sets are available, these methodologies are open to criticism. Data on the informal sector is scant, the effects of E&T policy on I.S. development are still youthful. It would be unrealistic to put them to rigorous economic testing. Despite these justifications analysing the effects of E&T on the I.S. using rigorous economic analysis would be desirable.

The study did not analyse combinations of education and training, that achieve best business performance. Although the study was not able to give a strong evaluation of 8.4.4 graduates, mainly because of their scarcity as business owners and workers in the sector, it does try to give some insights.

Section 3:

E&T POLICY in KENYA:

Education

Kenya's education system has attained rapid expansion from independence to date. Her educational objectives have notably diversified from 1984.

Educational Expansion

With exception of university education, the education sector has consistently expanded over the years. Rapid university expansion began in recent years. The notable feature in educational expansion has been the institutionalisation of cost-sharing, as part of Structural Adjustment Programmes (SAP's). Before 1973, educational enrolment grew rapidly, for example between 1973 to 1974 educational enrolment in primary growth rate grew at 43%. It was after 1974 that this growth trend stabilised to a growth rate of approximately 3.9% annually.

Table 3.1 Students Enrolment in 000's

Year	Primary Schools	Secondary Schools	Universities Enrolment
1970	1,399	134	8.9
1980	3,297	399	8.4
1989	5,389	641	23.4

Rapid expansion of student enrolment if poorly planned results in lack of teachers, high student-teacher ratios, congestion of school facilities and, eventually, lower standards of education. With the rapid enrolment rates in 1974, student-teacher ratios would be expected to rise drastically. This was never the case.

Teacher-student never exceeded 1:38. Even at its highest level student-teacher ratios never exceeded universal World Bank standard ratio set at (1:40). This is attributed to the rapid expansion in employment of untrained teachers between 1970 to 1984. In this period untrained teachers increased by 40% where as the number of trained teachers rose by only 142%. After 1984, the expansion of untrained teachers was reduced. The number of untrained teachers rose by only 42% whereas the of trained teachers increased by 25%. All in all between 1970 to 1989 untrained teachers rose by 614% from

8,466 to 60,439, where as that of trained teachers rose by 314%. In the twenty year period student enrolment and teacher enrolment grew equally at 290% and 286% respectively.

Table 3.2. Students-Teachers Ratio's.

Year	Primary Schools	Secondary Schools	National ratios
1970	1:31	1:23	1.30
1980	1:30	1:25	1:36
1990	1:30	1:22	1:31

The number of schools also rose proportionately, if not faster than enrolment rate. The number of Secondary schools more than doubled between 1970 to 1980, where as between 1970 to 1980, where as between 1980 to 90 grew by 50%. The number of primary schools grew at average rate of 6% annually between 1970 to 1984. After the introduction of cost-sharing, the growth rate fell to 3% per annum.

Table 3.3: No of Schools:

Year	Primary	Secondary
1970	6,116	850
1980	10,255	1,795
1990	14,691	2,654

Source: 1982 & 1990 Statistical abstracts.

This implies a faster growth rate for school development than for student enrolment from 1974 to 1984. This trend reversed after 1985, but has not been strong enough to overcome the previous effects of school and teacher employment expansion. In general school expansion and teacher employment grew faster than student enrolment, consequently student-teacher ratios remained fairly constant.

Despite the fact that the above data sets do not measure distribution of teachers and schools in the country, in general it is clear that education standards (judged by student-teacher ratios and school congestion) were never compromised for expansion.

Objectives Diversification in Education

....in the sphere of education, it is now common place for curriculum reforms to be argued in terms of preparing young people for work in the informal sector (I.S.) But even if the term I.S. seems to have a secure place in the official language of the E&T policy communities, some considerable doubts remain, putting training programmes for the sector into operation".....(King: 1987, Pg 17).

Primary and secondary educational objectives have been expanded from aiming at: improving cognitive skills and preparing for further education to include: laying a foundation for further vocational training and employment after school, to appreciate and respect the dignity of labour, to provide relevant skills towards positive contribution to the development of society. To enable the implementation of these objectives the 8.4.4 system was introduced. The national curriculum is vocationally oriented, and practical in its approach in order to develop skills for self reliance, self employment and to prepare children for further education, training or employment (GOK, Sessional Paper No. 6 of 1988, pg. 12-16). We will analyse the effectiveness of these objectives in forthcoming chapter.

Effect of Educational Policy on Expenditures:

If educational expansion of objectives diversification are to be meaningful, total expenditures have to increase. Table 5 below shows educational expenditure levels between 1979 and 1990.

Table 3.4: Table Showing the structure of Direct Expenditure on Primary and Secondary education.

Year Range	Direct Public Exp on Primary and Secondary Education: (A)	(A) as a % of total Exp on Education: (B)	%Share of the Private Sector: (C)	Public Exp on Education as a % of Total Exp (Public):
1979/80	265.6	71%	-	28%
1984/85	258.5	72%	*6%	33%
1989/90	383.6	57%	61%	36%

Source; Statistical Abstracts 1990 & 1982. Report on the presidential commission of enemployment 1991, pg.172-174.

* World Bank estimations for this period.

Total public expenditure has increased over the years. However the increases are low relative to expansion and the structural changes in the sector. Direct primary and secondary education actually fell between the 1979/80 fiscal year and the 1984/85 fiscal year. In the last decade direct primary and secondary educational expenditure rose by 44% only. This does not mean that total government expenditures on education did not rise. Total government expenditures in the decade rose by 60%, where as it stayed constant between financial years 1979/80 to 1984/85. The share of direct expenditure on primary and secondary education fell in the period after 1984 to only 57%. Increased costs of higher education took much larger percentages over this period. Notably the share of private sector expenditures on education rose considerably over this period. This increase in expenditures was effected through cost-sharing programmes in schools (part of SAP's).

Demand for education in Kenya is insatiable (GOK: 1991 pg 161). The demand for both primary and secondary schools in the country are bound to increase with increased costs to the private sector. Harambee programmes for school development subsidise the poor. However recurrent expenditures are directed to the education recipient. It is at this level, that the poor are cut off from education. When contributions are forced, Harambee ceases to subsidise the poor. On the contrary it subsidises the middle income and worsens income distribution. Here lies the contradiction in Kenya's education policy. High budgetary deficits and depreciating standards of living call for slow, continuous and manageable growth in the educational system. Kenya's education expansion and diversification is both rapid and expensive. Thus even with cost-sharing, the share of foreign assistance in educational expenditure and taxation has to be substantial. This winds into a tax-inflation-high education expenditure chain that works further at reducing educational participation rates in the economy.

Effects of Education Policy on Participation:

Population participation rates rose rapidly between 1970 to 1980, but began declining after 1984. We estimated student-enrolment growth rates at 3.9%. This is measurable to population growth rates currently estimated by the world bank at 3.4% (this is lower than 3.8% for the 1980-88 period and 3.65 for the 1965-80 period). Assuming all enrolled for primary education complete their primary education, this implies increased in increasing literacy in the population. literacy rates have growth from 25% in 1980 to 37% in 1988 (Kirori et al: 1990, pg:37).

Calculation of participation rates are shown in Table 4 below. Participation rates show evidence of decline. though the decline is slight, the fall is expected to increase. increased cost-sharing and inflation will increase the numbers of those not going to school.

Table 3.5: Population Participation in education:

YEAR	Pop size age range 5 to 14 years	<u>PRIMARY-LEVEL</u>		Pop size age range 15 to 24 years	<u>SECONDARY-LEVEL</u>	
		Student Enrol- ment	Parti- cipation levels		Student Enrol- ment	Parti- cipation ratio
1970	1,398,750	3,188,500	43%	1,983,000	134,856	7%
1980	3,926,629	4,566,611	85%	3,069,249	419,201	14%
1990	#5,400.000	6,672,680	81%	#4,499,012	640,000	14%

Source: Statistical abstracts: 1974 to 1990, Economic survey:1991.

! Calculated assuming constant ratios in growth of different age groups, then values corrected with World Bank estimates of age group ratios.

The expected fall in participation rates, will have adverse effects on equity in opportunities, and ultimately on income distribution, productivity, nutrition and fertility. With further implementation of SAP's to reduce government deficits through reduced public expenditure: participation rates are bound to continue falling, student - teacher ratios to increasingly decline, and the distribution of schools to shift to the advantage of higher income regions. This in the long run should have strong negative effects on productivity, income inequalities and literacy levels.

Training:

..." Now a decade and a half later planners concerned with prevocational E&T are much more knowledgeable about the informal sector; indeed many national training bodies have developed sections or departments concerned with training for micro-enterprise in the informal sector....(King:1987, Pg 17).

The Kenya government policy in training has undergo more change than in education. Below, we shall review current policies, and highlight those being implemented. The role of the government in training has been emphasised if set objectives are to be achieved. Government programmes can be divided into expansionist, qualitative and administrative ones.

Expansionist programmes

The first set of programmes are aimed at expanding the training sector's capacity to absorb increased formal education graduates. Expansionist programmes take the form of building new institutes of technology at various levels, expanding intake of existing ones, and encouraging existing higher level institutions to provide classes out of normal training hours to private candidates. These policies will drastically increase the numbers of graduates in the future. Currently, there are 583 youth polytechnics, 17 technical training institutes, 20 Harambee institutions of technology 16 National Youth Service colleges and 2 national polytechnics with a total annual output of 65,000 graduates a year (GOK: 91, Statistical Abstract 90). There are plans to increase national youth polytechnics to 1,400. This will expand capacity to about 130,000 thousand graduands annually.

Further expansion plans are underway funded by UNDP at a cost of Kshs 80.4million (in 3 phases) to build 19 technical training institutes, 17 Harambee Institutes of Technology and 3 National polytechnics at its second phase (Nation:20/6/90). If these funds are not distorted by current trends to tie aid to democratisation, then the expected output of graduates from training will double to approximately 250,000 graduates a year. After completion then in a five year period an enormous 1,000,000 artisans will have been produced, a majority expected to find a place in the informal sector. Even without the completion of these projects, a graduation rate of 65,000 a year would generate 325,000 graduands in 5 years. If a majority of these graduates are to get employment in the sector, there is need to enable fast and steady growth in the sectors absorption potential. Qualitative policies: Qualitative policies aim at improving the quality of graduates through expanding curriculum, training of trainers, and increased industrial exposure.

Expanding curriculum: Vocational training curriculum is to be expanded to include entrepreneurial skills development. Entrepreneurial skills acquisition depends on several socio-economic factors. Empirical evidence shows that entrepreneurial skills can be developed.

".....experiments conducted in Kakinada town of Andhra Pradesh in India revealed that neither money, caste, nor religious belief played an important role, on n-Ach factor, in the experience of entrepreneurship. It was found that those trained in Small Industries Extension Training Institute at Hyberabad in 1964 - 65 in the 2 week motivation program displayed a more active entrepreneurial behaviour.....Mc-Clelland and David Winter.

1 n-Ach was developed by Prof Mc-Clelland. He argues that Entrepreneurship depends on the need for achievement in a society (n-Achievement). He referred to this as n-Ach.

The introduction of entrepreneurship development as an essential component of their training programmes, through the creation of Small Business Centres (SBCs) in training institutes can be singled out as a major step forward. Higher institutes of learning such as Mombasa Polytechnic, Eldoret Polytechnic and Kiambu Institute of Technology are advanced in creating SBCs in their centres. The role of SBC's apart from instilling entrepreneurial talent, includes research, dissemination of research findings, and liaising production in the field with training with the hope of guiding technological innovation (GOK, MTTAT: 89).

Training of trainers: Technical instructors are to be trained in pedagogy and be given regular in-service training to keep abreast with changing technologies. Trainers are encouraged to obtain independent sources of information and expert advice by building networks of contacts with the outside world linked with entrepreneur education.

Graduates Experience: Both employer-sponsored and self-sponsored students trainees are to gain industrial experience through formalised industrial attachment.

Administrative programmes: Administrative programmes aim at reducing costs of running institutions and dependence on foreign technology within institutions. Training institutes should develop programmes for the replacement of equipment, tools and machinery, thus ensuring continuity and relevance of training programmes. Local industries should be used to manufacture the necessary equipment, machinery and tools to ensure continuity and relevance of training programmes. Training institutions should be encouraged to establish production units to provide opportunities for industrial attachments and generate revenue. Vocational training policy is more revolutionary and ambitious than educational policy. The approach is practical and could attract funding. The availability of funds for this project will determine the success of setting up and ensuring effectiveness of these institutions. Other issues such as improved remunerations to trainers, research and evaluation funds will also have to be planned for. It is important that a centre to co-ordinate and mobilise funding for training be initiated.

SECTION 4:

ATTRIBUTES of E&T in the INFORMAL SECTOR:

Entrepreneur Education in the Informal Sector:

Most entrants into the informal sector are products of the formal education system. There is no documented evidence of educational services in the sector. The table below shows that a majority of entrepreneurs in the informal sector had primary and secondary school education.

Table 4.1: Education levels in the Informal Sector.

Level of education	No of firm Owners	Percentages ²	Average Age
No of Education	15(5)	7 (7)	59
Primary education	100 (27)	45 (39)	35
Secondary Education	97 (30)	44 (45)	30
Tertiary**	7 (5)	3.5 (9)	42
Missing	1 (0)	0.5 (0)	
Totals	220 (67)	100 (100)	

** Tertiary refer to university and diploma level trained entrepreneurs. The figures in brackets, show findings for the sample survey of 67.

The higher mean age for non-educated entrepreneurs implies that the literacy level of entrepreneurs in the sector has improved. Due to increased unemployment in the modern sector and higher school enrolment rates in the Kenya, entrepreneur education levels in the I.S. are expected to improve with time. We will discuss the effect of education on the informal sector in the next section.

Training in the Informal Sector

Skill acquisition in the informal sector varies from entrepreneur to entrepreneur. However the three main forms of training in the sector are: on-the-job training in the formal sector, vocational training, on-the-job

2. N.B. these percentages have been rounded to the nearest tens.

training in the formal sector, vocational training, on-the-job training on-the-job training in the informal sector. These need not be mutually exclusive. Some entrepreneurs have more than one form of training. The section below looks at these training types and the characteristic of their holders.

I.S. Training Informal Sector:

On-the-job training in the informal sector is peculiar to the sector. Trainees join as apprentices in firms of relatives, family friends, or on rare occasions through business arrangement with an entrepreneur at a fee. The trainee's labour input subsidises the cost of training. On average many start earning an allowance after 3 months of on-the-job training. Trainee fees varies by trade and region, but are generally between Kshs 800 to Kshs 2,500 per annum, with an average fee of Kshs 1,200. Training takes between one and two years for metal-work and woodwork, 6 months to a year for tailoring, and 3 to 4 months for candle-work. In trades such as tinsmith and candle-work, no direct fees are paid. Individuals while in training produce for the entrepreneur and are given a fraction of the output as subsistence allowance. This goes on upto the time the individual has enough capital and skill to set up his own production.

Vocational training (V.I.T.)

Vocational trained entrepreneurs are trained in formal training institutes such as youth polytechnics, Harambee institutes can be segregated into N.G.O. sponsored institutes and profit oriented private firms. Other sources of vocational training for the informal sector include private sector firms and parastatals with inbuilt training facilities (e.g. Kenya Railways, D.T. Dobie etc). Vocational training is common in tailoring, metal-work, and wood-work but is unheard of in candle-work and rare in tinsmith subsectors.

Formal sector industrial training (OJT):

Formal On-the-job (OJT) training is also common in the informal sector. This form of skill acquisition is found in wood-work and metal-work only. Many work eight to twelve years to acquire skills, experience, and secure savings for machinery and working capital, prior to engaging in self-employment. This long 'gestation' period makes them older than their colleagues at the point of starting businesses.

Training after entry into sector:

This is a recent phenomenon, and has developed with increased recognition of the I.S by the government and formal institutions. Seminars organised by ministries and donors, demonstration plants organised by N.G.O.'s and extension services organised by both N.G.O.'s and credit oriented parastatals are gaining popularity as training packages for the sector's entrepreneurs. It is however difficult to document the impact of this kind of training on the sector. Currently, training institutes are also being encouraged to start evening classes for entrepreneurs.

Entrepreneur Training in the Informal sector:

Table 4.2 below shows the distribution of entrepreneurial training in the informal sector. Most entrepreneurs are trained within the sector.

Table 4.2: Frequency distribution of Training in the sector.

	Frequency	Percentages
No of form of training	3	1.5
Informal training	111	50
Formal and training only	43	20
Vocational training	37	17
Combined institutional and formal training	11	5
Tertiary ³	7	3
Missing values	7	3
Total	220	100

It is easier for an 'informally trained' entrepreneur to start business than entrepreneurs with other forms of training. This implies there is a strong relation between training and entrepreneurial development. Graduates of

3. Tertiary here refers to those individuals with diploma level and degree level training not in the field of study. Of these, one entrepreneur had university level training (a tailoring entrepreneur with a B.A. degree) in our sample.

informal training, can overcome shortages of initial capital (financial and machinery capital) through informal cash loans or sub-contracts from their trainers or fellow entrepreneurs. Similarly, the training received is directly related to what he/she will venture into. More often than not, they acquire machine making capability, that enables production. These aspects lower their initial costs and reduce risk, thus facilitate entry into self employment. In tailoring a combination of cheap rental machinery (Machinery can be hired for as little as Kshs 400 per month) and repair services (compared to production repair services does not require high initial costs) reduces initial costs. Kshs 1,500 would be enough for take off. This explains the larger numbers of informally trained entrepreneurs in the sector. Ease to starting business is not limited to informally trained entrepreneurs alone. The difference lies in the fact that informally trained entrepreneurs get information on how to move to self-employment while still in training. The role of SBCs in training institutions could even this advantage enjoyed by informally trained entrepreneurs. The next largest group on our sample are those with formal sector training (OJT). They are not significantly more than vocational training (VIT). Some entrepreneurs in metal-work and wood-work have had both institutional and vocational training. We refer to them here as 'combined formal and vocational training' (CVFT). Very few entrepreneurs have diploma or University level training. We refer to them in the text as 'tertiary'.

Lower retirement age, reduced expected total earnings in formal employment, reduced job opportunities and a developing enterprise culture in Kenya will encourage better trained entrepreneurs into the sector. If this happens, it is unlikely that the structure of the sector would remain the same. To understand the implications of better training on the sector we have to analyse the effects of different training packages on firm performance. This is analysed in the section 5.

Section 5

E&T POLICIES & I.S. DEVELOPMENT: AN ANALYSIS

Implementing current E&T policies in Kenya is definitely costly. However, if successfully implemented, the results will be recipient-effective⁴ and socio-politically acceptable. The economic benefits to be attained from these packages would be: technological innovation, industrial expansion, and reduced unemployment. All these make the E&T policy package worth pursuing. For analytical purposes we shall look at education and training separately.

Education Policy and I.S. Development:

In education, there are two aspects of interest to the I.S.: education policy and the informal sector, and the importance of education on entrepreneur performance.

Education Policy and Informal Sector Development:

The 8-4-4 education system was initiated in 1984, and is the corner stone of education evolution in Kenya. The first 8-4-4 primary school graduates finished in 1986, and their secondary counterparts in 1990. Of significance in this education system is the introduction of pre-vocational education into school curriculum. It is through pre-vocational education that educational packages will affect the I.S. In this section we will evaluate the effectiveness of education policy in achieving its objectives in the I.S. (see section 3). Our analysis in this section is limited in that interviews dealt with only a small proportion of all 8-4-4 graduates.

⁴ a policy is recipient effective, if it effectively reaches the target group, and the benefits accruing justify the costs.

8-4-4 graduates exists in the informal sector mainly as trainees. A few have graduated to become part of the sector's labour force, and even fewer have become entrepreneurs. The only known '8-4-4' entrepreneurs in the sector are currently in candle-work. It is difficult to establish whether 8-4-4 graduates joined the I.S. due to influence from education curriculum or due to increased publicity of the sector. Some trends are however notable. In the rural areas, there is increased participation of 8-4-4 graduates in the I.S. Both rural and urban based entrepreneurs cite greater willingness of 8-4-4 graduates to enroll as trainees than their previous counterparts.

" There is an acute shortage of labour, the scarcity is due to the reluctance of past std.7 graduates to undertake manual labour. The 8-4-4s are willing to take jobs in Jua-Kali. Some are already employed here". He expressed hope of increased numbers of workers whom they can employ on a permanent basis Mr. Joannes Owino, Gikomba Jua-Kali Chairman (acting 1989-90) Riverside Gikomba. Also a Wood-work entrepreneur.

Similarly 8-4-4 graduates interviewed in our study expressed acceptance I.S. manual jobs. This could be attributed to limited wage earning activities in the economy, than to 8-4-4 curriculum. However, a majority of 8-4-4's working in 'Jua Kali' area in Nairobi have had their schooling in the rural schools. Fourteen out of every fifteen 8-4-4 graduate training in the urban informal sector stayed and schooled in the rural areas. This implies low participation from urban 8-4-4 graduates. The phenomenon captured in our study could be uniquely a rural phenomenon.

Even if it was true that there is increased acceptance of informal jobs and manual labour by 8-4-4's, there is no indication that the education system imparts sufficient skills, to enable employment or self employment. We, in the absence of a systematic comparison of graduates of the two educational systems, will review a few cases of 8-4-4 trainees in the sector to verify this query.

Case 1: John Nganga, Trainee in Mr. Gathea's metal workshop in Githiga Kiambu.

Completed std. 8 in 1988. At the end of the year joined Mr. Gathea's workshop. While a student, he would wander along Jua-Kali workshops in the area, but never thought of joining. After school there was nothing much to do, so he joined.

He joined as a trainee and within 6 months had learnt how to operate the machines in the workshop. He started earning Ksh. 20 a day. He was still a trainee by late 1989, learning how to make production machines.

He did not learn any of these processes in school. He had however, learnt and used some implements he is currently using.

He does not think of a formal job, nor does he want one, but hopes to start his own Jua-Kali. He however, would not mind getting further training in metal work if he can get access to further training.

Case 2: Remison Njuguna: Entrepreneur, candle-work in Starehe off Quarry road, Nairobi, Kenya.

Completed std.8 in 1986. For two years he picked coffee in the rural areas.

He was trained for 3 months, after which he borrowed implements from his trainer and began production. He earns about Kshs.1,200 per month.

What he does today has little to do with what he learnt in school. He had handled pliers, tin scissors as part of art & Craft in school, but had not cut tin plates to any specification, soldered metal or even tried joinery.

He would not take any type of job paying less than 1,500. His main ambition is to be an electrical apprentice.

Case 3: Julius Mwangi: Jua-Kali off Jogoo Road Nairobi, candle-work entrepreneur.

Finished std. 8 in 1987. Came to Nairobi the same year, "to see the city" he says.

He was trained for four months, then got a subcontract from his trainer. He would produce two candles, give one to his trainer and sell the other. In 5 months he had accumulated enough capital to venture on his own.

School curriculum gave him knowledge of the tools he is currently using. He does not want to move out of the sector.

Case 4: Jacob Njiru: Still in school, in std.8 in 1989. Works full time during holidays and part time during school days in his grandfather's candle-work area.

Has only one class of art & craft a week. They have manufactured a lamp in school, using joinery as opposed to soldering.

He does hope to go on with school, but he would not mind if he was to work in the industry. He considers himself under training. If he was to undertake further training, he would prefer it in technical fields. He says that though most of the students in school have heard about jua-kali, very few are actually interested in joining the sector.

He produces differentiated candles using batteries rather than kerosene.

It appears true that the 8-4-4 system has some effect on students and graduates. It seems to have dignified manual labour, thus giving credit to the I.S. as a field of employment. The 8-4-4 system seems to create an increased acceptance for post educational training. The otherhand insignificant or no technical skills are imparted to the 8-4-4 graduates. At most students are exposed to implements they would use in apprenticeship.

We can conclude that the limited exposure to vocational education may improve their views on manual labour and invoke a demand for further technical training simultaneously. It however, achieves very little as far as imparting practical and applicable technical skills to its graduates. The increased demand, both qualitatively and quantitatively, for technical training by 8-4-4 graduates will require response from the training sector. It calls for recognition and improvement of I.S training, expansion and upgrading of formal vocational training facilities. We shall look at how well, the training sector is responding to this in later sections.

Education and Entrepreneur Performance in the I.S:

A lot has been said about the importance of education. This section looks at the effects of entrepreneur education on firm performance in the I.S. To assess the importance of education to firm performance, we shall compare firm performance across different educational backgrounds.

We have measured firm performance using firm profits and employment. This is based on the assumption that firms aim at maximising short and medium term profits. A firm's profits can be used as a direct measure of the entrepreneur's competence in management and technical decision making. Differences in

investment and capital stock (see table 5.2), thus rates of return, across trades makes intertrade comparison subjective. Consequently we have used weighted income as a proxy of incomes.

The proxy is calculated as follows:-

$$\text{Weighted Income} = \frac{\text{Firm income estimate}}{\text{Average income in sector}}$$

By so doing differences in income caused by differences in rates of return are eliminated. Obtaining accurate information on incomes in the I.S. is hampered by cash flow fluctuations and lack of records. We therefore need an alternative measure to income as a guide to firm performance. In this case we have used labour. Assuming firms in the same industry have fairly similar production techniques, and firms operate under conditions of under-capacity, employment could be used as a measure of firm performance. I.S. firms operating within the same industry, do have fairly similar production techniques. Most production techniques are labour intensive by nature. Hiring and firing of casual labour, in the short run, in response to market demand is evident in the sector. This implies an existence of excess capacity in the sector. Given these conditions a firm will employ more fulltime labour when long-run output demand is high and stable. There is a positive definitional relationship between output, sales and profits allowing labour to be used as an estimate of a firm's performance. We can use labour not as a substitute but as a supplementary measure of firm performance.

Table 5.1. below shows firm performance by education levels. With the exception of 'no education' there is a general increment in both labour and income estimates in the sector given higher education levels. The uneducated entrepreneurs have an average age of 58 (See Table 1.1.), and have had longer periods in self employment. On average they have had up to 15 (see Table 5.1) years in business. Longer duration in business is associated with

Table 5.1: Educational and its effects on entrepreneurial performance: ²⁴

Education Level	Frequency	Average Labour Employed	Average Monthly Income	Average Weighted Income in 000's (Monthly)	Average Age of Business
No Education	15	3	(12.85)	(7.26)	16
Primary Education	100	1	(11.42)	(4.73)	8
Secondary Education	97	2	(17.8)	(10.67)	6
Tertiary**	7	0	(46)	(26.59)	7
Missing values	1				
Sample Size	220			67	

! The differences between tertiary (tertiary includes diploma and University education levels), and secondary and primary levels of education.

! Difference between (tertiary and no education) were marginally insignificant.

stability. Long spells in business enable entrepreneurs to monopolise markets, make informal (at times formal) credit arrangements for cash and raw-material sellers, and penetrate the monopsonistic raw-materials market.

These aspects stabilise firm operations ensuring higher incomes and employment rates. The paradox can also be explained by the long periods of training experienced by these entrepreneurs. Most of these individuals have had long spells of training with formal sector firms. This gives them a technology advantage that can be translated into profits through wider production. They, hence face less competition from fellow entrepreneurs, who in several instances were their trainees. From the findings in the table above, we can conclude only very high levels of education affect firm performance significantly in the informal sector. Firm performance of secondary education has better, but not significantly better effects on firm performance. Other factors other than education may explain firm performance e.g. age of business, training, credit, and entrepreneur or worker technological confidence. As better educated entrepreneurs join the sector, incomes, employment and firm stability in the sector should improve.

Training and Informal Sector Development:

The interconnection between training and informal sector development has both a macro and a micro background. At the macro level we look at training policy in the context of horizontal expansion of the sector. At the micro level we look at training and the growth of firms. Macro objectives can best be achieved in the long-term and include increased employment in the sector, quantitative and qualitative expansion of output and technological innovation. Micro objectives are short term objectives and can be summarised into increased and improved entrepreneurship in the sector, increased output of

vocational graduates, and higher firm profitability and investments. These two aspects are not inconsistent. The short-term objectives are meant to achieve long-term goals. The section below analyses the importance of training at the macro level.

Training Policy and the Expansion of the Informal Sector:

Kenya's training policy is increasingly being adapted towards self-employment. An estimated 65,000 graduates in the formal sector and a significant percentage from the informal sector are produced annually. Given current policy the number is set to rise considerably in the near future (see section 3). To absorb these large numbers by way of self-employment and wage employment, the sector will have to attain a rapid and sustained horizontal development of its potential on the one hand and stable vertical growth on the other. Achieving training objectives will depend on the private sector's ability to expand (for training objectives see section 3). The private sector consists of the private industrial and service sectors, the private agricultural sector, and the informal sector. Given that most training packages are industrially oriented, farming and the services sector would not viable employers. This leaves the modern and the informal industrial and construction sectors to absorb future entrepreneurs and workers. Employment in the modern sector increased by only 2.4% as opposed to 12.6% between 1988 to 89 for the I.S. in the same period the number of enterprises increased by 12.7% as opposed to 2%⁵ in the formal sector. The formal sector's inability to expand rapidly makes it an unlikely absorber of future entrepreneurs. The formal sector's ability to rapidly expand is hindered by factors such as high initial capital requirements, competition from imported products, the existence of monopolistic and monopsonistic markets caused by protectionist policies, high costs of production, and scarcity of capital (UNIDO:88). These issues can only be overcome in the long run.

⁵ estimates calculated from the economic survey 1990.

It is clear, therefore, that the informal sector should take the brunt of expansion. If expansion to absorb future training graduates will have to occur in the I.S. a clear understanding of the sector's growth determinants is necessary. The determinants of growth varies from industry to industry. Generally, however, technology and markets are pull factors towards the sector's expansion (King & Abuodha:91). We note that one of the major reasons for stagnation of the sector is the massive reproduction of similar products throughout the sector. Even from casual observation, hundreds of I.S. firms in the metal-work section produce gate and window grills, steel doors and windows. Another large percentage produces, t-hinges, tar bolts, and pad bolts. All firms interviewed in Githiga area and about 50% of metal-work firms interviewed in Nairobi produced these products. These saturate the market resulting in dampened prices and low profits or losses. These further cause low investments, stagnation, or firm closure. We will refer to this process of multi-production of a product across firms as product duplication. Product duplication exists in tinsmith and candle-work industries as well. It is only in wood-work and tailoring that product differentiation has reduced competition from within subsectors. Tailoring is threatened by second-hand clothing, which are of better quality and cheaper than I.S. tailoring products.

There is need to enable and encourage product differentiation and product quality improvements, where intersectoral and intrasectoral competition is stiff, and to ensure that the product base is widened where product differentiation cannot be achieved cheaply. Widening the product base can only be achieved through technological injection of various forms. Technological injection from the formal sector should help. However, formal sector technology faces its own problems which makes it incompatible with the informal sector production. These include over-reliance on foreign parts, high capital intensity resulting in excess capacity unsuitable to small firms,

and orientation towards precision production which increases product prices. Technology suitable for the I.S. should, on the other hand, enable production of low priced products, dependant on local material and expertise, and adapted to the surrounding⁶. There is need for relevant technology easily adaptable by the informal sector. This calls for the exposure of informals to formal sector technology to enable them adapt formal technology, and expose them to the technological experience of small-scale firms in other L.D.C.'s.

The success of developing effective mechanisms for technological innovation lies with the trainee trainers. Their training programmes have to encourage both technological and entrepreneur development. Technological injection to trainees should differ from trade to trade. In metal-work it should tend towards widening the product base and improving product quality. In tailoring and wood-work, it should be oriented towards product differentiation even if this calls for introducing design into their curricula.

If such improvements are not introduced into their training programmes, excessive production of artisans with no entrepreneurial instincts could cause serious structural unemployment from over supply. This will erase the steps gained towards upholding the dignity of manual labour, thus increasing contempt for technical training. Furthermore, duplication of products in the sector would lower prices and reduce profits. The monopolistic nature of the raw-materials market will exaggerate input costs further cutting into profits. This will result in unnecessary firm death and slowing growth in the sector.

6. By 'adapted to surrounding', we mean the capital piece embodying the technology should be usable and accessible to informals. Its price should be affordable, its size compatible to informal premises sizes and locations, easily understood by informals to enable self servicing etc.

The Supply of Training and the Appropriateness of its Content:

In section 4 we defined various training types available for those seeking technical training in Kenya. These include: formal sector institutional training (VIT), formal sector industrial training (OJT) [or On-the-Job training in the formal sector], and informal sector training or [On the job training in the informal sector]. These exist in combinations or individually. However, all those who eventually join the sector get exposed to informal working methodology by fellow entrepreneurs through direct sharing of ideas and by reproducing designs.

To determine which training paths are desirable, we should be able to determine which training packages enhance entrepreneur performance in the sector. Training affects firm performance by improving an entrepreneur's technological capacity and decision-making capabilities. Table 5.2 below shows differences in training levels and firm performance, where firm performance is measured by both incomes and labour employed. Entrepreneur training seems to affect firm performance more strongly than education. The more the training exposure obtained by an entrepreneur, the better his firm's performance. The fact that all entrepreneurs eventually get exposed to informal production methodology while in practise does make formally trained (OJT) and a vocational institutionally trained entrepreneurs (VIT) more exposed than their informal counterparts. This study makes the presumption that OJT-trained entrepreneurs have more exposure than their counterparts with institutional training. This argument is not far fetched, since most trainees from college have to undergo further training at joining firm payrolls. All entrepreneurs with a combination of both (OJT) and (VIT) said they learnt most of the current skills either in formal sector or within the I.S. itself and not in their respective institutes of learning. This is the basis for ranking (OJT) higher than (VIT). Given our basis for ranking, combined (VIT) and (OJT) or (VFT), will definitely get higher ranking. Diploma levels of training and university level of training got the higher rankings with university level above diploma level.

Table 5.2: Table interrelationship between training and firm Performance

Training	Frequency	Average Incomes in 000's	Average Labour employed	Rounded Value for Labour
No form of training	3	(-)	1.33	1
Informal training	111	(7.38)	1.74	2
Vocational (VIT) Institutional training	37	(39.75)	2.11	2
Formal(OJT) ⁷ training only	43	(12.15)	2.21	2
Combined Vocational and formal training(CVFT)	11	(16.9)	3.91	4
Diploma level not in field of work	5	(42.36)	5	
Diploma level in field of work	1	(50)	6	5
University level	1	(22)	6	6
Missing values	7			
Sample size:	220	(67)		

⁷ OJT On the Job Training.

The I.S. is a heterogenous sector. Table 5.3 below shows differences between capital stock, labour, incomes and rates of return in the sector. The differences in rates of return are statistically significant. This weakens the case for comparison between subsectors. This problem can however be solved by standardizing variables used in comparison. Unlike education types that cuts uniformly across all trades in this study, training correlates strongly with type of firm. Candle-work for example has only informally trained entrepreneurs. Tailoring has no entrepreneurs with only formal sector (OJT)⁸. For these reasons it will be unjust to compare training and firm performance across firms. Comparison within trade types will be more justifiable.

Table 5.3 Differences in Various firm types in the informal sector

Firm Types	Freq- uency	Initial Capital	Capital Stock	Labour	Average Monthly Income	Rate of return to Investment
Tailoring	58	7,900	24,625	(2)	(6,900)	3.81
Wood-work	58	7,270	21,444	(2)	(26,000)	3.58
Metal-work	60	3,347	34,000	(4)	(21,500)	1.76
Candle-work	14	200	770	(0)	(2,200)	0.28
Tin-Smith	30	700	1,400	(-)	(-)	(-)

In the section below we analyse the effects of training on each training type. Table 5.4 below shows the differences in entrepreneur performance in separate trades across the sector.

Tailoring:

In tailoring, with higher levels of training or increased exposure of the entrepreneur, firm performance improves. The differences in income were statistically tested and the results

8. Formal firms employ trained tailors. Thus any tailor with formal sector experience will have had some vocational training.

are presented in the table below. There was strong evidence of better firm performance by those (tertiary, which constitutes of diploma level holders and university level degree holders) with much higher level of training.

Table 5.4: Training and its Effects on Firm performance by firm types:

Training Level:	Firm Types Incomes			
	Tailoring	Wood	Metal	Candle
Informal training	5,987	13,207	6,000	2,200
Formal ind Training (OJT)	-	-	20,000	-
Vocational Inst Training (VIT)	6,241	-	50,000	-
Combined Institution Institutional and Formal training (CVIT)	-	33,433	29,250	-
Tertiary	8,500	51,700	-	-

Tailoring: Diff⁰ (Tertiary v/s VIT & Informal training) is significant.

Wood-work: Diff (Tertiary v/s Informal training) is significant.

Metal-work: Diff (Tertiary, VIT, CVIT, OJT v/s Informal training) in the sector were significant.

The best performance was noted with those with diploma level and university level training. Coincidentally these individuals do not have prior training or knowledge in tailoring. Firm success in tailoring depends greatly on decision-making or management, ability to differentiate production and marketing. It is for this reason that those small-scale enterprises with

9. Note Diff refers to the difference between, The differences not mentioned are statistically insignificant, Lastly the tests are at 5% level of significance.

more qualified entrepreneurs have better performance. Higher training or even plain education plays an effective role in improving firm performance. Informal sector graduates are limited to what the trainer can offer. Specialisation is the order of the day in small-scale enterprises in this industry (Abuodha & King 1991). Trainers are thus limited unlike in institutions where a variety of trainers and training facilities (even the remotest facility such as a clothing catalogue) gives them more and improves their ability to differentiate their products.

Graduates from formal training institutes are more 'exposed' compared to informal apprenticeship. This exposure is, however, not sufficient to make significant differences between their earnings. Lack of business studies at institution level, and no mechanism to evaluate and update syllabuses according to the subsector's needs result in graduates who cannot compete effectively with second-hand or formal sector clothing.

An ideal training package for formal sector trainees in this subsector should include management and designs skills if the subsector is to make any meaningful progress. A stage-by-stage training process with better training facilities at each stage and a central body to evaluate and guide syllabus as intechanical training should be introduced. This should also aim at attracting informally trained tailors already operating in the market.

Wood-work

Like in tailoring, the best performance was realized by tertiary level entrepreneurs (diploma level or equivalent but not in the field of work). These entrepreneurs are not carpenters nor wood technologists by training. They are mainly salesmen, accountants or clerks in previous formal sector employment.

Those with informal training, formal training or combined exposures do not perform better than each other. To understand this we have to look at the determinants of productivity in the subsector. As in tailoring, this subsector has abundant equally qualified labour. Profitability depends greatly on the owner's ability to sell in large numbers, and/or orient production towards the middle class and the affluent utility. Marketing potential is thus of extreme importance. It is due to this factor that those 'non-fundi'¹⁰ entrepreneurs with high business acumen succeed as well as their trained counterparts. Abundance of qualified labour makes production of quality products not a function of wood-work training, but a function of accessibility to a diversity of wood quality, and high power machinery for workers. Production of high quality products in large quantities depends heavily on the availability of working capital which to some extent will depend on business decisions. Entrepreneurs trained in wood-work do not necessarily own such capital nor are they necessarily exposed to profit maximizing decision-making. Firm performance is not necessarily improved by technical training but by capital acquisition and marketing capabilities. Technology currently required in the subsector, for production, to satisfy current consumer utility, has an upper limit, which most labour can attain. The capital labour ratio (capital measured by value) towards producing a KShs. 22,000 bed is much higher than that of a Kshs.800 bed. A qualified labour unit in the sector need not go for further training to produce the latter. Remedies to firm performance should concentrate on capital provision, management and marketing training.

Metal-work:

Skill acquisition by metal-work entrepreneurs is the most varied in the sector. From our sample there is no evidence of university or diploma level engineers or technicians entering self employment in the subsector. From Table 5.4 (above),

10 Fundi means artisan in Swahili.

vocational institutional training (VIT) performs best in the sector, followed by Combined Vocational and Institutional Training, and lastly by formal industrial training.

From statistical tests, the difference in incomes between VIT, OJT and combined vocational and institutional training was definitely insignificant. This stresses the importance of formal exposure either by way of working experience or training on firm performance in the subsector. Those trained in the I.S. are limited to production techniques learnt in the trainer's firm. To the trainee, low wages and high expected earnings as an entrepreneur prompts hasty movement into self-employment. On the trainers' side, higher costs of keeping semi-trained labour and abundance of cheap labour willing to undertake training encourages early 'dismissals'. As a result 'informally trained' entrepreneurs tend to possess limited and similar technical capabilities. The few who are innovative enough to shift production are limited by capital constraints. Production is limited to low capital input products. These factors cause intense competition and lower prices, which further leads to low incomes and investments in the subsector. This cycle incapacitates their movement out of this 'stagnation trap'. Those with more than only I.S. exposure on the other hand have a wider product scope. Their ability to translate the technical ideas to practise is their strongest card. Through product differentiation and shifting to less competitive products they are able to move out of this trap. This is demonstrated by their better firm performances records.

The growth of this subsector is technology led. Technical capacity of those in the subsector and those coming into the subsector should improved if the subsector is to expand. This is a necessary condition, if the sector to absorb a larger number of entrants.

Candle-Work & Tinsmith:

The candle-work and tinsmith industries consist only of informally trained personnel. The subsector has its own unique characteristics. Such as:-

- : craftsmanship used in the two activities is Indian by origin, and for over three decades has not undergone any change;
- : most entrepreneurs in candle-work unlike in tinsmith are in groups of related members. A majority of them come from Murang'a (Gaicanjiru), Embu and Kisumu districts. All use highly labour intensive methods of production (see table 5.3);
- : neither activity has any directly relevant formal training. In our sample, only one entrepreneur had worked in a mechanised firm producing similar products.

Alternative production technologies for tinsmith are comparatively highly capital intensive with high technology input and oriented towards mass production¹¹. For candle-work, substitute products demand high technology¹². The technological gap between methods of production of these and what is produced in the I.S. in tinsmith and candle-work respectively is tremendous. There are no intermediate product or technology developments to be improvised to enable the growth of an intermediate formal training program. Lack of an appropriate formal technical curriculum, lack of publication and documentation on products and their underlying

!! Machinery used to manufacture metal basins, buckets, hoes gutter equipment, etc in the modern sector are capital intensive and mass production oriented. Informals, due to lack of capital, are unable to acquire the machinery. They use simple tools such as hammers, anvil and manual blow-pipes as opposed to giant compressors in the formal sector.

12. The substitutes to I.S. candles are bulbs, torches and the hurricane lamps. The differences in technology and input costs differences are significant.

technologies and, more important, research in these fields have hindered the development of an appropriate well defined training programme for future entrepreneurs. If the sector's entrepreneurs are exposed to any existing training packages the entrepreneurs seem likely to shift from their current trades rather than improve their products or production methodology.

It appears that existing I.S. training is sufficient to meet the demand of these industries formal training is not necessary. However, in the long run, for the subsectors to contribute and remain desirable to the economy, product improvement to cope with changing consumer demand and modern sector competition has to occur. In candle-work, product improvements have occurred, but the innovations have not been economically or technically feasible. Any meaningful innovation is likely to come from outside the subsector, most likely from technology research institutions. All meaningful product innovations in tinsmith (e.g., the energy saving 'jiko' charcoal stove) were from outside the subsector. The introduction of product improvement formal training should be a long term policy for this subsector.

Section 6

POLICY RECOMMENDATIONS:

Education

One very important role of education is to promote socio-economic equity. Increased costs of education due to cost-sharing denies educational opportunities to a substantial percentage of the school-going population. The introduction of vocational education as a part of curriculum has significant effects on private educational expenditure. This reduces participation rates in the economy, consequently affecting socio-economic equity, fertility, health and productivity. A social evaluation of vocational studies in formal education should be initiated and the policy conclusively reviewed, bearing in mind that I.S. development objectives can be achieved through post-educational vocational training.

If the 8-4-4 system is to contribute to entrepreneurship development, then it should be geared towards improving graduate firm performance. Vocational education time should be increased and shared between business education and technical training. By so doing, graduates will be exposed to management and technical skills simultaneously. It is practically very difficult to provide enough skills to formal school graduates to enable employment or self-employment in technical fields immediately after school. Lack of equipment and funds, limited school time, and high opportunity costs of increased time to vocational courses make it impossible to impart higher skills to students.

This research suggests that the 8-4-4 system has improved acceptance of manual labour and increased demand for further technical training among graduates. There was, however, no difference in outlook to manual labour and/or acquired technical skills between 8-4-4's form 4 and std.8 graduates.

This implies a lot of wasted lesson hours and resources in imparting technical skills in secondary schools. The time frame within which acceptance of manual labour and basic introduction to technical skills can be achieved in school should be determined and curriculum re-revised to include more hours of business management.

As a note of caution, training is more important to the I.S. than education. The role of quality education in development is just as important, and should not be compromised with weak measures towards achieving self-employment. Furthermore, it is unrealistic to expect the informal sector to absorb school drop-outs en masse. Unemployment and underemployment is common in the modern sector and civil service. These could soon be attributes of this sector, if policy deliberately seeks to make the sector an employment haven. If the role of vocational training in education is to impart skills, then "technology education" which seeks to develop a more general understanding of applied science in the context of technology and production would be both less expensive, and more education oriented¹³.

Training

Amongst the informal trades discussed in this paper, a large percentage of vocational technical training institutions target the metal-work subsector. The subsector also has vital forward and backward linkages to the rest of the sector and the economy at large. As a centre of technological innovation, the subsector plays a very crucial role in national development. As noted, in section 5, the subsector is technology led. It follows therefore that vocational training for the subsector should encompass technological innovation. Technological innovation can be effectively achieved through directing trainer and institutional policies towards this goal.

13 Also discussed in the World Bank policy paper on vocational and technical education and training 1991.

The following should be effected as part of training policy:-

- : Entry requirements for trainers in entrepreneur development and technical skills should be set up. Priority should be given to staff who have had considerable practical experience in both the aspects.
- ** A comprehensive in-service training program has to be developed for technology-led industries. Visits to L.D.C.'s, with more small-scale industrial technological experience should be part of training programmes for trainers. Priority should be given to trainers to enhance their areas of specialisation
- : A resource development centre for technical trainers should be developed in higher institutions of learning. Existing institutions, such as the Kenyatta University, Appropriate Technology Centre, should be upgraded or expanded to train trainers. Research to improve informal sector technologies can be undertaken here.
- : The scope of technical training should be horizontally expanded to include fields in chemical industrial production and vertically to include more advanced areas within available fields.
- : A majority of informally trained graduates (particularly those in wood-work, metal-work and candle-work) are able to manufacture their own capital machinery thus lowering entry costs. This advantage can be imitated by formal institutions through college projects where students are encouraged to develop their own machinery.
- : Training institutes should develop micro-research departments which look into new areas in technology relative to production in the I.S. Consequently curriculum and teaching aids for trainers should be developed and disseminated. This is to ensure that training institutions constantly stay above or at par with technology in the sector

- : An independent co-ordination body should be formed to organise inter-institutional rationalisation of technological input and update both curriculum according to long and short term plans for the sector.

Most I.S. entrepreneurs are trained in the informal sector. The government should formally recognise the existence of informal training. The effectiveness of informal training should be researched into and ways of improving it adopted. Several hundreds of graduates are produced annually. The number is increasing as more, driven by limited opportunities elsewhere, seek informal training. This increases pressure on the sector to accommodate unplanned for entrepreneurs. Ways to improve technological skills of I.S. graduates have to be formulated. We recommend incentives to formal firms to allow industrial attachment to I.S. trained graduates alongside VIT trainees in formal industries and the introduction of evening classes in formal urban institutions (as is the case for Undugu Society). Where possible formal trade tests should be made more accessible to informal trained graduates.

In tailoring, curriculum should be developed for areas previously not given adequate attention such as tailoring. Tailoring requires the inclusion of design and marketing into curriculum. The stress on technological innovation should not be seen only as attributes to the metal-work subsector but also the tailoring subsector. Production in the tailoring subsector should shift from non-competitive designs, which would flush them out given increased liberalisation. Concepts such as fashion demonstrations and design improvements should not be seen as beyond trainees in this subsector. As it is now a lot can be learnt from training curriculums of high cost tailoring and design colleges as role models for other training colleges. It is only through such ambitious programs, that high standards and imagination will be instilled into the industry. Their participation in developing of curriculum is invaluable.

Market led Industries:

For industries that are not technology led such as wood-work, both training in and for the subsector should seek to elevate productivity through management training and credit programmes. More effective policy would be in capital machinery pricing and credit provision policies.

The Stagnant Subsectors of the I.S.

These comprise of candle-work and tinsmith industries: If training for the subsector is to be constructive, then research has to be undertaken by more qualified institutions, and the results of research be disseminated by initiating compatible courses with new syllabus from both research findings and production practices in the field. This can however, only be a long term and not a short term policy.

Section 7

CONCLUSIONS:

The success of expanding education and training in the developed world could be attributed to the fact that their expansion took place after the industrial revolution. E & T thus had notable externalities in their economies. In Kenya like the rest of the developing world expansion of E&T occurred at times of slow structural growth, consequently the rapid expansion of E&T is subject to relentless criticism. The rapid growth of the I.S. and its enormous growth potential could take advantage of the expansion of E&T and vice-versa. Care should be taken, to ensure that the policy marriage is sound from the beginning. The teaching of vocational education in schools should be reviewed taking into account its effectiveness, its implementation costs, its effects on educational participation rates and its effects on intergenerational income distribution in Kenya. The expected expansion of the I.S. through deliberate training policies should be subsectoral specific. Training packages in technology-led sectors should emphasise on technological input in training in the sector. Market-led sectors should concentrate on resource management training, where as stagnant subsectors should develop training packages based on research findings of intermediate technical institutes. In general training packages should reflect both the dynamics of the sector and objectives of the sector.

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