Characteristics and Employment Generation of Small-Scale Industries in Western Nigeria

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Introduction

With meagre capital investment but with, supposedly, higher labour productivity than in agriculture, small-scale industries can be an important source of employment as well as a healthy contributor to industrial production in a developing country like Nigeria. A study of the Pakistan-Indian situation has shown that normally the highest employment per unit of capital is found in very small firms (of 20 or less workers). Such firms sometimes have the distinct short-term advantage of both lower capital-labour and capital-output ratios than larger establishments [20]. In fact, if the small-scale industrial sector is encouraged within a favourable economic environment, it can play an important role in economic development at least in the transitional state.¹

The present paper examines employment generation in the small-scale industrial sector both from the supply and demand side. The area of study is Western Nigeria but the findings can, with some modification, be considered applicable to the whole country.² The paper is divided into three major sections. The first section deals with background characteristics of the Western Nigeria and its small-scale industries; the second section attempts to quantify employment generation within existing firms; and the third section aims at an analysis of the generation of the entrepreneurial class.

*The authors were associated with the University of Ife, Nigeria when this paper was prepared. They acknowledge with gratitude the Industrial Research Unit, Department of Economics and Dr. A.O. Lewis, the then Acting Director of the Unit, for providing the Small Scale Industries Survey, Western Nigeria, 1970-71 data.

The authors are indebted to their colleagues and referees for comments and suggestions on an earlier draft.

¹For details, see [17].

²Formerly the Western State, this area was subdivided into Ogun, Ondo, and Oyo States in April 1976.

The study is based on data from the Small-Scale Industries Survey of Western Nigeria conducted by the Department of Economics, University of Ife, during 1970-71.³ The aim of the survey was a complete enumeration of small scale establishments in all the 24 divisional headquarters and 25 other selected towns and villages in the state. However, the survey was able to achieve a coverage rate of about 85 percent and a response rate of about 75 percent. The survey questionnaire was designed to generate information on, among other things, characteristics of entrepreneurs, apprentices, and employees; physical features of their establishments of work; and the levels of investment, output, and scales of these establishments.⁴

I. Some Background Characteristics

Settlement and Activity Pattern

In comparison with the rest of the country, the Western Nigeria has a high level of urbanization.⁵ According to the 1963 census, about 62 percent of the population lives in centres of 10,000 or more, about 40 percent in centres of 50,000 or more, and 25 percent in cities of 100,000 or more inhabitants. Ibadan, with a population of well over half a million, serves as the state headquarters of administration, transportation, commerce, and industry. The major occupations are for white-collar, production, service, and sales workers. In medium-sized towns with populations between 20,000 and 25,000, small-scale industries, crafts, and all forms of trading are the main economic activities. Small towns with population of 5,000—19,999 are peasant-urban settlements and the basis of their economy is mainly trade crafts, and agriculture. All other localities with population less than 5,000 are distinctly rural and farming, hunting, and lumbering, are the major occupations, sometimes supplemented by craft activities and petty trading.

Table 1 shows the occupational distribution of the labour force in urban and rural areas. As is typical of West Africa, the majority of women, irrespective of area of residence, are engaged as sales workers, mostly in petty retail trading.⁶ Industrial work seems to be exclusively the domain of male workers. It is interesting to observe that males in both rural and urban areas are mainly farmers, fishermen, etc., and farming and trading together seem to be the mainstay of both urban and rural sectors. The fact that craftsmen, production process, etc., workers constitute only one-fifth of the total urban labour force suggests that the industrial sector is still small. Unfortunately, data on the proportion of these workers engaged in small-scale industries is not available.

³A small-scale industry is defined as a "business concern whose total assets in capital equipment, plant and working capital are less than Naira 50,000 and employs less than 50 fulltime workers." [7].

⁴There was often a fear on the part of the respondent that his answers would be given to the tax authorities. So the figures on profit, wage bill, current value of equipment, etc., are very inaccurate with a high degree of nonresponse. We therefore decided not to use these in our analysis.

⁵See Fadipe (1971), Government of Nigeria (1956), Bascom (1962), and Adepoju (1975).

⁶See Mabogunje (1968).

Table 1
Percent Occupational Distribution of Labour Force by Sex and Urban-Rural Areas: Western Region, 1963

Occupational Types	All Areas			Urban			Rural		
	Both Sexes	Males	Females	Both Sexes	Males	Females	Both Sexes	Males	Females
Professional, administrative & clerical workers	5	8	2	8	11	3	4	5	2
Sales workers	30	10	57	35	13	67	26	8	52
Farmers, fishermen, hunters etc.	33	52	6	19	31	3	41	65	7
Craftsmen, production process and related workers, and general labourers	16	21	10	20	30	7	14	15	12
Service and transport workers	5	7	3	8	11	2	4	5	3
Workers not classifiable	9	1	21	7	1	16	10	1	24
Unemployed	2	2	1	3	3	2	1	1	1
Total	100	100	100	100	100	100	100	100	100
Total (in thousands)	4,833	2,833	1,969	1,746	1,041	705	3,057	1,792	1,265

Sources: Federal Census Office: *Population Census 1963: Western Nigeria Vol. II*, Lagos, 1968.

Note: 1. Throughout the paper percentage figures are rounded and so in some cases the total may not add up to 100.

2. Throughout the paper, a hyphen (-) denotes a percentage less than 0.5.

Characteristics of Small-Scale Industries

Table 2 shows the industrial distribution of small-scale establishments in the sample by settlement size.⁷ One-half of the sample consists of tailoring and sewing institutions. These are over-represented (relative to the average for all settlements) in towns under 20,000 inhabitants and in Ibadan, and under-represented in the rest. Establishments in most of the other groups are fairly evenly distributed over the various settlement sizes except in textiles and construction, which are under-represented in Ibadan where these industries are often dominated by large-scale firms, and in electric and printing which is under-represented in towns under 20,000 and over-represented in Ibadan.

Table 3 shows the physical characteristics of the industries. The amount of initial investment needed to start a small-scale industrial enterprise is relatively small; in five out of eight groups, over half the entrepreneurs initially invested less than Naira 60, and only in food processing and electric and printing did a majority require more than Naira 100.⁸ The investment used to start a food processing industry is surprisingly large but the sample is small (36) and weighted in favour of grain millers and brewers who use large equipment. The amount for tailoring industry averages around the cost of a sewing machine (about Naira 80).

Seven-tenths of all establishments use one or more pieces of mechanical equipment in their production process but less than half of the machines are electric. All food processing and tailoring establishments require machinery but often these are diesel or manual, especially for tailoring. Among the comparatively more traditional industries, namely textiles, crafts, woodworks, and construction, there is a more direct complementarity between electricity and machinery than in the comparatively modern industries of food processing, tailoring, and electric and printing, as shown below:

	Tex- tiles	Cra- fts	Wood- works	Constr- uction	Repairs and services	Food pro- cessing	Tailo- ring	Electric and printing	All establish- ments
<i>Having Electricity</i>									
Percent having machinery	100	63	79	100	71	100	96	76	77
<i>Without Electricity</i>									
Percent having machinery	26	26	21	44	33	100	96	68	63

Also, as expected, the establishments which had higher initial investments are the ones having machinery (table not included here).

⁷The survey identified 25 categories of small-scale establishments. See Aluko, et al. (eds.) (1972). For this paper we have used eight main groups. These groups with their sub-groups are as follows: *Textile works* including knitters, weavers, and others; *Crafts* including goldsmiths, blacksmiths, tin and brass workers, carvers, shoemakers, and leather workers; *Wood-works* including carpenters, furniture makers, and sawmillers; *Construction* including builders, iron workers, bricklayers, blockmakers, and others; *Repairs and Services* including watch repairers, bicycle repairers, motor repairers, upholsterers, battery chargers, vulcanizers, barbers, dry cleaners, plumbers, and others; *Food Processing* including bakers, grain millers, pepper grinders, and others; *Tailors*; *Electric and printing* including electrical workers, radio and television repairers, welders, printers, photographers, painters, and sign-makers.

At the official exchange rate, Naira 1.00 = U.S. \$1.64.

Table 2

Percent Distribution of Sample Small-Scale Establishments by Settlement Size and Type of Industry: Western Nigeria, 1971

Settlement size	Textiles	Crafts	Wood-works	Const- ruction	Repairs and services	Food process- ing	Tailor- ing	Electric and printing	Total	All establish- ments
less than 20,000	2	13	12	2	13	2	53	2	100	(Number) 97
20,000-49,999	3	13	12	4	14	3	47	4	100	6
50,000-99,000	4	13	10	3	14	3	48	6	100	118
100,000-499,999	4	15	11	3	14	3	46	5	100	438
500,000-or more ¹	1	11	10	—	9	2	61	7	100	573
All settlements	3	13	11	2	13	2	50	5	100	323
Number of establishments in all settlements	47	205	164	37	202	36	776	82	1,549	1,549

Sources for Tables 2-8: Ten percent sample of *Small Scale Industries Survey, Western Nigeria 1970-71*.

Note: Industry groups in all the tables are arranged roughly in terms of their rank based on their characteristics from comparatively traditional to more modern.

¹Ibadan only.

Table 3
Selected Characteristics of Sample Small-Scale Industries by Type of Industry: Western Nigeria, 1971

Characteristics	Textiles	Crafts	Wood-works	Con-struction	Repairs and services	Food pro-cessing	Tailoring	Electric and printing	All estab-lishments
A. Initial investment (in Naira)									
Less than 60	70	59	56	51	59	3	24	27	38
60-99	6	17	14	16	17	6	45	12	30
100-199	6	13	12	19	14	28	22	16	18
200 and more	9	6	12	11	7	61	5	43	10
Unknown	9	5	6	3	3	3	4	2	4
Total	100	100	100	100	100	100	100	100	100
Average (Naira)	129	70	218	183	75	669	89	161	127
B. Percent with machinery									
	32	35	32	60	41	100	95	73	70
C. Percent with electricity									
	9	25	21	24	26	47	35	70	32
D. Age of establishment (Years)									
Less than 2	4	15	16	5	17	28	20	21	18
2-3	17	15	16	16	20	19	22	27	20
4-10	34	34	36	32	36	39	29	28	32
More than 10	38	29	25	32	19	6	17	13	20
Unknown	6	7	7	14	7	8	11	11	10
Total	100	100	100	100	100	100	100	100	100
Average age	13.8	9.5	8.7	8.6	6.7	4.6	6.5	5.6	7.5
E. Percent entrepreneur working alone									
	85	63	49	57	53	44	59	9	56

Overall the establishments are young; about 70 percent are ten years old or less.⁹ The comparatively traditional industries mentioned above are relatively older. These same four industries had low initial investment, a fact which could be explained partly by their age and inflation in the economy.

In the majority of enterprises, the entrepreneur is the sole worker (56 percent) with textiles having the highest percentage (85) and electric and printing, perhaps the most modern industry, the lowest (9). It should be mentioned that the survey showed that virtually all industries have single entrepreneurs (no collective ownership).¹⁰

Table 4 provides the characteristics of the entrepreneurs. Slightly more than one-half are less than 30 years old and only one-sixth are above 40. This is consistent with the relatively young ages of most of the enterprises. Textiles, crafts, and food processing are dominated by older entrepreneurs; tailoring, construction, and electric and printing, by entrepreneurs under 30. The youthfulness of those in construction is surprising as these are relatively older establishments—many may be inherited family enterprises. As expected from our discussion of the occupational structure of female workers, the establishments are primarily male-owned; female entrepreneurs are concentrated in tailoring and textiles. Given the relative ranks of modernity of textiles and tailoring, this concentration appears to be primarily a function of the traditions of the region.

On the average, two-fifths of the entrepreneurs are migrants. This is significant as it shows that they respond to the full of areas of economic opportunity—a vital ingredient for the development of the small-scale industrial sector. The largest proportion of migrants is found in electric and printing (59 percent) followed by textiles, crafts, and food processing. In essence, therefore, the migratory pattern of entrepreneurs is not directly related to the modernity of the industry.

A little less than two-fifths of the entrepreneurs have no education—the highest proportions being in the two most traditional groups; textiles and crafts. Electric and printing entrepreneurs are almost all educated with 53 percent having more than primary education.¹¹ The relative modernity of tailoring is shown by two-thirds of them having primary or higher education. Almost all of the entrepreneurs have nonformal job training. This training includes apprenticeship and on-the-job experience, primarily the former.¹² Only in electric and printing are some (7 percent) trained in technical institutions. Therefore, the entrepreneurial class is essentially a product of the apprenticeship system.¹³

⁹The same result was found in the survey for the whole of South-Western Nigeria (comprising Lagos, Kwara, Western and Mid-Western States). See Aluko (1975).

¹⁰Of the 21,949 small-scale establishments surveyed in the South-Western Nigeria, 98.8 percent had single entrepreneurs. See Aluko (1975).

¹¹In his study of small-scale industries in Ibadan, Callaway shows that one-fourth of entrepreneurs had no education, one-fourth had less than primary, and 16 percent had modern school level and above. More important, he shows that all of those with secondary school education are in printing, building, and transport. Callaway (1973).

¹²Harris, in his study of small-scale businesses in Nigeria, found that 77 percent of entrepreneurs are previously apprentices and only 2 percent had trade test diplomas. Harris (1971).

¹³This is consistent with Callaway's finding that the apprenticeship system serves as a school of entrepreneurship. Callaway (1964).

More than three-fourths of the entrepreneurs have no previous work experience (other than apprenticeship). This is consistent with the young ages of entrepreneurs and establishments. Only 2 percent have experience in a field other than their present industry group, showing very little inter-industry mobility. It is significant that 15 percent have experience in their own field; as employees or entrepreneurs in other establishments. If the former, then the employee system also contributes to generating entrepreneurs with the obvious multiplier effects on employment. Unfortunately, the crucial question on employment status in previous jobs was not asked so it is not possible to calculate this effect.

Three-fourths of the entrepreneurs derive their livelihood exclusively from their establishments. Among those with secondary occupations, there seems to be a consistent relationship between the industry and the secondary occupation. For example, crafts and woodworks entrepreneurs have farming as the predominant second occupation; tailoring and food processing entrepreneurs opt for retail trade activity-probably as an outlet for their own merchandise.

An indicator of the economic attitudes of small-scale industrialists is their opinion of the future of their establishments. An average of 89 percent of the entrepreneurs in the sample expressed a desire to expand, with the construction group having the lowest proportion of 84 percent. Therefore, these entrepreneurs must be optimistic about the state of the economy and their role in it. When asked the reasons for not expanding, 80 percent stated that lack of available capital funds was the only reason and another 9 percent stated lack of capital combined with other factors. Only 2 percent had no reason and only in construction (3 percent) was labour shortage mentioned. This implies that small-scale industries are not at all hampered by labour supply problems. The main limitation appears to be the lack of capital/credit to this sector. The survey showed that most of the entrepreneurs finance their establishments out of savings, not loans, and that most do not keep even rudimentary accounts,¹⁴ so the stated lack of capital could be a perceptual problem coupled with an inability to qualify for bank loans which typically requires (a) a loan of at least some minimum amount, (b) a bank account, and (c) security against default. The Nigerian government has set up several regional banks to help specifically the small scale entrepreneurs, and the recent indigenization exercise has yielded a large amount of investable funds (Fatunla 1976), so the lack of capital may be more of an educational and operational problem than a real one.

II. Employment Generation Within Existing Establishments

Table 5 shows the expansion status of establishments in terms of work force at the time they were established and at the time of the survey. Out of 1,549 sample establishments, 1,368, or 88 percent, had the entrepreneur as the

¹⁴"Only 22 of the 23,592 units covered by the survey had ever borrowed money from banks, 38 from money lenders, 4 from cooperative societies and 1 from Government. In this connection, the report noted that the shortage of institutional loans is not unconnected with the poor financial management of units. Only 350 of the total number of 13,592 units keep any books of accounts showing revenue and expenditure; only 80 keep bank accounts and therefore, most of the units have no access to bank and other institutional lendings", Akinnola (1975).

Table 5

Percent Distribution of Establishments by Expansion Status and Type of Industry: Western Nigeria, 1971

Expansion Status	Textiles	Crafts	Wood-works	Construction	Repairs and Service	Food processing	Tailoring	Electric and printing	All establishments
A. Single proprietor-worker when established									
Still single proprietor-worker	90	65	52	60	64	54	59	29	59
Added one worker	2	16	15	10	13	23	14	29	15
Added 2-3 workers	2	15	17	13	13	12	17	26	16
Added more than 3 workers	5	4	16	16	10	11	10	17	10
Total	100	100	100	100	100	100	100	100	100
All establishments	3	14	10	2	13	2	52	4	
B. Proprietor + One Worker when established									
Now single proprietor-worker	50	55	29	50	12	33	26	—	25
Still with one worker	—	18	14	50	38	33	22	46	28
Added more than one worker	50	27	57	—	50	33	52	54	47
Total	100	100	100	100	100	100	100	100	100
All establishments	3	14	9	3	20	4	34	14	
C. Proprietor + two or more workers when established									
Contracted	—	50	47	80	50	29	56	27	47
Still the same	33	38	29	—	14	14	19	27	22
Expanded	67	12	24	20	36	57	25	46	31
Total	100	100	100	100	100	100	100	100	100
All establishments	3	8	18	5	15	7	33	11	

only worker when established. Fifty-nine percent of these remained so at the time of the survey; 15 percent added one worker¹⁵ and 26 percent added two or more workers. Among the industrial groups, electric and printing, the most modern one, experienced the highest expansion (71 percent) and textiles and crafts, the most traditional ones, had the lowest (10 and 35 percent, respectively). More than two-fifths of the electric and printing firms expanded their work force to three or more workers including the entrepreneur.

Among the firms with more than one worker when established, there was significant contraction. One-quarter of the 79 firms which started with two workers, and 47 percent of the 97 larger firms reduced their size in terms of work force. And among larger firms, the percentage expanding is smaller than the percentage contracting. Again the more modern industries of electric and printing, food processing, and repairs and services, which have proportionately more large enterprises, showed the least contraction.

Overall, only 4 percent of the small-scale industries contracted in size as compared with the 41 percent which expanded. Such expansion implies significant employment generation by this sector.¹⁶ A similar but more concise picture of this expansion is shown by the annual rates¹⁷ of expansion by industry as below:

(Percent Distribution)

Annual percent growth rate	Textiles	Crafts	Wood-works	Construction	Repairs and Services	Food processing	Tailoring	Electric and printing	All establishments
Contracted	2	6	7	16	5	9	4	6	5
None	82	60	45	50	59	37	56	31	54
Less than 10	2	11	17	9	7	6	8	12	9
10—19	5	8	14	13	8	15	9	11	10
20—39	2	9	5	6	9	12	13	22	11
40 or more	7	6	12	6	12	21	10	18	11
Total	100	100	100	100	100	100	100	100	100

Among the expanding firms, almost half grew at under 20 percent a year;¹⁸ this remains true for most industrial groups except food processing, tailoring, and electric and printing, where a higher proportion grew at rates over 20 percent. Most of the larger growth rates are for young single proprietor-worker firms which added several workers in relatively very few years. On the whole, the more modern industry groups recorded higher growth rates among the expanding establishments than did the more traditional ones. Table 6 provides the relevant information for isolating the features of the enterprises and entrepreneurs which might explain their expansion. Since most firms were originally single proprietor-worker establishments only this group is considered.

¹⁵This worker would be either an apprentice or an employee.

¹⁶Also this implies that some of the entrepreneurs who had stated that they lacked the capital to expand, had actually expanded in the recent past.

¹⁷The formula used for calculating annual percent growth rate is:

$$r = \frac{\log(\text{number of workers now}) - \log(\text{number of workers when estab.})}{\text{age of establishment (year)}}$$

¹⁸A 20 percent growth rate implies that an establishment with five workers adds one in less than a year or that a single proprietor-worker firms will be doubling its size every three and a half years.

Table 6

Percentage of Expanding Single Proprietor Establishments by Selected Characteristics of Establishments and Entrepreneurs and Type of Industries: Western Nigeria, 1971

Characteristics	Textiles	Crafts	Wood-works	Construc-tion	Repairs and Services	Food pro-cessing	Tailoring	Electric and printing	All establish-ments
Expanding Establishment as a percentage of total establishments	10	35	48	40	36	46	41	71	41
A. Size of locality									
Less than 20,000	0	36	44	0	30	50	37	100	37
20,000-99,999	10	24	45	37	40	40	35	62	35
100,000-499,999	12	42	49	46	38	45	46	76	43
500,000 or more	0	40	54	0	48	67	44	75	47
B. Age of establishment (in years)									
Less than 2	0	33	50	50	43	71	22	46	31
2-3	17	36	35	20	22	33	45	62	41
4-10	20	41	51	44	43	62	50	81	48
10 or more	0	29	56	44	22	0	43	100	38
C. Electricity									
Establishments with electricity	0	52	74	43	26	45	53	81	53
Establishments without electricity	10	29	43	45	39	56	35	56	36

—Continued.

Table 6—Continued

Characteristics	Textiles	Crafts	Wood-works	Construc-tion	Repairs and Services	Food pro-cessing	Tailoring	Electric and printing	All establish-ments
D. <i>Machinery</i>									
Establishments with machinery	10	37	67	41	39	46	41	75	43
Establishments without machinery	7	32	43	40	36	0	39	62	36
E. <i>Cash Value of sales (Naira)</i>									
Less than 100.	0	13	33	0	14	0	26	67	23
100-199	22	24	29	29	19	37	34	43	30
200-299	0	39	53	60	46	100	42	72	43
300-399	0	50	38	40	36	0	55	91	50
400-599	33	41	100	67	50	67	56	86	57
600 or more	50	44	70	50	58	75	64	73	64
F. <i>Age of entrepreneur (years)</i>									
Less than 20	0	0	20	100	27	0	23	33	23
20-29	17	40	48	19	35	56	38	66	40
30-39	8	36	48	33	48	50	45	50	47
40 or more	6	28	6	50	19	20	46	75	38
G. <i>Education status of entrepreneur</i>									
No Education	3	32	39	58	38	36	37	60	35
Primary	0	39	47	14	34	70	43	73	43
Modern or higher	50	29	67	50	45	0	43	68	47

The size of the town or location of establishment seems to have little impact on its expansion, except for textiles and construction where expansion took place only in medium-sized cities. Overall, there is a slight increase in the percentage expansion with the increasing size of locality but expansion in all locations was uniformly quite large. This is an important finding in the sense that the size of town, being a proxy for external economies, is not a crucial factor for the expansion of small-scale enterprises, and so these enterprises have considerable scope for growth in even small and moderate-size towns which large-scale enterprises may not have.

There is no definite relationship between the age of an establishment and its expansion except that enterprises less than 2 years old do have, on the whole, lower expansion; but except in textiles and tailoring, the percentage of those expanding is still substantial. In most groups, establishments with electricity and/or machinery recorded slightly higher expansion percentages than those without, and these differences are especially large for the woodworks and electric and printing industries. Nonetheless, and somewhat surprisingly, establishments without electricity and/or machinery did show significant expansion, and so are viable and important sources of employment generation, being the users of the most labour intensive technology.

As expected, there is a direct and consistent relationship, overall and by industry, between the cash value of sales and the percentage of enterprises expanding. But the meaning of this is not clear if a comparison is made across industries. For example, some establishments with low value of sales, such as firms in electric and printing with sales less than Naira 100, had a larger Percentage expansion than firms with comparatively much larger sales in other industry groups such as repairs and services. Given that seventenths of electric and printing enterprises have expanded in size, the ones with small sales have a share of this rapidly expanding industry. With the original size of this industry being small, the rapid process of modernization and electrification in the state will generate an accelerated demand for these products and small-scale enterprises will have good scope to fill in the market rapidly. However, proportionately the largest expansion is observed for the sales categories of Naira 400 and more.

Expansion as related to the age of the entrepreneur forms an inverted U-shaped pattern with the highest expansion percentage recorded in the middle ages of 30-39 years. This is true for most groups except electric and printing where expansion increases with age. The education status of the entrepreneur appears to contribute a little to the expansion of firm. Except for crafts and construction a slightly positive relationship is obvious. However, even those with no education show substantial expansion.¹⁹

The above findings lead to the conclusion that while size of town, electricity and/or machinery, sales and education are to some extent contributing factors to the expansion of the firm, the lack of them is by no means equivalent to no expansion. Except for the two extreme cases of the least modern group of textiles (which showed the least expansion) and the most modern group of electric and printing (which experienced the largest expansion) expansion does not appear to be related to the relative modernity of the industrial groups,

¹⁹Harris, Kilby and Aluko have shown that there is no significant relationship between formal education and success in business. Harris (1971), Kilby (1965), and Aluko (1966).

all of which showed more or less the same degree of expansion. Overall, the quite significant expansion of the small-scale industrial sector appears to be a response to the general rapidly improving economic conditions in the state.²⁰

III. Generation of New Entrepreneurs

The apprenticeship system, as mentioned before, is the primary source of new entrepreneurs or establishments in the small-scale industrial sector. Almost all surveyed entrepreneurs started their career as apprentices (See Table 8). In this section an attempt is made to calculate the supply of potential new entrepreneurs from the existing apprenticeship system.

In analyzing the employment structure of the small-scale industries. It was noted that over half of the sample establishments were single proprietor-workers. Among the remaining, the proportion of workers who are apprentices is very high. Apprentices are defined as workers who are learning the trade and are usually not paid any wages. In the present case, many of them even pay a fee to the entrepreneur.²¹ Apprentices usually put in at least as many hours of work as the entrepreneur or the employee (who is a wage-earner).²² The proportion of apprentice/employ by industry is shown below:

Only the food processing industry shows a substantial proportion of employees. In all others, well over 80 percent of the workers are apprentices. Among the 664 sample establishments which reported having apprentices, the average number of apprentices are about three. This, coupled with the fact that 98 percent of the entrepreneurs also started their career as apprentices, shows that the potential entrepreneurial class being generated in the present system may be quite large. Before calculating the potential employment generation effect of these apprentices, it is important to identify the distinguishing characteristics of enterprises which engage apprentices.

Table 7 shows that for all industrial groups the firms with apprentices uniformly and significantly tend to be the ones using machinery and electricity. This is to be expected. The use of a comparatively more capital intensive technology (and presumably a more advanced one) makes the enterprise a more attractive training place as potential entrepreneurs would like to have an understanding of the more advanced methods of production. Even if persons want to join wage employment in the factory system they stand a better chance if they are trained in the methods of production closest to the corresponding ones in large-scale enterprises.

Given the positive relationship between size of work force and production, the more successful enterprises in an industry in terms of sales receipts are the ones hiring apprentices. Overall, a little less than twice as many of the establishments with apprentices report cash sales of Naira 300 or more as compared with the ones without apprentices.

²⁰Results based on annual expansion rates are very similar to the above.

²¹Average fee per year was around Naira 8 with 24 percent not being charged any fee and 20 percent paying Naira 14 or more.

²²There is no government regulations on apprenticeship training in Nigeria, or regulations on the employment of apprentices. See Adepoju (1975:2).

Characteristics	Establishments with apprentices						
	Textiles	Crafts	Wood-works	Constru-ction	Repairs and Services	Food pro-cessing	Tailoring Electric and printing All establish-ments
A. Percent with machinery	67	38	42	69	46	100	95 77 74
B. Percent with electricity	11	35	32	23	25	53	45 75 42
C. Percent Distribution of Cash value of sales							
Less than N 100	—	4	5	—	8	—	9 6 7
N100-N299	25	48	28	33	37	50	47 17 40
N300-N599	37	34	23	42	39	3	32 44 33
N600 or more	37	14	44	25	16	42	12 33 20
Total	100	100	100	100	100	100	100 100 100
D. Percent Distribution of Age of entrepreneurs							
Less than 30 years	44	33	34	31	49	20	56 52 48
30-39 years	22	37	44	23	37	60	29 25 33
40 or more years	22	24	18	38	10	13	12 15 15
Unknown	11	6	3	8	3	7	3 8 4
Total	100	100	100	100	100	100	100 100 100
E. Percent Distribution of Education status of entrepreneur							
No education	33	49	37	46	42	47	29 8 33
Primary	11	38	40	15	44	40	50 43 45
Modern or higher	33	6	13	23	11	7	15 43 16
Unknown	22	7	10	15	2	7	5 5 6
Total	100	100	100	100	100	100	100 100 100

Note: N = Naira

— Continued

Table 7—Continued.

Characteristics	Establishments without apprentices						
	Textiles	Crafts	Wood-works	Constru-ction	Repairs and Services	Food pro-cessing	Electric and printing
A. Percent with machinery	24	34	23	54	40	100	94
B. Percent with electricity	8	19	11	25	26	43	28
C. Percent Distribution of Cash value of sales							
Less than Naira 100	17	16	12	6	22	—	19
Naira 100-Naira 299	52	54	57	50	44	50	56
Naira 300-Naira 599	27	24	16	38	28	21	19
Naira 600 or more	3	6	15	6	6	29	5
Total	100	100	100	100	100	100	100
D. Percent Distribution of Age of entrepreneurs							
Less than 30 years	16	31	42	66	56	33	67
30-39 years	29	32	44	8	23	38	19
40 or more years	42	34	10	13	19	28	12
Unknown	13	3	4	18	3	—	3
Total	100	100	100	100	100	100	100
E. Percent Distribution of Education status of entrepreneur							
No education	84	56	45	33	38	33	35
Primary	8	30	38	33	42	48	49
Modern or higher	3	8	9	12	12	5	13
Unknown	5	6	7	21	8	14	3
Total	100	100	100	100	100	100	100

Characteristics of entrepreneurs, for example migration status and age, do not show very significant relationships with having apprentices except that younger entrepreneurs as well as younger establishments tend to be without apprentices. Similarly the educational status of entrepreneurs does not appear to be a very significant factor, but overall there exists a positive relationship between education and having apprentices. It is interesting to note that among the three more traditional industries of textiles, crafts, and woodworks, there is a strong relationship between the education of entrepreneur and having apprentices. This coincides for the textiles and crafts industries with the entrepreneurs having apprentices being relatively of younger ages. This means that the younger cohort of entrepreneurs with higher education (and presumably better training) may be largely responsible for the introduction of larger and perhaps relatively more modern enterprises in these otherwise traditional industrial groups.

In trying to estimate the growth of the entrepreneurial class by industry, it is necessary, due to data limitations, to make some rather strong and not quite tenable assumptions. The results obtained should, therefore, be interpreted only as indicative of trends and differentials between industry groups and as the upper limits on growth. Since only historical data on one cohort of entrepreneurs-employees-apprentices are available it is assumed that the average establishment work force composition for each industry will remain the same in the future; that the average length of apprenticeship will remain the same; and that the proportion of employees and entrepreneurs who were apprentice will remain the same. In the initial calculations it is also assumed, in order to generate an upper limit on growth, that all the current apprentices become either employees or entrepreneurs within their own industry. As will be discussed further below, this is an unlikely situation, though, as shown before, there is virtually no inter-industry mobility among small-scale industry groups.

Table 8 shows calculations for potential new entrepreneurs generated per establishment per year. Lines 1-7 in the table simply report information from the survey. It is assumed, in the light of line 7, that every entrepreneur was an apprentice. In line 8 is calculated the average number of employees per establishment who were apprentices. Given this information, the probability that an apprentice becomes an entrepreneur is then calculated in line 9. Line 10 gives the number of potential entrepreneurs generated per establishment per year, which is calculated by multiplying the average number of apprentices per establishment by the probability of being an entrepreneur and dividing the result by the average length of apprenticeship. This line then, gives the upper limit on the additions to the entrepreneurial class.

The results show considerable differences by industry. These are not related to the modernity of the group but to its type of apprenticeship structure. Textiles has the highest rate of almost two-thirds of an entrepreneur per firm. This result can be interpreted in light of line 4 and 5. The apprentices in textiles are concentrated in a few establishments (as shown above these tend to be the establishments run by younger, more educated entrepreneurs) and the length of training is the shortest for any group. Also there is currently no use of graduated apprentices as employees—all tend to set up their own establishments. The second highest rate is for electric and printing, which has

Table 8
Calculations of Generation of New Entrepreneurs by Industry: Western Nigeria

	Textile	Crafts	Wood-works	Construc-tion	Repairs and Services	Food pro-cessing	Tailoring	Electric and printing	All establish-ments
1. Average number of workers (excluding entrepreneur) (= lines 2+3)	1.7	1.2	2.2	1.6	1.6	3.4	1.3	3.6	1.6
2. Average number of employees	0.1	0.5	0.3	0.4	—	2.3	—	1.2	0.2
3. Average number of apprentices	1.6	0.7	1.9	1.2	1.6	1.1	1.3	2.4	1.4
4. Average number of apprentices in firms with apprentices	9.2	2.2	4.0	3.4	3.5	2.5	3.1	4.0	3.3
5. Average length of apprenticeship (years)	2.5	4.0	4.2	5.8	3.9	2.6	2.9	3.7	3.9
6. Percent employees who were apprentices	—	44	70	100	62	78	69	16	50
7. Percent entrepreneurs who were apprentices (Line 2 × Line 6)/100	100	100	97	100	99	100	100	93	98
8. Average number of employees who were apprentices	—	0.22	0.21	0.40	—	1.79	—	0.19	0.10
9. $(1/1 + \text{Line 8}) \times 100$ Percent apprentices who may become entrepreneurs (Line 3 × Line 9)/Line 5 × 100 Potential new entrepreneurs per firm per year	100	82	93	71	100	36	100	84	91
10. Average awaiting period between apprenticeship and entrepreneurship (years)	0.64	0.16	0.38	0.15	0.41	0.15	0.45	0.55	0.33
11. Average awaiting period between apprenticeship and entrepreneurship (years)	5.9	8.0	4.4	5.1	7.0	100.2	4.9	6.4	5.7

the highest average of apprentices per firm and where the apprentices are more evenly spread over firm. In both tailoring and repairs and services there are no employees. Therefore, the rates are a simple function of the average number of apprentices and the length of training. Crafts and constructions have few apprentices per firm, long training periods and some probability of an apprentice becoming employee, thus making the generation of new entrepreneurs quite low. Food processing is the only group where the average number of employees per establishment is larger than the average number of apprentices. Also a high proportion of the employees were previously apprentices. Therefore, the probability of an apprentice becoming an entrepreneur is very low, and the generation rate is also low.

The implications of these rates, especially for textiles, electric and printing, repairs and services, and woodworks, are a tremendous increase in the number of small-scale industries, from 0.64 to 0.38 new establishments for each existing establishment per year.²³ There are, however, several factors which might modify these rates downward. It is known that a graduating apprentice does not set up his own establishment immediately; that there is a waiting period between apprenticeship and entrepreneurship, the length of which is a function of customs, the amount of initial investment needed, the economic conditions in his locality, *etc.* Line 11 in Table 8 shows an approximation to the average waiting time by industry (calculated as the average age of an entrepreneur when he started business minus the average age of an apprentice).²⁴ The time varies from 4 to 10 years, with food processing having the longest²⁵ and construction and tailoring the shortest. During this waiting period there is likely to be substantial dropout among the graduated apprentices, some to large-scale firms as employees (this is likely to grow as the large-scale sector expands), some to other occupations, and some to be employees in other small scale establishments. The longer the waiting period, the higher the expected dropout rate.²⁶

These factors could reduce the rates reported in line 10, though they would not likely alter the ranking very much or the overall conclusion that the apprenticeship system will lead to a significant generation of new entrepreneurs and hence, that the small-scale industries sector can be a significant contributor to employment generation.

IV. Conclusion

This study has shown that small-scale enterprises in Western Nigeria are mainly run by single proprietors with low capital investment, using simple mechanical equipment, and that they are concentrated in medium-sized towns. The entrepreneurs (and their establishments) tend to be young with little formal education but with on-the-job training as apprentices. Usually they either work alone or have apprentices work with them; very few have employees.

²³These rates do not account for the fact that when an entrepreneur dies, his enterprise usually folds up.

²⁴The survey did not ask how long the apprentice had been in training, just his total training time.

²⁵This may partly be explained by two factors—first the large amount of initial investment required in this industry and second, the large use of graduated apprentices as employees.

²⁶Lack of data prevents estimation of any of these dropouts effects or the overall effect of waiting time on the generation rates.

The growth of these establishments seem to have derived from the generally favourable economic climate in the state (and the country) rather than from any particular factors such as location, size of sales, education attainment level of the entrepreneur, electrification, etc. However, these certainly are contributing factors. While the growth in terms of expanding the number of workers has been significant (41 percent of the establishments in our sample expanded while only 4 percent contracted), most entrepreneurs (89 percent) expressed a desire to expand and gave lack of capital funding as their reason for not doing so. This implies that there is a potential for further employment generation within the existing establishments. The capital bottleneck is more of an educational and operational one than a lack of funds.

The study also showed a large potential growth in the entrepreneurial class, which is primarily a product of the apprenticeship system. Since apprentices are generally more attracted to the more modern establishments (i.e., users of electricity and machinery and so likely users of the more advanced technology within each industry, and since graduating apprentices are likely to become either employees or entrepreneurs within their own industry, the small-scale industrial sector is not only a significant contributor to employment generation through creation of new establishments but is also likely to upgrade itself over time.

So small-scale industries add to employment in the state both through increased number of workers per establishment and through increased number of establishments and the latter is self-generating through a fairly developed apprenticeship system. It is also clear that there is potential for growth in both areas as long as the state's economy continues to grow. Labour supply to the sector was nowhere seem to be a constraint to growth (primarily because of the low education requirements for both apprentices and employees). Therefore, it is possible to predict a continuing and improving contribution of this sector to the economy, especially with the development of better credit arrangements.

The study revealed some gaps in knowledge about the impact of this sector on employment generation. Further research should endeavour to get panel data with complete work and training histories for entrepreneurs and employees, and to explore the connections between apprentices in small-scale establishments and the large-scale industries which absorb them. This should make it possible to get adequate measures of apprentice dropout from entrepreneurship and growth of the employees status within industries.

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