COMMUNITY DEVELOPMENT IN AFRICA THROUGH INDIGENOUS AGRO ALLIED INDUSTRIES; A RECOURSE TO BOTTOM-UP STRATEGY?

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Abstract

This study examined the spread and multiplier effects of six indigenous vegetable oil industries (VOIs) located in Ibadan Region, Nigeria. Reconnaissance survey revealed that they employed 870 workers, depended on palm kernel (PK) (mostly produced in the rural areas of the region) as major input of production. Three sets of questionnaires were administered on the employees (20%), managements and 60 suppliers of PK. The study revealed that most of the workers and raw material input were drawn from Ibadan region and its peripheries respectively. Economic benefits of these were enjoyed by communities within the same region, with figures of -0.6 and -0.5 as relationships between number of staff recruited from their homes of origin and amount of money remitted by them annually. The study posits that industries that draw inputs of production from communities located within their regions of existence; spreading effects to the hinterlands are engines of economic development.

Key words: Agro-allied, Industry, Community, Development, Region, Bottom-up, Top-down,

1. INTRODUCTION

Attempts by scholars (Perroux, 1950; Myrdal and Hirmansen, 1957, Boudeville,1966 and Darwent,1969 and Hirmansen, 1972) to explain the relevance of industries in economic growth and development have given birth to different strategies and theories of industrial and regional development. Two approaches can be used to explain this. These are the "top down" and "bottom-up" approaches. The latter achieves development from the grass roots by dispersing possible resource allocations to the hinterlands rather than concentrating them in the centre (Chuta Enyinna in http://www.fao.org/docrep/s8380/s8380e08.htm, Irogbe, 2005). It is believed that with the presence of the infrastructures especially at the grass roots, development could be enhanced. For instance, infrastructure like potable water, electricity and good roads could stimulate the location of industries. This could eventually stir and spread economic development simultaneously within regions (Fong and Wendy, 2000).

Inadequate fund and poor technology that hamper sustainability of social facilities and infrastructures have forced policy makers in developing nations to concentrate resources in cities (Olayiwola, 1990, Nambi, 2000). They all argued that industry as economic investment in the core can quickly trickle down development to the hinterlands. The top-down approach therefore asserts that when industries are located in growth centres of regions, the initial economic developments generated spread gradually but consistently outside the core till the whole region is transformed (Lazonick,2005). This however does not occur until raw materials, capital and labour are backwashed from the peripheries and concentrated at the core (Perroux, 1950). It is almost taken symmetrical where raw-materials from agricultural products and labour force in the rural areas of a region are tapped as input of production in urban-located agro-allied industries in the core. The positive effects of this are usually felt on the economies of both the rural and urban areas of the region (Famisa, 1989).

Ibadan region is located in tropical rain forest belt of Africa with high proportion of its population found in the hinterlands. The primary occupation of the people, particularly in the sub-urban and rural areas is agriculture (Ikporuko, 1993). It is worthy endeavour to investigate the relationships existing between the agro-allied industries that exist in the city and the rural based resources that serve as inputs to these industries. Agro-allied Industries as used in this study refer to those firms that depend on natural resources from agricultural products as inputs of production. This study is therefore aimed at examining such linkages and the attached benefits; if any. It is on this premise that this study examines the impact of existing urban-based vegetable oil industries (VOIs) in Ibadan with concentration on employment generation and its spread and multiplier effects in the region

2. THEORETICAL FRAMEWORK

The notion of impact of regional industry at the pole on background rural regions is rooted in the growth centre model of Francis Perroux (1950). This theory therefore acts as the framework for this study.

The growth pole theory owns its origin to a French economist - Francis Perroux (1950) whose works were later modified by Myrdal and Hirmansen (1957), Boudeville (1966) and Darwent (1969). It stipulates that an industry or lead firm must be located in the prosperous centre to serve as live wire of all economic activities in a region (Lazonick, 2005). This is because once a lead firm is located in the prosperous centre called pole, it will exert its influence on the activities of both the input supply firms and those that rely on its output. This in the long run will generate significant economic impulses to its environment, which may be either negative or positive in its effects within its zone of influence (Olajuyin and Ajala, 1996). This perhaps could be why the concepts of centripetal and centrifugal forces are said to affect city growth (Corporate Decision Project, 2003). Centripetal forces here are opportunities existing in the prosperous part of a region that attract development from peripheries to the core. Such could be infrastructure, social ammenities, available market, employment, and agglomeration economy among others. Centrifugal forces are the unsatisfactory conditions existing in the countryside, dispersing material or immaterial wealth into its space. Significant in the operation of these forces is that resources are polarized to the centre for production and economic benefits are dispersed from the core to the hinterlands (www.boi-ng.com/research term papers). In other words, top down approach posits that urban-based firm feed on the inputs of production that are located in the rural areas of that region and by this producing spread and backwash effects within the region and if possible, beyond it (Abegunde, 2003).

The term 'spread effects' refers to the filtering down of economic opportunities (produced and increasing in the centre) to the hinterlands. Salvatore (1972) sees it as any impact traceable to the more developed part of a region that increases (or moderates a fall in) the average real per capita income of the entire region. In other words, they are new and continuous observable developments stimulated by economic activities in the regional centre, which were never noticeable until the industrial establishment in the growth centre took effect (Stehlik and Dwyer, 2004). The main channel of spread effects transmission are the recruitment and movement of labour, the purchase by industrial enterprises of material services, industrial linkage and the spatial flow of expenditures of personal income generated by urban industrial centres.

'Backwash effects', which is also called polarization is viewed as the negative impact of growth centre on the backward rural areas. The purpose of setting up a propulsive industry is to feed on the raw-materials, labour force and capital of the immediate surrounding as its inputs of growth, expansion and dispersal of economic benefits (Abegunde 2003). The unfavourable negative effects in the countryside contribute significantly to the polarization of resources to regional centres. Such include unemployment, wastage of resources due to underutilization, lack of infrastructures, poor innovation and low level of technology among others (Imevbore, 2002). These however are being reciprocated by remittance from polarized workers and substantial payment on raw materials purchased by propulsive industry, construction of road net works to sources of inputs and incentives to the rural farmers to aid input for production among others. The import of this is that both rural and urban areas contribute to and benefit from each other to attain regional economic growth and development.

3. INDUSTRIAL STATUS OF IBADAN REGION

Ibadan as its name implies is located at the fringe of the forest zone near savannah, in the hub of the South Western Region of Nigeria. It was established as a War Refuge Camp in 1829, the settlement had a phenomenal growth, which earned it the qualification as the present largest indigenous homogenous city in Tropical Africa (Mabogunje, 1972; Ikporukpo, 1993). Ibadan as a region covers a total of 3,123.30 square kilometres out of which the urbanized zone which is made up of five (5) urban Local Governments of Ibadan North, Ibadan North East, Ibadan North-West, Ibadan South-East and Ibadan South-West covers about 463.33 square kilometres. Other six (6) Sub-urban Local Governments of the region are Akinyele, Egbeda, Ido, Lagelu, Oluyole and Ona-Ara. According to the 1991 census, Ibadan region has a population of 1,829,187 although the estimated population by the year 2000 is over 3 million (Ayorinde, 2002). Its location near the forest grassland boundary and its proximity to costal city-Lagos, the former federal capital of Nigeria gave the region an age long history of its involvement in commerce and trade between northern Nigeria and other cities in the South and Western Nigeria. However, establishment of manufacturing and processing industries on an intensive and sustained scale in the area is a recent phenomenon. An industrial directory published by the Ministry of Commerce and Industry, Federal Government of Nigeria in 1963 stated that there were 47 large-scale industries in Ibadan, and that 21.3 per cent of those industrial employers have less than 25 workers in each of their establishments. By 1973, the number of major industrial units rose to about 86.(Vagale, 1974) The location and spatial distribution of major industrial concerns in Ibadan do not follow any organized pattern.

However, due to historical reasons, the earliest industrial establishments were located in the older sections of the city, particularly Bere, Ade-Oyo, Dugbe and other areas. Subsequent major industrial units came up in Onireke, Apata-Ganga, Oke-Bola, Oke-Ade, Eleiyele, Challenge and other newly developed areas. (Oyo State Government Journal 1981). In more recent times, industries sprang up along highways connecting Ibadan with other cities like Lagos, Abeokuta, Ife, Iwo and Oyo. Specifically, they are concentrated in Oluyole, Lagelu, Oke'badan industrial Estates and Mechanic Resettlement Scheme, located along Old Lagos road. Ibadan region is littered with many agro-allied firms. The study is restricted to the existing six vegetable oil industries (VOIs) located in the urbanized area of the region as at the time of this study. They are Best Oils, F-high, Sudit, Premier Agro, Jokay and Century Edible vegetable oil industries. Due to the spatial coverage of sources of input of production in the surveyed industries, the scope of the study was grouped into four zones. The first zone included the 11 local government areas that form Ibadan region. Other settlements within Oyo State formed the second zone. While settlements located elsewhere in western region were grouped as the third zone. The fourth zone covered settlements where industries of study drawn inputs but were located outside western region of Nigeria.

4. RESEARCH METHODOLOGY

Data used for this study were obtained through field survey. The primary source of the data was through the preparation and administration of three sets of questionnaires. The first set of questionnaire was administered to managements of the six VOIs in Ibadan. Data collected from them were on sources of inputs of production, staff strength and monthly volume of raw materials used for production. The second set of questionnaires was administered on customers that sell palm kernel (P.K) to these VOLs. Reconnaissance survey revealed that there were 60 suppliers of P.K that registered with these companies. They were all interviewed. The third set of questionnaires was administered on 174 sampled employees that were randomly selected by first picking the first employee using ballot paper. The rest were selected by choosing the next fifth respondent in order of date of employment in the staff list. This represented 20% of the total 870 staff of the six firms. See Table 1.

4.1. Analytical Technique

Two main analytical techniques were used in this study. These are frequency table and correlation matrix. Correlation and regression models were used in the study to establish relationship existing between origin of staff and number of labour force remitted by distance to Ibadan city where the vegetable oil industries were located. This was done by applying simple regression model of Y=a+bx and correlation coefficient r =

$$\frac{\sum (x - \bar{x})(y - \bar{y})}{\sqrt{\sum (x - \bar{x})^2 (y - \bar{y})^2}}$$

Here, 'Y' is the number of employees, 'X' is the distance, 'a' is the intercept and 'b' is the slope.

'r' as the co-efficient of correlation $\sum (x - \bar{x})(y - \bar{y})$ is the covariance of x and y variables. (Andu, 1992).

Spearman's rank correlation which has the symbol 'P' or 'rho' with formular

$P = 1 - \dfrac{6\sum d^2}{N(N^2 - 1)}$ was used to determine the degree of association existing between recruited staff from different

distances to the surveyed vegetable oil industries(VOIs) and amount of money the staff remitted to their homes of origin

5. FINDINGS AND DISCUSSIONS

5.1. Socio-economic Characteristics of Employees in Vegetable Oil Industries in Ibadan.

Table 2 reveals that there were 870 employees engaged in PK Oil production in the surveyed industries. The table further revealed that most (98%) of the total sampled workers were male. This agrees with the study of Ajala (1998) indicating that male workers are more needed at production in agro-allied firms than their female counterparts. It was also revealed that workers below 40 years of age accounted for 92.0% of the total employees. In addition, 2 staff or 1.2% of the total workers were divorcee. Only 22.4% of the sampled workers were married. In the corollary, 76.4% of the sampled staff were single. The import of this is that vegetable oil industries in Ibadan gave preference to young and unmarried men in their employment. It could be deduced from this finding that such workers would hold little family responsibilities and by this have more time for their employers in their respective places of employment.

The survey on 174 sampled employees of these industries revealed that the ratio of administrative staff to operative is 1:5.2 as shown in Table 3. In the corollary, unskilled and semi-skilled workers accounted for 67% of the sampled workers as in Table 3. Only 33% of the total were skilled workers. This is so because operational efficiency of an industrial establishment depends upon the nature of employment. The low number of administrative workers also reduces the cost of infrastructures like office space, utilities and cuts cost of production. Information during reconnaissance survey placed the employees' monthly minimum wage at N6, 000. Table 4 indicated that workers in income group N6, 000 to N12,000 and N18,001 to N24,000 were 54 staff or 31.03% of the total respectively. These groups had estimated group total monthly income of N279, 270 and N651, 630 respectively. Sampled workers earning between N12, 001 and N18, 000 were 30 staff (17.24%) of the total with an estimated group monthly income of N258,600. Those earning above N24, 000 per month were 36 workers or 20.70% of the total with estimated group monthly income of N558, 900. The 174 sampled staff received a total of N1, 748,400 monthly. By inference, about 21 million naira was being injected annually into the economy of Ibadan region through the payment of salary of the sampled workers of the six VOIs. The import of this is that as the employees spend their income in the region, money expended improves Ibadan regional economy and further generates multiplier effect to surrounding hinterlands.

5.2. Origin of Workers in Vegetable Oil Industries, Ibadan

Study revealed that about 70 percent of the sampled employees hailed from Ibadan region and its immediate environment. Spatially, their homes of origin fell within a range of 0-40 kilometres to the surveyed industries (see Table 4). This is so because 65 out of the sampled 174 staff representing 37.40% of the total were drawn from Ibadan region. The rest 56 staff members (32.20%) were from other settlements in Oyo State. (See Table 5). The table also revealed that 45 workers (25.9%) were from other parts of western region of Nigeria. Only 8 workers (4.50%) hailed from outside western region of Nigeria. The correlation co-efficient of the relationship and degree of association existing between origin and number of staff recruited by distance to Ibadan city where the six vegetable oil industries were located gave a figure of -0.06. The inverse relationship asserts that distance significantly and negatively affected labour recruitment in the VOIs. It follows that as distance increases from Ibadan city centre, the number of employees in VOIs reduces and vice-versa. See Table 6.

5.3. Employees Expenditures in Vegetable Oil Industries, Ibadan

Study revealed that all sampled workers in VOIs procured their foodstuffs in Ibadan region. Their expenditure on feeding per month amounted to N428, 299.50k (24.5% of the total income). Food is the most essential of the basic necessities of life. Money spent on food by these employees is injected into the region's economy as spread effect from industries under study. See Table 4.The table also showed that 18.3% (N320, 726.61k) of the sampled workers monthly salary was expended on housing. This is so because none of the sampled workers indicated to have had personal house. In other words, these 174 workers usually paid about 3.85 million naira to landlords in Ibadan city annually as rent. Study further showed that most (150 staff or 86%) of the sampled respondents commuted to their respective places of work every weekday through public transportation. Only 24 staff or 14% of the total indicated that they relied on either private or company's vehicles as means of mobility to and from work. Those workers who depended on public transport indicated to be spending about N235, 233 representing 13.5% of their monthly income on mobility to and from work. The significant of these is that commercial drivers, market men and women and landlords in Ibadan city directly enjoyed spread effects from the VOIs in Ibadan. The multiplier effects of this could be felt by other people in the region and its hinterlands as foodstuff sellers travel to procure more foodstuffs, landlords expend on families' needs and the commercial drivers repair vehicles among others.

5.4. Employees Remittance to Homes of Origin in Ibadan Region.

Remittance of money by employees in growth centre to their homes of origin is a significant way of measuring the trickle-down effect of a lead firm. Study revealed that about N239, 620 representing 13.7% of the workers monthly income or 2.8 million naira of their annual income were being remitted to workers homes of origin. The relationship existing between amounts remitted by sampled staff were tested against respective distances from employees' origin to the locations of these industries. This gave a figure of -0.5, showing inverse relationship between the two variables. By inference, as distance increases from these VOIs, amount of money remitted by sampled employees decreases significantly. The import of this is that the spread and trickle down effects of VOIs in Ibadan through remittance of part of the income to workers' homes of origin are best enjoyed within Ibadan region than outside regions.

As would be expected, money spent by these employees to develop homes are expected to aid relatives, and contribute to the general physical development of Ibadan region and its immediate environment.

5.5. Indirect Employment and its Multiplier Effects in Ibadan

The first indirect employment considered under this study was on the procurement of palm kernel (PK) that served as major input of production to these industries. Table 7 revealed that more than half (50.9%) of suppliers of palm kernel input to these industries got their raw materials from Ibadan region. Specific sources were Moniya, Idi-Ayunre, Orisunbare, Iyana-offa, Egbeda, Eruwa and Onigambari. Additional 6.6% of the total came from elsewhere in Oyo State. The rest 35.7% were from outside Oyo state. A total annual 62,500 tons of PK were indicated to be supplied to these VOIs. Reconnaissance survey as at the time of this study revealed that a ton of P.K was bought from sources of input at N18, 000. In other words, an estimated amount of 723,300,000 naira was dispersed to and enjoyed by rural areas of Ibadan region and its immediate surrounding as proceeds on PK from the surveyed VOIs. In the same vein, over 60% of the sampled market women that sold foodstuffs to workers in these VOIs indicated to be procuring their foodstuffs in Ibadan main city and its surrounding villages. The rest 38% indicated that they travel out of Ibadan region to purchase their foodstuffs. The import of this is that both Ibadan region centre and its surrounding villages enjoy the multiplier and trickle down effects of the location of these VOIs in Ibadan. In the corollary, agro allied industries in region centres that draw their inputs of production within the region are significant measures against both rural and urban unemployment, poverty and economic regression.

6. CONCLUSION AND PLANNING IMPLICATIONS

The study revealed that agro-allied industries in region centres are capable of bridging regional dualism. This is because the surveyed six VOIs in Ibadan drew over 63% of their sampled labour force from Ibadan region and its immediate hinterlands. It follows that expenditures of staff on housing, remittance, mobility to and from work and feeding which gave a sum estimated amount of 15 million naira per annum were spent within the region as spread effects from these VOIs. This implies that under proper planning, leakages of economic benefits from industrial production in a region can be controlled. In addition, the study has proved that economic returns from agro-allied firms in the core would be enjoyed at regional centres as spread effects and at hinterlands as trickle down and multiplier effects. This is because all the interviewed suppliers of palm kernel to these industries and the market women on foodstuffs indicated to be purchasing most of their materials from the rural areas of Ibadan region. In other words, this study postulates that agro-allied industries in region centres that draw their labour force and major raw materials within their regions of existence could act as vehicles of economic development against regional unemployment and disequilibrium. For effective policy on regional economy, both federal and state governments should create conducive economic atmosphere for inward looking firms in terms of monetary policies, importation of machinery, tax reduction, and foreign capital among others.

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Table 1: Number of Workers in the Six VOIs, Ibadan

Name of Industries	Staff Strength	Percentage	Sampled Employees	Percentage
Best Oils	310	36.0	62	20
Sudit	200	23.0	40	20
F-High	120	13.5	24	20
Premier Agro	90	10.0	18	20
Edible Oils	50	06.0	10	20
Jokay	100	11.5	20	20
Total	870	100	174	

Table 2: Socio-economic Characteristics of Employees in VOIs, Ibadan

Sex	Freq.	%	Marital Status	Freq.	%	Age Group	Frequency	%	Level of Skill	Frequency	%
Male	171	98.3	Married	39	22.4	Below 20yrs	07	04.0	Unskilled	71	40.6
Female	03	1.7	Single	133	76.4	20-39yrs	153	88.0	Semi-skilled	46	26.4
			Divorced	02	1.2	Above 39yrs	14	08.0	Skilled	57	33.0
Total	174	100		174			174	100		174	100

Table 3: Categories of Workers in VOIs, Ibadan

Category of Work	Number of Workers	Percentage Sampled	Number of Workers Sampled	Percentage Sampled
Administration	35	4.0	7	20
Technical	130	15.0	26	20
Production	200	23.0	40	20
Marketing	125	14,3	25	20
Unskilled	380	43.7	76	20
Total	870	100	174	

Table 4: Average Monthly Income of Employees in VOIs, Ibadan

Income Range (N)	No of Employees	Percentage	Group Monthly Income (N)	%	Average Monthly Income (N)	Estimated group Income spent on Feeding (N)	%	Estimated Group Income spent on Housing (N)	%	Estimated Group Income on Transportation (N)	%	Estimated Group Income on Remittance	%
N6000-12,000	54	31.03	276.270	16.0	9,000	89366.40	32	77637.06	27.8	82,521	17.3	20,600	74
12,001-18,000	30	17.24	258,600	14.8	15,000	69822.00	27	51720.00	20	3760	10.4	39,981	15.5
N18,001-24,000	54	31.03	651,630	37.2	21,000	143358.60	21.1	87970.05	13.5	74592	7.4	70,493	10.8
Above 24,000	36	20.70	558,900	32.0	27,000	125752.50	22.0	163396.50	18.5	45.360	6.0	108,546	19.0
Total	174	100	1748400	100		428,299.50		320723.61		235233		239,620	

Table 5: Origin of Employees in VOIs, Ibadan

Origin	Number of Employees	Percentage
Ibadan Region	65	37.4
Elsewhere in Oyo State	56	32.2
Rest of Western Region of Nigeria	45	25.9
Outside Western Region of Nigeria	08	04.5
Total	174	100%

Table 6: Relationship Existing between Distance and Number of Staff Recruited in VOIs, Ibadan

Distance Range (km)	Average Distance (X)	No. of Staff Employed	Percentage Employed (Y)	X - $\overline{X}$	Y - $\overline{Y}$	(X- $\overline{X}$)2	(Y- $\overline{Y}$)2	(X- $\overline{X}$)(Y- $\overline{Y}$)
0-20	10.0	58	33.3	-100.5	24.2	10100.25	585.64	-2432.1
21-40	30.5	52	29.9	-80	20.8	6400	432.64	-1664
41-60	50.5	10	5.7	-60	-3.4	3600	11.56	204
61-80	70.5	15	8.6	-40	-0.5	1600	0.25	20
81-100	90.5	08	4.6	-20	-4.5	400	20.25	20
101-120	110.5	07	4.1	0	-5.0	0	25.0	0
121-140	130.5	03	1.7	20	-7.4	400	54.76	-148
141-160	150.5	04	2.3	40	-6.8	1600	46.24	-272
161-200	170.5	06	3.4	60	-5.7	3600	32.49	-342
181-200	190.5	04	2.3	80	-6.8	6400	46.24	544
Above 200	210.5	07	4.1	100	-5.0	100.0	25.00	-500
Total	1,215	174	100			44100.25	1280.07	-4500.1

$$\overline{X} = \frac{1,215}{11} = 110.5$$

$$\overline{Y} = \frac{100.0}{11} = 9.1$$

Using the regression model: Y - a + bx
Where

$$b = \frac{\sum(X-\overline{X})(Y-\overline{Y}) - \dfrac{\sum(X-\overline{X})(Y-\overline{Y})}{N}}{\sum(X-\overline{X})^2 - \dfrac{\sum(X-\overline{X})^2}{N}}$$

$$b = \frac{-4500.1 - \dfrac{(-4500.1)}{11}}{44100.25 - \dfrac{(-44100.25)}{11}}$$

b = -0.10

to calculate for a in Y = a + bx

9.1 = a + (-0.10) 110.5

a = 20.15

The regression equation obtained therefore is

Y= 20.15 -0.10x

The coefficient of correlation to determine the degree of association between distance from Best Oils Limited and of recruited from surrounding hinterlands is

$$r = \frac{s(X-\overline{X})(Y-\overline{Y})}{\sum(X-\overline{X})^2 \sum(Y-\overline{Y})^2}$$

$$= \frac{-4500.1}{(44100.25)(1280.07)}$$

r = -0.60.

Table 7: Sources of Raw Material Input (Palm Kernel) in VOIs, Ibadan

Zone	Major Settlements	Annual Quantity Obtained in tons	Percentage	Cumulative Percentage
Ibadan Region	Moniya, Idi-Ayunre, Orisunbare, Olorunda, Iyana-Offa, Egbeda, Eruwa and Onigambari	31,810	50.90	50.90
Else where in Oyo State	Jobele, Alongbon, Aiyete	8,375	13,49	64.30
Western Region of Nigeria (1) Osun State	Ikire, Iwo, Osogbo	17,000	27,20	91.50
Western Region of Nigeria (2)Ondo State	Okitipupa, Ore, Ondo	5122.5	8.20	99.70
Outside Western Region of Nigeria	Benin	18.7.5	0.30	100.00
Total		62500.0	100%	