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THE SPATIAL PATTERN OF COMMERCIAL BANKS IN KOGI STATE. OF  
NIGERIA

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# THE SPATIAL PATTERN OF COMMERCIAL BANKS IN KOGI STATE OF NIGERIA

## **Abstract**

*This study examines the relationship of commercial banks distribution across geographic space and the socio-economic potentials therein. Ground truthing and socio-economic survey were employed to ascertain the number of banks available in each senatorial district of the state and to ascertain the socio-economic profile of the users of these banks respectively. Statistical technique was used in the analysis of market segmentation through factor and cluster analysis, and GIS techniques for spatial analysis. It was discovered that the major factor responsible for the spatial variation in the clustering of banks is the distribution of government owned parastatals and Industries in the state. The west senatorial district with its number of parastatals and industry has a greater competitive advantage over the other two districts. Its socio-economic potentials are very high and thus it has the highest number of banks (66 per cent). The GIS approach shows its relevance in efficient marketing strategies for Banks and also in government decision making.*

## **Introduction**

In recent times, as Nigeria repositioned itself in the National Economic Empowerment and Development Strategy (NEEDS) programme, the banking sector has witnessed various reforms because of its role in promoting economic growth and development. Banks are now facing more aggressive competition and unlimited opportunities provided by Globalization, financial liberalization and advances in information technology (Lee and Fukui, 2003; Jafrullah et al, 2003; Bello, 2005 and Claessens and Von Horen, 2007). The financial liberalization in Nigeria otherwise called Banking sector consolidation and recapitalization, is making the banks to be more market driven and market responsive (Adedipe, 2005 and Imala, 2005) as can be seen in customers-banks relationship, banking services and products, banks expansion and location, and sales of shares and dividend declaration.

Lord and Wright (1981) indicated that location of new banks or expansion of existing ones may largely depend on the following variables: information of localities, building availability and suitability, availability and cost of energy, availability and quality of infrastructure (medical, telecommunication, water etc),

location and market areas of competition and as well as factors related to quality of life. They also listed the following performance indicators of banks as: Concentration of commercial areas, traffic patterns, and workplaces or homes of customers whose demographic and purchasing behavior can match banks' target.

Indeed, locational characteristics related to profitability have been found to be important drivers in banks decision to expand or open new branches for its services. Focarelli and Pozzolo (2000) posited that banks prefer to have branches in other locations where expected profits are larger and the prospects of expected economic growth are higher.

A bank's competitive advantage within certain investment climate is another important determinant for its location and expansions. Casson (1987) asserted that banks expand to exploit the knowledge advantage created within it. This knowledge consists of technical know-how, marketing know-now and managerial know-now. Therefore, banks are best off to not only locate or expands in an environment that is most equal to the environment they are already familiar with (Buckley and Casson, 1991), but in an environment where their competitive advantage is at its highest ebb.

In the present highly competitive business environment, Marketing is the customer-oriented operation that is very essential for the success of any bank. Therefore banks need to consider and evaluate options and approaches in building efficient branch marketing strategies (Lee and Fukui, 2003) based on the linkages between customers and the marketplace.

In general as marketing is a question of demand (customers) and Supply (Banking services and products), marketing analysis remains imperative through market segmentation techniques. Market segmentation as defined by Wedel and Kamakura (1998) involves partitioning the market into homogenous segments for

effectiveness, efficiency and manageability of activity which are influenced substantially by discerning separate homogenous group of customers. its purpose is to determine the differences between customers that are of relevance to the marketing decision maker.

Geographic Information Systems come to bear in this study in integrating the geographic and demographic variables analyses. GIS based analysis had helped in understanding the potentials and efficiency of service delivery of infrastructure to the populace (Ifatimehin, 2005 and Ifatimehin and Musa, 2007).

GIS is a computer-based information system that enables capture, modeling, manipulation, retrieval, analysis and presentation of geographically referenced data [Worboys, 1997 (Cited in Ferreira, J. 2005)]. The great appeal of GIS stems from its ability to integrate large quantities of information about the environment and provide a powerful repertoire of analytical tools to explore this data. GIS are now used extensively in government, business and research for a wide range of applications including environmental resource analysis, landuse planning, locational analysis, tax appraisal, utility and infrastructure planning, real estate analysis, marketing and demographic analysis, habitat studies and archaeological analysis (Foote and Lynch, 1995). It is indeed one of the fastest growing technologies (Queen and Blinn, 1993) and a rapidly emerging field lying at the intersection of many disciplines (Ufuah, 2006) and a problem-solving tool capable of handling various management and decision-making tasks (Heywood et al, 2001) with ease.

The purpose of this paper is to:

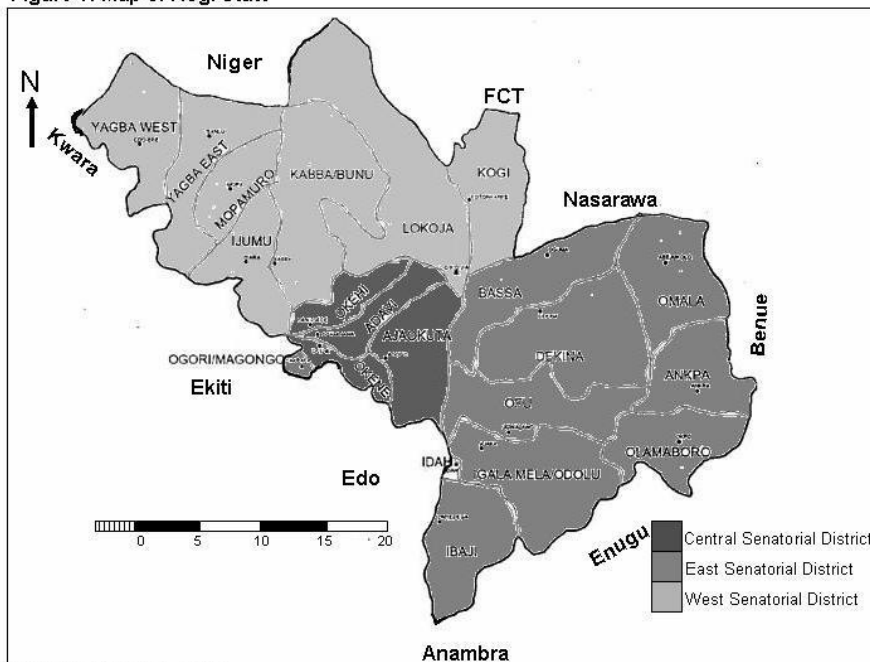
- i. examine the locational socio-economic characteristics of the population of the different districts;
- ii. ascertain the number of commercial banks in Kogi state;

- iii. Establish the determining factor responsible for the spatial variation in the distribution of commercial banks in the state.
- iv. Appreciate the diverse application of GIS.

**Study Area**

Kogi state is located between latitude 6°30’N and 8°51’N and longitude 5°51’E and 8°00’E. The state is structured in to 21 local governments with a total landmass area of about 30,354.74 Km<sup>2</sup> (Fig. 1) and having a population figure of 3,278,487 (NPC (2006)). It has an average temperature of 28°C. Annual rainfall ranges from 1016mm to 1524mm and humidity is 69%. The state is endowed in both human and physical resources. It hosts the confluence of the two largest rivers (R. Niger and R. Benue) in the country, Nigeria.

Figure 1: Map of Kogi State



Source: GIS Lab, 2006

**Methodology**

The Study area, Kogi State was divided into three based on the regional growth characteristics and Senatorial district formation: Kogi Central, Kogi East and Kogi West. The primary study was conducted in all the local government areas of

each senatorial district. Ground Truthing and socio-economic survey was employed through field observation (to ascertain the point location of banks branches and their distribution characteristics) and questionnaire administration (Socio-economic variables). Fifty-three (53) commercial bank branches were discovered and 10 copies of questionnaire were administered in each bank to generate the socio-economic data of bank customers. All in all five hundred and thirty (530) copies of questionnaire were administered and returned for analysis.

SPSS 13 was used for the statistical analysis while ArcView 3.2 was used for spatial analysis.

**Result and Discussion.**

***Factor Analysis***

Barlett’s test of Sphericity and the Kaiser – Meyer – Olkin (KMO) measure of sampling adequacy confirmed that there was sufficient correlation among the socio – economic variables to warrant the application of factor (Table 1).

Table 1: KMO and Bartlett’s test

Kaiser-Moyer-Olkin Measure of sampling Adequacy	.856
Bartlett’s Test of Sphericity	1932.432
Approx Chi-Square	52
	.000

Principal components analysis was applied to extract main features of the responses from 11 variables (Table 2). The component patterns were simplified through a Varimax rotation. Three (3) components were extracted.

Table 2: Factor analysis Extracted components  
**Rotated Component Matrix<sup>a</sup>**

	Components		
	1	2	3
Age of respondents	.059	-.306	.790
Gender	-0.28	.076	-.856
Household size	.491	.497	-.035
Residence types	.127	.816	-.122
Educational level	.739	.334	-.167
Employment status	.546	.654	.589
Type of Job	.765	.876	.657
Respondents Income	.659	.657	.976
Total household income	.786	.721	.976
Tax	-.051	.117	-.002
Purchasing power	.831	.675	.893

Extraction Method: Principal Component analysis.

Rotation Method: Varimax with Kaiser Normalization

The three (3) components are defined as follows: Component 1- purchasing power, Component 2 – Total Income and component 3 - Type of Job. This three components showed a highly correlation with some of variables.

#### ***Cluster Analysis***

The Hierarchical cluster analysis was adopted because of the sample size. The dataset was analysed using the Ward method. Six groups (clusters) were determined based on the number of government – owned parastatals, Private firms and establishments and Industries. The six clusters are: Cluster 1 – Politicians, Cluster 2 – Civil Servants, Cluster 3 – Management Cadre, Cluster 4 – Lecturers, Cluster 5 – Entrepreneurs and Cluster 6 – Private sector employees. Figure 2 (a and b) shows the result of Segmentation; where figure 2a shows the number of clusters (Professions) contained in each district and figure 2b the spatial distribution of parastatals and industries (Heavy and light) and respondents in the three districts. The wealthiest district is the West senatorial district for it houses the Seat of government, Obajana cement factory, Kogi State Polytechnic, Ahmadu Bello University Kabba Campus, and National Inland Waterways Agency among others.



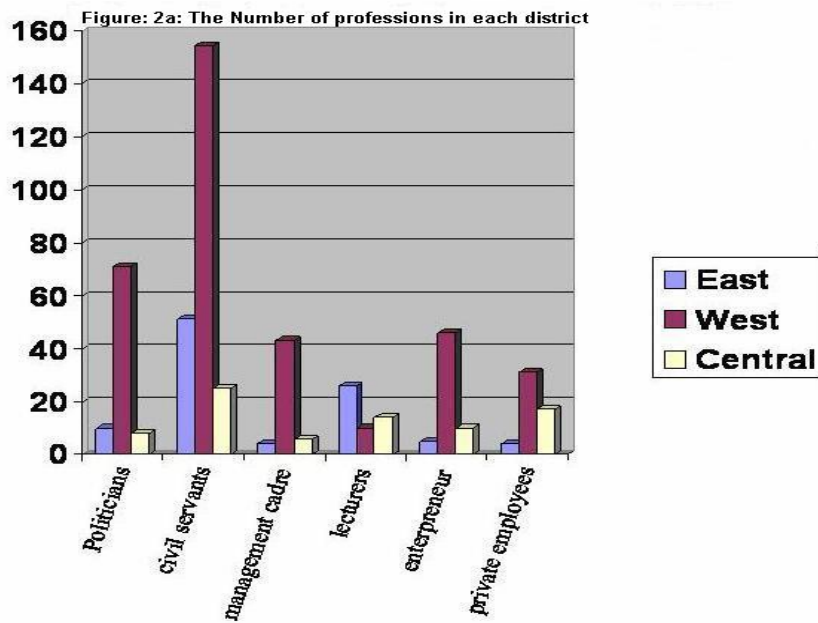
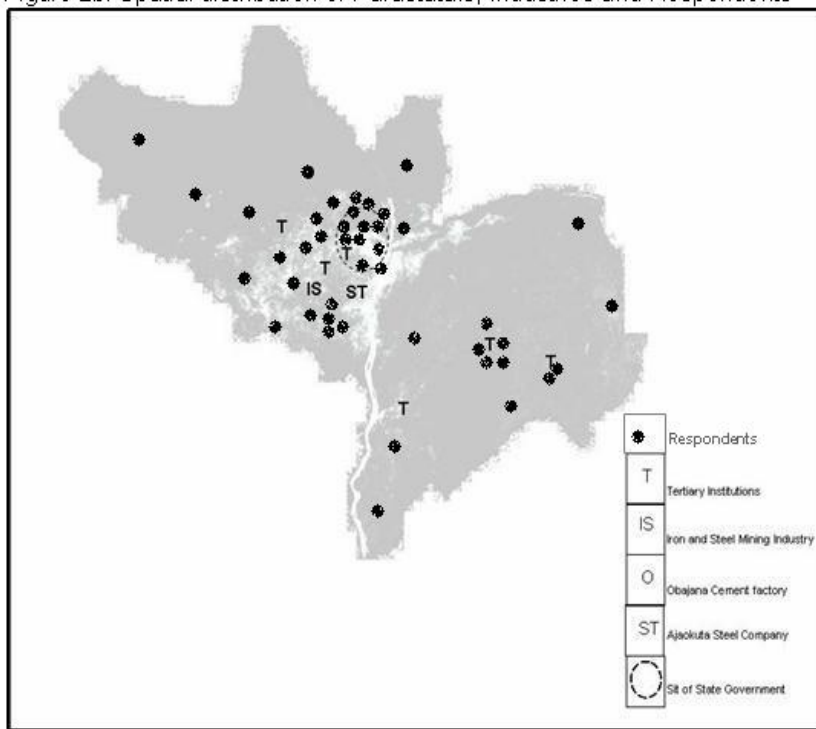


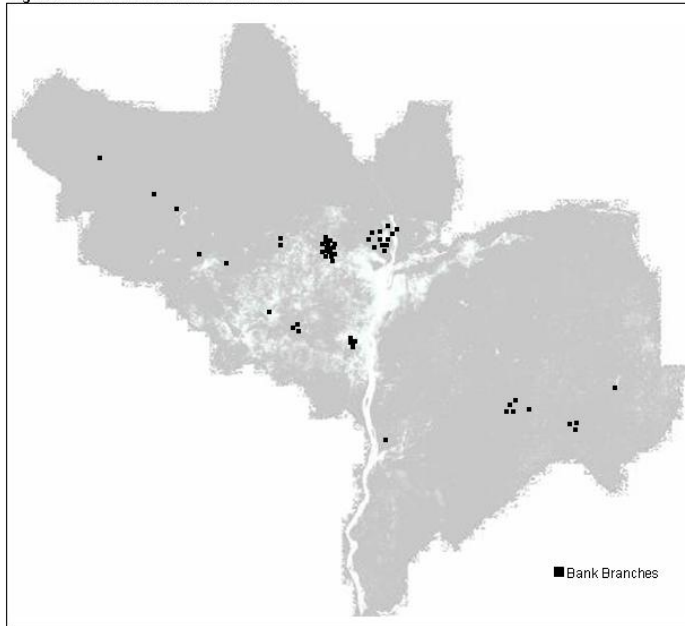
Figure 2b: Spatial distribution of Parastatals, Industries and Respondents



***Distribution characteristics of commercial bank branches.***

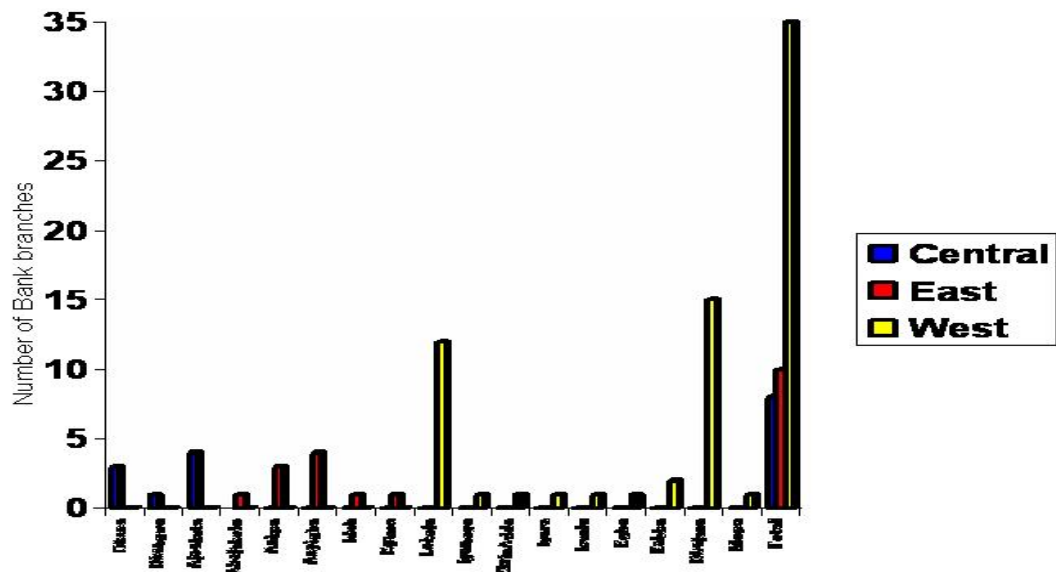
The point data of all the commercial bank branches was made by address matching processing using ArcView 3.2 software. Figure 3 shows the distributions of bank branches by each district.

Figure 3: Point location of bank branches



Each cluster information is integrated to bank branch information in order to ascertain the relationship of areal socio – economic characteristics and branch distribution. It reveals that the large numbers of bank branches are located in the wealthiest district where the seat of Government ushers in economic opportunities which attract both banks and the population. There is indeed a spatial variation as shown in figure 4 which depicts the relationship between areal socio-economic characteristics and distribution of bank branches.

Figure 4: The relationship between areal socio – economic characteristics and bank branches in Kogi State



## **Conclusion**

This study had revealed that the major determining factor for the clustering of banks in any location is the socio – economic potentials which invariably constitute the market characteristics of the location. The West Senatorial district of Kogi State shows these potentials and characteristics as the state capital is located in it and also in its economic, social and governmental infrastructure available in it. Therefore, it can be inferred that West senatorial district has the largest competitive advantage over the other two districts as it houses about 66 per cent of all the commercial bank branches in the state.

The post consolidation challenge to banks in relation to their branch networking pattern may become more noticeable in the next two to three years. This is expected as the 25 successful consolidated (out of the 89) banks not only seek to widen their customer base but also strive to comply with Central Bank of Nigeria (CBN) regulatory policy of Rural Banking and the promotion of the real sector economic activities. Ultimately, this may significantly change the branch networking policy of banks, hence their pattern of distribution in the state.

The GIS tool used in this study showcases its relevance in efficient marketing strategies in deciding the location of any bank branches and also helps the government in harnessing all these potential and characteristics for effective and efficient policy making.

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