

## Observations on the Spatial Patterns of Agricultural Production in Nigeria

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### Abstract

This paper examines Agricultural Production in Nigeria using the principles of location relation to market, the principle of comparative advantage and von Thune's classical theory on land use. Using the above theoretical background, the paper revealed that agricultural production of cereals and pulses are determined by natural factors and nearness to market. The paper concludes that tree crops production are determined by natural factors, internal migrations, agricultural innovation diffusion and existence of marketing boards. Location of oil seeds production are determined and sustained by both natural factors and nearness to market. Livestock which is one of the agricultural products is said to be determined and sustained by existence of market and the vegetation in the North of the Country. Unlike the other agricultural products, industrial crops production tend to be foot-loose (i.e. not so much dependent on nearness to market) and only require a well defined wet and dry season to thrive.

### Introduction

The location of agricultural activities in Nigeria can be explained from a geographical perspective. Abler et al (1977) observed that the economic theory does not address the importance of location properly. Consequently, economists think of places as points, not as areas. This essay examines the spatial patterns of agricultural production in the light of principles namely, location relative to market and comparative advantage. Like all geographical phenomena, agricultural production in Nigeria exhibits a pattern.

As the saying goes, nature is haphazard in her distribution of natural resources, regions therefore tend to capitalize on those advantages which nature endows then, this rational behavior is in tune with the principle of comparative advantage. The principle states that regions will tend to specialize in producing those goods which they have a comparative advantage, that is, which its absolute advantage is least. For the principle of comparative advantage to apply, it is necessary that regions or areas of specialization be capable of interacting with one another.

Location relation to market principle states that an economic activity actually will tend to locate in areas where a ready market for its output exists. Testing the above principle will involve looking at two or more economic activities or production units of the same nature. Empirical evidence worldwide suggests that those economic activities which locate close the market for their products enjoy lower production costs than those that locate far from the markets.

This is easily understood when viewed through the classical theory of Von Thurnen.

Von Thurnen was a German Economist and landowner; he was interested in understanding the reasons for the variations in the spatial distribution of agricultural products. Generally, the observed variations were earlier explained in terms of drainage, rainfall and soil fertility. After he was dissatisfied with these explanations, Thurnen posed this question: namely, would there be differences in agricultural land use which were not the products of randomness? Put in another way, is there another cause or the explanations of land use variations.

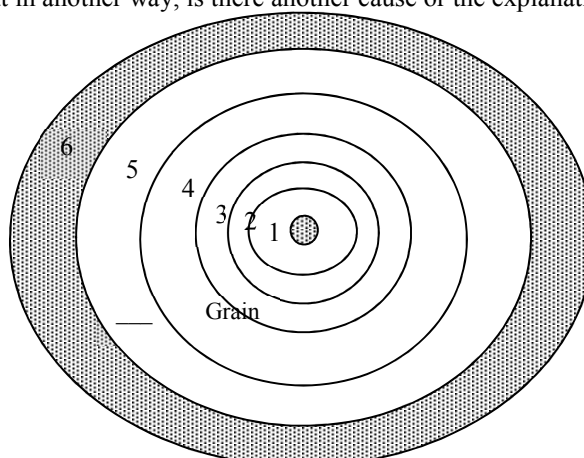


Fig. 1, the Von Thurnen Circle.

“The dot in the centre is the city. Circle 1 encloses a district of intensive dairying (fluid milk) and track gardening both products of perishable commodities. Circle 2 contains wood cutting industries, necessarily close

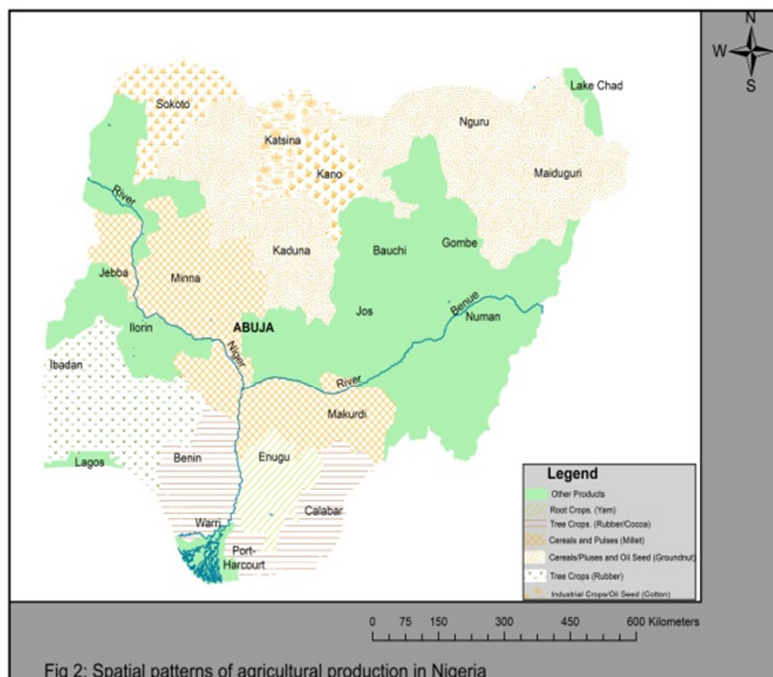
to market because a high demand existed within the city for wood and because slow and costly animals and wagons were the chief form of transport in the prerailway time or Von Thurnen, Circles 3, 4 and 5 surround crop rotation system distance from the central city. Circle 6 encloses a very extensive type of stock raising with emphasis upon wool, butter, cheese (and some meat) products which in the main can be preserved for long periods of time and can stand the cost of a long haul to market. Beyond is uncultivated land that can be cultivated if necessary. With increased size of the central city, the radius of each circle is extended, but the relative position of each remains the same". (R.S., Thomas, P.B. Corbin 1974).

In 1826, Von Thurnen outlined his model with certain assumptions; he assumed the existence of an isotropic surface. An isotropic surface is an undifferentiated portion of the earth surface. Von Thurnen's approach was quite opposite that of David Ricardo, Ricardo relied on the differences in the natural fertility of the soil to elaborate on his theory of rent. Thurnen assumed such differences away and went on to employ the geographic location of a piece of land as the basis on which to explain land use (see fig. 1). Thurnen also assume that there was a single market place within the isotropic surface. This market was the only place where all agricultural products were bought and sold. Under this condition, the question arises, would there occur any differences in rent and agricultural land use. The obvious answer is that within this system the only factor that will vary is the distance of a piece of land to the central market.

The time and money spent in moving the products to the central market determines the distance, there are other assumptions worth mentioning but we are not going into their discussions. There is the assumption of transportation uniformity, which states that transportation cost increases with distance from the central market place. The last assumption is that all farmers are rational economic men, who use land to maximize profit, and who have complete knowledge of production costs and market places.

### Agricultural Production in Nigeria

Agricultural production in Nigeria is made up of root crops, cereals and pulses, tree crops, oil seeds, industrial crops, livestock (see fig. 2) the spatial patterns of agricultural production in Nigeria reveal that to some extent regional specialization of the production of the above categories of crops exist.



### Root Crops

In Southern Nigeria, especially the eastern states, the natural conditions, favour the cultivation and hence, production of roots crops namely yams. Cassava, cocoyam and potatoes, (Sunday et al 2010), These crops need a minimum annual rainfall of about 80 inches year, they require a heavy soil too. The humid eastern states satisfy this requirement. Farms in this area therefore, have comparative advantage in root crop production over farmers in other parts of the country. The principles of location relative to market explain the production of most of this crop in these areas.

The food production from the Niger flood plains is a case in point, crops like yam, is produced on a large scale here mainly because of the type of soils available. Throughout the region yams are prestige crops,

especially for the men (Ofomata 1975), other crops such as cassava and sweet potatoes exist within this area. In order to beat the annual floods and since soil conditions are favourable crops are planted much earlier on this flood plain. The products include the so called early yams, which appear at Onitsha market from June to August when food is relatively very scarce. There is thus a ready market for the products at this period. Early yams from the Niger plains are very large in size, good in taste but cannot keep long in store. These products move to markets in canoes, some of which are motorized. From Onitsha the early yams are distributed to various parts of the country, particularly those areas that are experiencing food shortage. An interesting aspect of this distribution of early yams is that they sell much cheaper at Onitsha food market than at Asaba or in the periodic markets of the villages. One reason for this paradox is the fact that the farmers have better chance of selling canoe loads of their produce within a short time at Onitsha. Another reason is that at Onitsha, the farmer can use some of the proceeds of his sales to buy a greater range of imported goods.

Dense strands of the oil palm provide steady conditions highly favourable to cocoyam production in the eastern states. Consequently, farmers in these eastern states who produce cocoyam have comparative advantage over other parts of the country.

### **Cereals and Pulses**

The production of cereals like guinea corn, millet and cowpea is almost a monopoly of the Northern States of Nigeria. This is so because the ecological conditions prevailing in the north give farmers there a comparative advantage over farmers who may wish to grow these cereals elsewhere in the country.

Demand for cereals is also very high in the north, guinea corn production for example; flourish on dry lands with rainfall less than 1016mm annually. The four states at the Northern fringes of Nigeria provide this condition, Borno, Kaduna, Sokoto and Kano states. These accounted for 92% of the country's production in 1970 and 71 (Federal Office of Statistic).

Although the level of interregional trade in the product is negligible, there is a great deal of inter village and house to house trade, indicating the great demand for the crop in local areas, local farmer traders called Yan Kwarani play an important role in obtaining grains from distant rural areas. These constitute instruments for the effective demand of the crops: with this arrangement farmers are encouraged to continue production. Further, there is generally a high demand for guinea corn in the more northern locations. This is more so because at the time of harvest in early October, the stocks of millet harvested earlier on in August are almost exhausted. Agboola (1979), notes that there are high profitability of cultivating the crop for both subsistence and commercial use.

### **Tree Crops**

The main economically significant tree crops grown in Nigeria are cocoa, oil palm, rubber and kola. These are all grown in forest environments; these environments provide favourable conditions for their growth more than any other kind of environment. It will be highly unprofitable; therefore, to grow these crops elsewhere; Farmers engaged in their cultivation are aware of this fact.

Cocoa and kola grows in the western part of the forest zone, rubber in the central areas, while oil palm grows in denser strands in the eastern states.

Ogun, Oyo and Ondo States account for over 95% of Nigeria's cocoa production, the situation is a result of the comparative advantage that these areas enjoy over others, apart from having relative abundance of suitable land, the attraction of thousand of migrant farmers, into the area by the 1960s has also played a very important role (Arokoyu & Igwe 2010). Furthermore, there is a general improvement of control measures against cocoa diseases and pests, and the introduction of high yielding and disease resistant varieties of the crops. The marketing of cocoa was the responsibility of the marketing boards which was established for cocoa, palm produce and seed cotton since 1947 (Adelamo 1978)

### **Oil Seed**

The most important oil seeds produced in Nigeria are groundnuts, beni-seed and soya beans. These are not tree crops. They are cultivated mainly in Northern Nigeria and outside the forest environment of Southern Nigeria. Northern Nigeria provides the most favourable conditions for the cultivation of these crops.

Kano area is very suitable for groundnut production on an enormous scale; the normal requirement of the crop which is 508-609.6mm of rainfall during the growing session is satisfied. The light sandy soil prevalent around Kano enhances easy harvesting of the crop. The area therefore possesses comparative advantage over other areas. The marketing boards when in existence sustained the production of these crops; it purchased about 80% of total production. Groundnut in the forms of shelled kernels, processed oil and cake are ready for export. A ready local market is also possible for this crop production by the existence of groundnut oil mills located at Kano and Maiduguri.

### **Industrial Crops**

A Discussion on Agricultural production in Nigeria will be incomplete without the mention of industrial crops. Industrial crops include cotton, tobacco, sugarcane and kernel. Cotton as the most significant among this group thrives in regions with a distinct wet and dry season, wet season for growth and dry season for maturity and harvest.

The examination of cash crop production in the light of the concept of relative location to market reveal that the production units need not be very near markets. The principle of comparative advantage scarcely applies to the cultivation of this crop. Places that have favourable conditions for its growth are not even important when we talk of cotton production in Nigeria.

### **Livestock**

According to the Federal Office of Statistics in 1972, the average number of a livestock keep in the north is higher than the national average. Herdsmen or livestock farmers enjoy natural availability of grassland and flat land for the grazing of cattle. The area is also tsetse fly free unlike southern areas. The widespread use of droppings as manure in the closely settled area around the cities of Sokoto, Katsina and 'Kano makes the rearing of livestock significant in the rural economies of northern Nigeria. However, horses, donkeys and camels are widely used as beast of burden in northern part of Nigeria. This creates ready market for livestock farmers. The existence of meat canning industries in Kano and Kaduna provides a ready and reliable market for the purchase of livestock from livestock farmers. This further provides an advantage to farmers in the livestock business in the north.

### **Conclusion**

The operation of the principle of comparative advantage accounts for the regional specialization of agricultural production in Nigeria; the concept of relative location to market explains the spatial distribution of agricultural production in Nigeria. This applies more to highly perishable crops than to other crops. According to Mabogunje (1980) increasing urbanization created new and expanding market for local products such that local specialization of specific food crops emerged in certain areas.

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