L. J. Wood

Résumé
L. J. Wood — Densité de population et marchés ruraux. Étude de la relation entre densité de population et distribution géographique des marchés ruraux à partir de matériaux kenyans. Le plus ou moins grand nombre des sites de marché paraît directement lié à la densité (sauf dans les zones d'exploitation européenne), la modernisation agricole paraissant en faire diminuer le nombre. Une comparaison avec la Chine pré-communiste paraît permettre de généraliser ces observations.

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G. W. Skinner's work (1964) on marketing and social structure in pre-Communist, rural China is respected as perhaps the only comprehensive study of rural marketing over a wide area. As part of his study he presented some data for 1948 from seventy-six hsien in south and southeastern Szechwan concerning the size of standard marketing areas and population density. Using information from hsien in other areas of China he adjusted this data to produce a set of estimates designed to represent the market area/population density relationship '... in an agrarian economy commercialized to the extent that all of agricultural China was in 1948' (Skinner, 1964: 34). His figures indicated, not unexpectedly, an indirect curvilinear relationship ranging from areas with a population density of 10 persons per square kilometre and marketing areas an average of 185 square kilometres to areas with a population density of 700 persons per square kilometre and marketing areas of 9.1 square kilometres.

References to rural market density and population density in other parts of the world have been restricted, largely by inadequate data, to comments in passing. B. W. Hodder (1965) noted that the distribution of periodic markets in Yorubaland reflected in general the broad pattern of population distribution but that in detail there was little correspondence between the two distributions. He suggested that there was a critical population density of about 50 persons per square mile (20 persons per square kilometre) above which there was a regular pattern of periodic markets, spaced an average of 7.2 miles (11.5 kilometres) apart and below which there were very few. In northeast Ghana there is some direct relationship between market density and population density although in the area around Yendi the population density is low, 30 persons per square mile (12 persons per square kilometre), but there are many markets (McKim, 1972). An average market area figure for the Gamu Highlands of southern Ethiopia approaches Skinner's estimate for the population density (Jackson, 1971) and various writers for the Indian subcontinent have hinted at a general relationship between market density and population density (Agarwal, 1968; Patel, 1970).

The aims of this study, which is based on national data for Kenya,
are firstly to assess the effect of population density on rural market provision, secondly to identify other factors that influence rural market provision and thirdly to assess the applicability of Skinner's estimates to the areas of semi-subsistence agriculture in Kenya.
Dispersed settlement is characteristic of the rural areas of Kenya. The 984 official rural markets are confined to, and found almost throughout, the agricultural parts of the country. There is considerable variation in market density from district to district (Fig. 1) and markets...
exist in areas of low population density\(^1\) (Table 1). Six of the twenty-seven districts in which markets occur have population densities of less than 20 persons per square kilometre. The markets in Tana River, Kajiado, Taita and West Pokot Districts (Fig. 2) however are confined to, and serve, the agricultural areas of the districts where local population densities are higher than the district average. Kitui (13.8 persons per square kilometre) and Baringo (15.1 persons per square kilometre), both with fairly even population distributions, are therefore the most lightly settled districts which have networks of markets. Markets in Kenya are therefore found in areas with population densities lower than has been observed for Yorubaland and similar to the 12 persons per square kilometre for the Yendi area of northeast Ghana. The two agricultural districts of Kenya without markets (Laikipia and Trans Nzoia) are parts of the former ‘White Highlands’ where extensive commercial farming is practised.

### Table I

**Number of Markets and Population Density by District**

<table>
<thead>
<tr>
<th>District*</th>
<th>Number of Markets</th>
<th>Population Density**</th>
<th>District*</th>
<th>Number of Markets</th>
<th>Population Density**</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Nyanza</td>
<td>137</td>
<td>117.2</td>
<td>*Turkana</td>
<td>—</td>
<td>2.5</td>
</tr>
<tr>
<td>Kisii</td>
<td>66</td>
<td>304.5</td>
<td>Kiambu</td>
<td>42</td>
<td>184.5</td>
</tr>
<tr>
<td>Kisumu</td>
<td>46</td>
<td>192.4</td>
<td>Murang'a</td>
<td>47</td>
<td>198.9</td>
</tr>
<tr>
<td>Siaya</td>
<td>53</td>
<td>151.2</td>
<td>Kirinyaga</td>
<td>25</td>
<td>190.8</td>
</tr>
<tr>
<td>Busia</td>
<td>69</td>
<td>119.3</td>
<td>Nyeri</td>
<td>33</td>
<td>107.7</td>
</tr>
<tr>
<td>Kakamega</td>
<td>72</td>
<td>220.9</td>
<td>Nyandarua</td>
<td>19</td>
<td>71.5</td>
</tr>
<tr>
<td>Bungoma</td>
<td>31</td>
<td>137.4</td>
<td>Kitui</td>
<td>35</td>
<td>13.8</td>
</tr>
<tr>
<td>*Kajiado</td>
<td>4</td>
<td>4.0</td>
<td>Machakos</td>
<td>54</td>
<td>51.6</td>
</tr>
<tr>
<td>*Narok</td>
<td>—</td>
<td>6.9</td>
<td>Embu</td>
<td>16</td>
<td>68.2</td>
</tr>
<tr>
<td>Nakuru</td>
<td>13</td>
<td>49.4</td>
<td>Meru</td>
<td>55</td>
<td>85.5</td>
</tr>
<tr>
<td>Kericho</td>
<td>46</td>
<td>106.4</td>
<td>*Isiolo</td>
<td>—</td>
<td>1.5</td>
</tr>
<tr>
<td>Laikipia</td>
<td>—</td>
<td>7.0</td>
<td>*Marsabit</td>
<td>—</td>
<td>0.8</td>
</tr>
<tr>
<td>Baringo</td>
<td>46</td>
<td>15.1</td>
<td>Kwale</td>
<td>14</td>
<td>25.4</td>
</tr>
<tr>
<td>Elgeyo-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*Marakwet</td>
<td>22</td>
<td>56.7</td>
<td>*Taita</td>
<td>12</td>
<td>16.9</td>
</tr>
<tr>
<td>Uasin Gishu</td>
<td>4</td>
<td>50.3</td>
<td>*Tana River</td>
<td>6</td>
<td>1.3</td>
</tr>
<tr>
<td>Nandi</td>
<td>10</td>
<td>84.9</td>
<td>*Lamu</td>
<td>—</td>
<td>3.9</td>
</tr>
<tr>
<td>Trans Nzoia</td>
<td>—</td>
<td>84.9</td>
<td>*Wajir</td>
<td>—</td>
<td>1.5</td>
</tr>
<tr>
<td>West Pokot</td>
<td>7</td>
<td>15.7</td>
<td>*Mandera</td>
<td>—</td>
<td>4.0</td>
</tr>
</tbody>
</table>

* Districts with large areas occupied by nomadic and semi-nomadic peoples.
** Persons/km\(^2\).

District population densities have been calculated using the adjusted district areas (see footnote 1). The information relating to population is obtained from the *Kenya Population Census, 1969* (Nairobi, 1970). Market data were obtained from the local authorities responsible for market control in each district.

1. Population densities are calculated using adjusted district areas which exclude areas of restricted settlement such as forests, National Parks. Market density figures also refer to adjusted district areas.
The relationship between market area and population density by district

There is strong inverse relationship at the district level in Kenya between population density and the mean area per market (Fig. 3) indicating a direct relationship between population density and market density. Population density 'explains' 70% of the variation in market place provision.² There is some bias in the use of mean market area as a measure of market provision as it does not take into account the variations in the number of market meetings per week from market to market. In Kenya there are a variety of market meeting schedules operating within the European seven-day week. Nine per cent of the markets meet daily, 37% meet twice weekly, 5% meet thrice weekly, 48% meet weekly and less than 1% meet either four or five times per week (Wood, 1973a). Whilst there is some areal concentration of particular meeting schedules, for example twice weekly markets are particularly important in Murang'a, Kirinyaga, Kambu, and Nyeri Districts, there is a juxtaposition of meeting schedules in many districts with the result that in many districts markets meet, on average, approximately twice per week. Thus it is only in those districts where the majority of markets are weekly or meet

² This excludes those districts for which the statistics are particularly unrealistic, i.e. Tana River, Kajiado, West Pokot and Taita. If these districts are included then $r$ is $-0.93$ and $r^2$ is $0.87$. 

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**Fig. 3.** — The relationship between mean market area and population density by district.

**Fig. 4.** — The relationship between mean area per market day and population density by district.
on three or more days per week that the use of mean market area really introduces any bias. Any bias can be eliminated by using mean area per market day as an alternative measure of market provision.

There is a similarly strong relationship between mean area per market day and population density (Fig. 4): population density similarly ‘explains’ 70% of the variation in area per market day. The residual positions of South Nyanza (with 73% weekly markets) and Nakuru (with an average of three meetings per market per week) on Figure 3 but not on Figure 4 suggests that there is some counterbalancing effect between the number of market places and the number of market days and that it is the overall provision of market days in a district that is important rather than the number of market places. It is appreciated however that in a sparsely populated area of dispersed settlement that can only support a few market days the number of market places is important: seven weekly markets will serve the population more effectively than one daily market. There is some evidence that weekly markets are particularly important in the sparsely settled areas. In the ten most lightly settled districts, 62% of the markets are weekly compared to 48% at the national level. Over the full population range however, there is no relationship between population density and the frequency of market meetings.

In those districts which are residual on Figure 4 (the districts lying outside the +1 and −1 standard error of estimate of y limits), factors other than population density have considerable effect on market provision. Uasin Gishu and Nandi are underprovided with market facilities for the population density. Uasin Gishu and, to a lesser extent, Nandi were in the past European, extensive farming districts with strong European administration. Most of the non-European population in these extensive farming areas was employed for cash on the large farms. They lived in labour lines and were provided with basic foodstuffs such as posho (maize meal) and sugar. The Europeans themselves obtained provisions either from their own farms or from the nearest urban centre. Thus the situation in these areas was not conducive to the development of rural markets. In some parts of these districts, large farms still remain. Many are now African-owned but the European-derived characteristics of these areas are perpetuated and, considering the population density, the areas are undersupplied with rural markets. Trans Nzoia and Laikipia still do not have any markets. There has been relatively little resettlement in Nandi and Uasin Gishu. In some of the other former ‘White Highland’ areas the large farms have become resettlement schemes, intensive African agriculture has replaced the extensive land use and rural markets have developed. This has happened in both Nyandarua and parts of Bungoma Districts where the market systems are not greatly different from those in the long settled areas of African agriculture. For Nandi District there is an additional factor that has had a bearing on market provision: the Nandi people were
formerly pastoral. They have adopted a sedentary, agricultural way of life during the present century but marketing is still a peripheral feature of their economy. The markets in Nakuru, which was also a largely European district in the past, changed from weekly to twice weekly schedules in 1963, a reflection of the changes that began to take place in some of the European districts with Independence.

Busia appears overprovided with market facilities for its population density. The rural markets in Kenya are controlled by numerous area councils which are responsible, through a hierarchy of local government bodies, to County Councils which generally operate at the district level. Demands by the public for the establishment of new markets or the insertion of extra market days into the schedules of existing markets are passed up the hierarchy and each request is assessed. Busia County Council seems to have acceded readily to most requests for the establishment of new markets with the result that the majority of markets are very small and many do not function properly (Busia County Council, personal communication, 1971). Some markets have ceased to function altogether. A factor contributing to the decline of some markets in Busia concerns the position of the district along the Kenya-Uganda border. Until just after Independence, there was a large amount of inter-territorial trade focused on markets on the Kenya side of the border. Since Independence there has been a tendency for this trade to decline as local officials in Samia-Bugwe, the adjacent County in Uganda, have made attempts to increase local revenue by establishing rival markets on the Ugandan side of the border and preventing Ugandans paying market fees at markets in Kenya. For example, until 1964 both Kenyans and Ugandans used Busia market on the Kenya side of the border. In 1964 a new market, Mawero Alupe, was established in Uganda, about half a kilometre from Busia market and its market days were scheduled to coincide with the Busia market meetings.

In Baringo District, some unidentified factor influences market provision. It may be significant that this was the only African area that was under the jurisdiction of a European-controlled local government body (the County Council of the Central Rift at Nakuru) throughout the colonial period.

Kwale District has more market days than expected for the population density. Kwale had markets in precolonial times (Prins, 1952) and a relict four-day periodicity underlies the official daily meeting schedule of some of the markets. The majority of market trade takes place on these days, i.e. on only one or two days per week, and only small amounts of trade take place on the other days of the week although the markets are recorded as daily. Thus it might be expected that Kwale District would have too many market days for the population density.

Kisii is underprovided with market days for the population density. However, the County Council control of markets in this district is very lax and in fact many market places are used on unofficial market days.
An allowance for this unofficial use of markets may reduce the mean area per market day figure such that it is not greatly different from the expected for the population density. The anomalous position of Kisumu is associated with its proximity to a large urban area. This becomes apparent from analyses at the local level.

**Analysis at the Location Level**

The twenty-seven districts with markets are divided into a total of 378 locations. Analyses at the location level are complicated by the inadequate cartographic representation of location boundaries. Whilst 94.51% of the markets in Kenya are located, only 439 markets could be located within administrative locations. Of these, twelve markets are in Taita District, for which the statistics are particularly unrealistic. Therefore the following analyses are based on an accidental sample of 427 markets, 43.39% of the total number of official rural markets in Kenya.

The relationships identified at the regional level are also apparent at the local level (Figs. 5 and 6) but the relationships are less strong at the local level reflecting the averaging effect of the small scale of analysis and suggesting that factors other than population density may have more influence on market provision when viewed at a large scale. In both cases the location regression lines are lower than the district lines. This may partly result from the accidental nature of the location sample but more likely stems from the fact that whilst adjusted areas have been used to calculate average market areas (and population density) these adjusted areas in many districts still include large sections of lightly settled and uninhabited land and market areas will therefore appear artificially large. The location level analysis, in which locations without markets are excluded, remedies much of this situation. Thus it is likely that the regression lines for the location level analyses provide the more realistic generalizations of the relationships.

A detailed analysis of each of the residual locations is not relevant to this note but several general comments can be made. In some instances an apparent overprovision of market days (Fig. 6, locations 1, 2, 3) is related to the nearness of a large urban area (Kisumu, population 32,431) and thus represents the concentrated demand for market facilities that results from the proximity of a large urban population. Abnormalities in the market provision of other locations can be assigned to factors such as recent settlement (4) or the presence of extensive land use (5,6) or an unrealistic County Council control (the Busia locations). Perhaps the most interesting factor to emerge from the location level analysis is the indication that modernization has influenced market provision. Various writers for parts of China (Skinner, 1964: 195-228), Africa (Hodder and Ukwu, 1969; Eighmy, 1972), and Latin America (Forman and Riegelhaupt, 1970), have indicated that the degree of market provision in an
area might be related to the level of modernization. Generally it is suggested that during the early stages of development, markets proliferate but as the mechanisms for the collection and distribution of goods become more sophisticated, periodic markets become less important. The roles filled by rural markets are taken over by permanent wholesaling and retailing establishments and the market becomes a relict feature. In E. W. Soja’s (1968) principal components analysis of modernization in Kenya in 1963, Murang’a District, then Fort Hall District, was ranked thirteenth out of thirty-six districts on Factor I, the development dimension. Ten of the twelve districts with higher rank were primarily urban areas or major areas of European settlement, i.e. Murang’a appeared as one of the most modernized rural African areas of Kenya. The locations of Murang’a District that are positive residuals (7, 8, 9, 10, 11, 12) are mainly those in the lower (in altitude) sections of the district and are the areas that are most modernized. It is known that the number of markets in these areas has decreased in recent years (Murang’a County Council, personal communication, 1971). The degree of modernization may also explain the residual position of two of the Machakos locations (13, 14) as both of these are in the long settled, core areas of Kamba country where most development has taken place. It is possible that the reduction in numbers of markets in these areas reflects not a
shift from market trade to trade through permanent retail establishments but an increase in the amount of trade at a few well-located markets. This polarization of trade may be made possible by certain facets of modernization, e.g. increased rural incomes and accessibility. The apparent insignificance of population density as a factor affecting market provision in these Machakos and Murang’a locations possibly reflects a trend in the evolution of the rural economic system that will later be followed by other districts as development proceeds. In many areas of Kenya however, markets are still proliferating.

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Several points can be made in conclusion.

1. Markets are confined to and found almost throughout the agricultural parts of Kenya. Markets occur in a district with a population density as low as 13.8 per persons per square kilometre. Areas of subsistence and semi-subsistence agriculture with population densities of less than this do not occur in Kenya. All the areas with sparser populations are areas of extensive commercial agriculture or are areas with a nomadic or a semi-nomadic pastoral economy which is not conducive to the development of service centres of any form.

2. The degree of market provision in an area varies directly at both the regional and local level, with population density. Population density is the major factor governing the degree of market provision in most areas. Whilst there is a relationship between both market places and population density and market days and population density it is the overall provision of market days in an area that is significant. It seems that population density only influences market meeting schedules in the areas of sparse population: here weekly markets tend to dominate. The relationship between population density and market provision breaks down where there has been considerable European settlement, where there is extensive farming, where settlement is only recent or where the controlling local government body is particularly permissive, and in areas close to large towns.

3. There is some evidence of modernization affecting the relationship between market provision and population density. In a few of the most modernized, consistently African, rural areas of Kenya, the number of markets is declining. It seems likely that this reflects an increased concentration of trade at a few large markets rather than a shift in the focus of rural trade from market place to shop.

4. As a final point it is pertinent to compare the data relating to the areas of semi-subsistence agriculture in Kenya3 with the estimates provid-

3. Thus omitting Nakuru, Uasin Gishu and Nandi Districts.
ed for pre-Communist China which, it is suggested, may be typical of all agrarian economies similar in level of development to China in 1948. Bearing in mind the limitations of using the mean area per market data for Kenya, there is a striking similarity between the two sets of data (Fig. 7). Above a population density of about 70 persons per square kilometre, the differences between the Kenya location data and the China data are minimal. At lower population densities the differences are greater and cannot be readily explained. Overall however, the relationships are very close suggesting that the basic principles and processes underlying the balance between population density and the provision of markets pervade even in culturally diverse areas of the world with very different histories of market development: we might therefore reasonably expect a similar relationship in other parts of the world where a dispersed rural population comprises semi-subsistent agriculturalists.

REFERENCES

Agarwal P. C.

Eighmy T. H.
Forman S. & J. F. Riegelhaupt

Hodder B. W.

Jackson R. T.

McKim W.

Patel A. M.

Prins A. H. J.

Skinner G. W.

Soja E. W.

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