

# Foodscapes : A Study on Shop Choice Behaviour and Urban Structure from a Network Perspective

その他のタイトル	フードスケープ：ネットワーク論を用いた買い分け行動と都市構造の研究
学位授与年月日	2015-09-25
URL	<a href="http://doi.org/10.15083/00073009">http://doi.org/10.15083/00073009</a>

## 論文の内容の要旨

Foodscares: A Study on Shop Choice Behaviour and Urban Structure from  
a Network Perspective  
(フードスケープ：ネットワーク論を用いた買い分け行動と都市構造の研究)

バージェス アンドリュウ イアン

Urban food environments have undergone great change since the beginning of the Twentieth Century. Ongoing rationalisation, economic and technological development as well as social change has led to the establishment of a number of specific food shop types ranging from self-service formats such as supermarkets and convenience stores to specialist formats such as bakeries and butcheries. The deregulation of food retail has seen the emergence of non-traditional formats such as drug stores and home centres.

This research investigates how food and the built environment intersect in the form of foodscares, that is, the spatialisation of food shopping. Network theory provides insight into the underlying structure of food environments.

Food shopping is itself a largely repetitive, routine activity. Due to the central role of food in daily lives food shopping is highly influential in the organisation of daily life. Therefore changes in food environments have a direct affect on everyday life. Further, changes in everyday life have a direct influence on food environments as shops adapt to evolving lifestyles. As Japan undergoes dramatic demographic and population change the pressure on this recursive relationship is heightening awareness of the relationship between food and the city in the form of growing issues such as food deserts and social exclusion.

Japan's commercial environment has evolved over a number of decades. The essentially mixed-use planning system has led to a rich tapestry of integrated urban textures with a variety of levels of commercial activity. Food shopping in Japan is characterised by the high frequency of shopping trips carried out during the week, the generally small purchases as well as the high number of shops used. Japanese shoppers tend to use a number of food shops, even within the same food shop type, to meet their shopping needs.

Existing research into food shops and the built environment can be broadly categorised into two streams; the economic aspects of food retail which manifests in analyses of shop location, competition and distribution, and secondly social aspects of food shopping in the form of access to healthy food and issues such as food deserts. These kinds of research tend to focus on specific food shop types or specific shopping areas. However, the mobility of modern urban inhabitants as well as the dispersion of foods across a various food shop types has limited the usefulness of these approaches. This research investigates how foodscapes are constructed by modern shoppers as they move across urban environments and shop formats in their everyday food shopping activities.

Network theory provides an opportunity to understand the structure of these food environments. While network theory has been used in a wide variety of fields including sociology and ecology, it has rarely been used in architecture and urban planning. Considering that modern shopping practices take place both inside and outside of traditional neighbourhood boundaries, network theory allows these spatial restrictions to be transcended revealing previously unseen underlying urban structures.

This research investigates how foodscapes vary in different urban environments. A survey of shopping behaviour was undertaken in 5 areas of Kashiwa City, a regional city with a population of approximately 400,000 located 30km north-east of Tokyo. Households of five Junior High Schools were asked to record information regarding routinely visited food shops for 10 food types and returned valid responses for 363 households. The respondents exhibited uniform social backgrounds in terms of age, sex and family size. By controlling for these factors the influence of the local food environment can be exposed more clearly.

Shops and households were geolocated and weighted bipartite graphs for each of the areas were constructed from the responses and their structural characteristics analysed. Sub-communities detected within each graph revealed varying clustering patterns of shops that can be categorised as 'polymodal', 'monomodal' or 'bimodal' where polymodal networks suggest a number of defined shopping patterns within a community and monomodal networks suggest undefined patterns.

Analysis of the role of specific nodes (shops) within a network was based on betweenness centrality values to understand the capacity for a shop to 'bridge' between shopping patterns and local clustering coefficient values to understand the embeddedness of a shop within a community. In all of the areas analysed Confectionery & Cake Shops and Bakeries showed significant capacity to bridge across shopping patterns. While shopping patterns for each area was consistent across

most food types, how shopping for food is translated on to food shop types varies by area. As a result, where in one urban environment convenience stores showed high scores for embeddedness, discount shops were prominent in another.

This questions traditional assumptions of the role of specific shop formats in food environments as well as the role that local communities play in the production of foodscapes and leads to discussions on the resilience of foodscapes in the face of economic, demographic and lifestyle change.