Intra-Urban Analysis of Commercial Locations: A GIS-Based Approach

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ABSTRACT

The urban landscape is an interspersed mixing of residences, shops, theatres, parks, natural areas, and a multitude of other uses. From the early days of the central markets, to the planned downtown, to the heavily planned super-regional shopping complexes, the commercial areas within this urban landscape have evolved. There has been considerable research conducted on analyzing the commercial structure of urban environments in an attempt to better understand the nature of retailing and its resultant impacts on the geography of the city. This paper details the development of a GIS-based semi-automated method to detect commercial structure. The approach generated nearest commercial neighbour statistics as a measure of proximity between commercial locations. These were used as the foundation for clustering commercial operations into commercial areas.

Keywords: Commercial Clustering, Geographic Information System, Retail Geography, Retail Structure, Urban Environment

INTRODUCTION

Over the last two decades there has been a resurgence of interest among social scientists in the cultures of consumption and their associated spaces of retail capital (Lowe & Wrigley, 2000). The biggest reason for this resurgence is that shopping is one of the most common place human activities and that these locations in which consumption takes place have dramatically shaped the urban environment. Shops and shopping areas are common characteristics of virtually all settlements in the developed world. Following the development of central place theory as a means of studying service provision in rural areas, Proudfoot (1937) examined a series of urban environments and developed the first classification of urban commercial location. Subsequent commercial models examined the spatial patterns formed by the development of commercial activities within the urban area.

The commercial system is one of the major forces shaping the geography of our cities. The vitality, either actual or perceived, of a city is largely connected to the health of the central business district (CBD), otherwise known as the downtown core. Since this core tends to command a high concentration of commercial activity, it has become a surrogate for a city’s economic health (Bunting & Millward, 1998). The introduction of regional-sized malls into the urban fabric over the last half century has created highly visible and highly accessible...
nodes outside of the CBD thereby changing the overall form of the commercial system. The continuing result has been the suburbanization of commercial development. These nodes shape our daily behaviour and our perceptions of the city, but more importantly, they affect location decisions, other land uses, and shape planning choices (Simmons, 1991). The end result is an urban form that is dominated by the commercial system. The commercial system in the context of this research is defined as “the size, variety, and location of commercial clusters that collectively service an urban region” (Jones & Simmons, 1993, p. 26).

Over time, cities change and so does the commercial system. This changing system is a result of complex and often disruptive forces, both internal and external, such as geographical constraints and economic influences including a slumping or booming economy (Adolphe, 2001; Bourne, 1997). In addition, as the economy of many urban areas continues to move towards the service sector and beyond, the nature of our cities will continue to change and reflect the nature of the economy at that time. Furthermore, change can also be caused, or accelerated, by competition between retailers. The single greatest noticeable difference to the Canadian commercial environment has been its rapidly changing commercial structure. Commercial services exert considerable influence on the morphology and function of the Canadian city. The present-day city has to a large degree developed in relation to its commercial facilities. This relationship is the direct result of the increasing dependence on the automobile. As Jones (2000, p. 406) states, “when mobility is low, retail activities concentrate, when mobility is high retail activity disperses.” Current studies have shown that cities are dispersing and, in many instances are becoming multi-nuclei as the size of the city continues to grow (Batty, 2001; Bunting & Filion, 1999; Millward & Bunting, 1999). This signifies an era where mobility is very high and therefore dispersion is equally high.

Enclosed mall development reached a pinnacle in the late 1980s as a result of long term planning and increased capital investment prior to the recession. Since then, little to no shopping centre growth has occurred. Only the most profitable and growing urban centres experienced any new mall development specifically Toronto and Vancouver (Jones & Simmons, 1993).

Suburban malls dominated the commercial structure at this time. Approximately 84 regional malls (those malls with more than 500,000 square feet of retail space) existed in Canada accounting for more than 10% of all retail sales by 1990 (Simmons, 1991). Even though the suburban malls dominated the commercial landscape, both the CBD and the arterial ribbons still played a major role in the provision of commercial services within the overall commercial environment. As the forces of decentralization continued the importance of the CBD began to diminish in virtually all major Canadian cities except those within the high-growth centres. Two large contributions to this decline were the increased distance and time one would have to travel to reach the core and the cost of parking once there. This distance fuelled the development and encouraged the expansion of arterial ribbons connecting the main areas of the city to one another.

During the early 1990s the major force of change came in the form of the new-format retailer, more commonly known as the big-box store. The arrival of these behemoth retail ventures, and their associated power centres or clusters precipitated a shift in consumer behaviour away from the traditional department store and regional mall to these new free-standing discount superstores. These large destination retailers, led by Wal-Mart, Home Depot, Price Costco, Business Depot, and others stressed aggressive pricing and merchandising practices (Jones, 2000). According to Jones and Doucet (2000) 175 big-box retailers entered the Greater Toronto Area market from 1990 to 1997 adding over 6.5 million square feet of retail space compared to the 1.0 million square feet of retail space added through new shopping centre development or re-development of existing centres.
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