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 col-
lectively 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. Further-
more 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 facili-
ties. 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 stud-
ies 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 commer-
cial 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 behav-
ior 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 prac-
tices (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 shop-
ping centre development or re-development of 
existing centres.
Relating Transportation Quality Indicators to Economic Conditions in the South-Central U.S.
www.igi-global.com/article/relating-transportation-quality-indicators-economic/55370?camid=4v1a