

## Chapter 3

# Localization Patterns of Urban Food Distribution Centers in Metropolitan Lima

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### **ABSTRACT**

*This chapter is aimed at exploring the patterns that guide the decision of food urban distribution centers in the city of Lima, which is characterized by spontaneous and unplanned growth, and where the inhabitants of the city mainly source of trade traditional with 1,200 food markets and 100,000 neighborhood stores. The rapid food system consultation tool created by FAO was used, which triangulated secondary sources and applied surveys in households, retail traders, and wholesalers. A statistical and spatial description was made of location factors: commercial density, supply habits of the retail and UDC, accessibility, connectivity, land use and access barriers to the land. It was concluded with the identification of four patterns of settlement of UDC: demand, supply, mobility, and land availability.*

### **INTRODUCTION**

In the coming years, cities will contain around 70% of the world's population, which will demand multiple services and products. This demand will generate greater traffic congestion, food shortages, and environmental pollution, among other problems for cities.

Urban Distribution Centers (UDCs) are proposed as a solution to logistical problems faced by developed cities. Thus, research has been conducted to seek alternatives that optimize localization to reduce transportation costs, generate less congestion and pollution, and reduce food losses (Janjevic et al., 2016).

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This chapter aims to identify and to evaluate the localization factors of public and private UDCs created in cities from emerging countries with poor planning, using the Lima metropolitan area in Peru as an example. The complex social context and the levels of informality allow public and private decision-makers to localize these food UDCs in the city, without clearly established criteria.

Here, we propose exploring food UDC localization patterns in polycentric cities, such as the Lima metropolitan area. First, the background and existing literature on the field are reviewed and presented. Second, the methodological issues addressed in this chapter are proposed. Third, the results of the analysis of the localization patterns are proposed. Finally, a conclusion on the contributions of that analysis and further works is made.

## **BACKGROUND AND CONTEXT**

### **Urban Distribution Centers and Food Logistics**

The urban distribution of goods is an important activity to maintain commercial and productive activity and to supply the population (BESTUFS, 2007). Efficient transportation and distribution systems are important to improve a city's competitiveness, due to the revenue it generates, such as job creation (Sanz et al., 2013). One of the most popular research and application issues is that of the development and analysis of urban logistics platforms (Boudouin, 2006; Gonzalez-Feliu et al., 2014; Taniguchi, 2015; Waller, 2016).

From the various types of urban logistics platforms (Boudouin et al., 2014), urban distribution centers (UDC) remain the most studied category. Also called urban consolidation centers (UCCs) and city distribution centers (CDC), the various works refer to slightly different notions having all in common the following elements: UDC are platforms that allow the consolidation and distribution of goods directed to urban zones (of different extension), in an aim of sustainability improvement of urban goods transport. UDCs bring diverse types of products together and have become a solution to reducing the logistical impact of food in cities (Russo et al., 2013). There are monocentric and polycentric cities (Anas et al., 1998) that determine the location, the number of centers, and the combination of products. Moreover, UDC can be mono-user and multi-user (Ville et al., 2013), have a city or zonal influence area (Gonzalez-Feliu et al., 2014), deal with general or specific transport (BESTUFS, 2007) or present different degrees of collaboration (Janjevic et al., 2016), among others. Moreover, and with the increase of interest for food logistics in urban areas, the notion of food hub (considered as a collaborative structure among producers and logistics stakeholders related to food value chain) are starting to be developed (Palacios-Argüello et al., 2017). Morganti and Gonzalez-Feliu (2015) show the interactions between Food Hubs and urban logistics platforms, identifying the UDC as one of the most suitable common points. Therefore, the deployment of food-based UDC became a popular subject (Morganti and Gonzalez-Feliu, 2015), mainly in Latin America (Palacios-Argüello and Gonzalez-Feliu, 2016; Palacios Argüello et al., 2017). Most food-based UDC are nowadays related to wholesale produce market and marketplace distribution. However, they deal with either small cities (Morganti, 2011) or to zones of big cities (Alcaldía Mayor de Bogotá, 2006).

Localizing the facilities—the UDCs—is the process of choosing a geographical location among several to conduct operations. The fields of location theory and modeling have their roots in the works

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