

## Article

# Access to fresh food in vulnerable urban areas: a classification study of the favelas and formal establishments in São Paulo

André Luís de Castro Moura Duarte <sup>1</sup>

Vinicius Picanço Rodrigues <sup>1 2</sup>

Raquel Carolinne Freitas Alves <sup>1</sup>

Gustavo Magalhães de Oliveira <sup>3</sup>

<sup>1</sup> Insper Instituto de Ensino e Pesquisa, São Paulo / SP – Brazil

<sup>2</sup> University of Strathclyde / Department of Design, Manufacturing and Engineering Management, Glasgow – United Kingdom

<sup>3</sup> University of Bonn / Institute for Food and Resource Economics, Bonn – Germany


The environment significantly influences individuals' food choices. Vulnerable urban areas, such as favelas, can have a decisive impact on discouraging the consumption of fresh, nutritionally rich foods. This issue is exacerbated by the urban infrastructure required to deliver fresh foods to these locations. Therefore, it is essential to understand the context of the favelas in the municipality of São Paulo in terms of the food environment and infrastructure to support the design of public policies that enhance the presence of minimally processed foods in these areas. We applied the k-means clustering method to two datasets: the food environment of favelas, characterized by food establishments, and the urban infrastructure of the favelas in the municipality of São Paulo. Of the city's 1,701 favelas, only 271 have formally registered food establishments. Larger favelas with better urban infrastructure generally exhibited a food environment with greater access to fresh foods. The results suggest that investing in urban infrastructure can increase access to fresh foods in these areas. It is also necessary to consider local specificities to find effective solutions that increase the availability of minimally processed foods, thereby improving the population's quality of life and health.

**Keywords:** urban food environment; food supply chain; fresh food chain; urban infrastructure; São Paulo favelas.

## Acesso a alimentos frescos em áreas urbanas vulneráveis: um estudo classificatório das favelas e dos estabelecimentos formais de São Paulo

O ambiente influencia nas escolhas alimentares dos indivíduos. Áreas urbanas vulneráveis, como favelas, podem ter um efeito decisivo em desestimular o consumo de alimentos frescos, com alto poder nutritivo. Essa questão é ampliada pela infraestrutura urbana necessária para que os alimentos frescos cheguem a esses locais. Assim, é essencial entender o contexto das áreas de favela do município de São Paulo em termos de ambiente alimentar e infraestrutura para apoiar o desenho de políticas públicas que aumentem a presença de alimentos minimamente processados nesses locais. Para isso, aplicamos o método de clusterização *k-means* com dois conjuntos de dados:

DOI: <https://doi.org/10.1590/0034-761220230056x>

ISSN: 1982-3134 

Article received on February 17, 2023 and accepted on July 23, 2023.

[Translated version] Note: All quotes in English translated by this article's translator.

**Editor-in-chief:**


Alketa Peci (Fundação Getulio Vargas, Rio de Janeiro / RJ – Brazil) 

**Associate editor:**

Sandro Cabral (Insper Instituto de Ensino e Pesquisa, São Paulo / SP – Brazil) 

**Reviewers:**

Bernardo Andretti de Mello (Fundação Getulio Vargas, Rio de Janeiro / RJ – Brazil) 

Maura Pardini Bicudo Vêras (Pontifícia Universidade Católica de São Paulo, São Paulo / SP – Brazil) 

**Peer review report:** the peer review report is available at this [URL](#).