

ELDERLY MOBILITY AND SOCIAL EXCLUSION

Identification of Vulnerable Geographic Units

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AGENDA



1. INTRODUCTION
2. ASSUMPTIONS
3. THE MAIN GOAL
4. THE TWO-STEP METHODOLOGY
5. THE ADVANTAGES
6. CASE STUDY
7. CONCLUSIONS

INTRODUCTION

- Today's older adults have:
 - ✓ better education
 - ✓ increased access to medical care
 - ✓ greater access to cars
 - ✓ larger incomes
 - ✓ higher levels of activity
 - ✓ different responsibilities within their families
 - ✓ more time spent in leisure, fun and volunteering activities

Mobility is a key condition to maintain their personal independence

INTRODUCTION



- Meeting the transportation needs of older people is critical to ensure that they remain independent and do not become socially excluded
- Promoting out of home mobility and travel to older people should be an important aspect to city planning and urban mobility agenda

ASSUMPTIONS

- It is possible to differentiate geographical units according to older people's vulnerability to social exclusion due to transport disadvantage
- Transport disadvantage is measured through the capability of people to access destinations – *Capability Type Approach*

Factors influencing the mobility patterns and quality of life of older people
=
Factors influencing social exclusion due to lack of transportation

Factors influencing social exclusion due to lack of transportation

Literature Review



1. Age/ Health
2. Gender
3. Educational Level
4. Residential Location
5. Level of Income
6. Household Structure
7. Car Availability

THE MAIN GOAL



- To perform a **CLUSTER ANALYSIS** where:
 - ✓ the geographical units are the **cases**
 - ✓ the factors influencing social exclusion due to lack of transportation are the **criteria for classification**

THE TWO-STEP METHODOLOGY



STEP 1: Selection of Indicators

- ✓ To quantify the 7 factors through a group of indicators/variables for which data is available

STEP 2: Segmentation of the Geographical Units

- ✓ To perform a cluster analysis where the geographical units are the cases and the 7 factors – represented by the associated indicators – are the criteria for classification

THE ADVANTAGES



- ✓ The two-step methodology allows to segment geographical units with different types of vulnerabilities
- ✓ The outputs may be exported to other planning tools – such as GIS systems – to help support transportation and political processes at a strategic and tactical level

It is a flexible tool that may be employed whenever solid data on indicators that represent the 7 factors is available

CASE STUDY

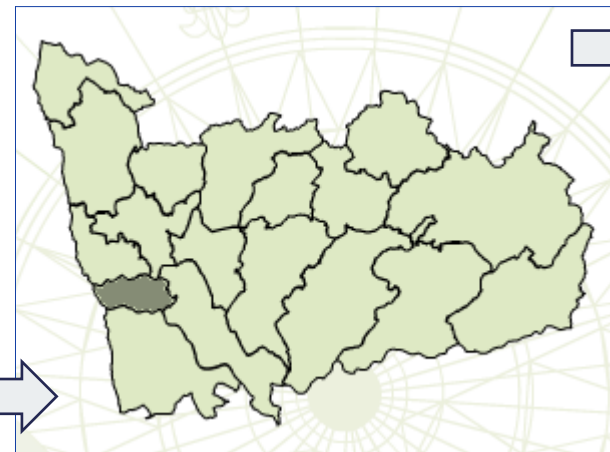
Application to Portuguese *Freguesias*

DISTRITO

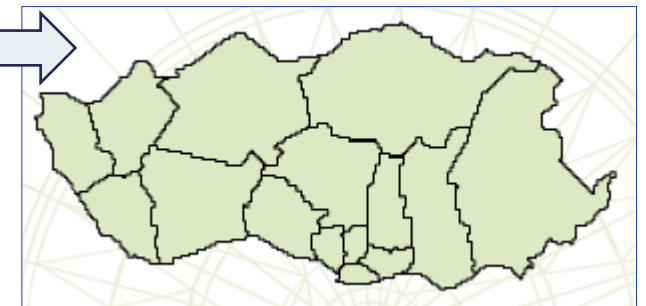


SOURCE: Portal das Freguesias, 2015.

CONCELHO



FREGUESIA



- 4260 *Freguesias* (as of Census 2011)

CASE STUDY

STEP 1: Selection of Indicators

FACTOR		INDICATOR		
		Variable	Unit	Type
1	AGE/HEALTH	Percentage of residents 80 years old or over out of the total residents 65 years old or over, by <i>freguesia</i> (at the date of Census 2011)	%	continuous
2	GENDER	Percentage of Women out of the total residents 65 years old or over, by <i>freguesia</i> (at the date of Census 2011)	%	continuous
3	EDUCATION	Percentage of total residents 65 years old or over with some level of instruction, by <i>freguesia</i> (at the date of Census 2011)	%	continuous
		Percentage of total residents 65 years old or over with some University Attendance, by <i>freguesia</i> (at the date of Census 2011)	%	continuous
4	HOUSEHOLD	Proportion of one person private household with 65 years old or over by <i>freguesia</i> (at the date of Census 2011)	%	continuous
5	RESIDENTIAL LOCATION	Living quarters' density by <i>freguesia</i> (at the date of Census 2011)	No./km ²	continuous
		Type of Geographic Location	-	categorical
6	INCOME	Per capita purchasing power by municipality (at the date of Census 2011)	value	continuous
7	CAR AVAILABILITY	Percentage of total residents using the car as main mode of transportation for commuting (as a driver or as a passenger), by <i>freguesia</i> (at the date of Census 2011)	%	continuous

STEP 2: Two-step Cluster Analysis (using of SPSS Statistics 22)

RESULTS

5 CLUSTERS

Cluster 1

Rural units with very low living quarters' density and with the highest rate of elderly living alone. These are also the *freguesias* with the lowest education rates, the lowest income, and with a low car use for commuting

Cluster 2

Units that are not rural, with low living quarters' density and with low education rate. These *freguesias* are also characterized by a high rate of elderly living alone, and with a low car use for commuting

CASE STUDY



Cluster 3

Rural units with average living quarters' density, with high car use, and with a low rate of elderly living alone

Cluster 4

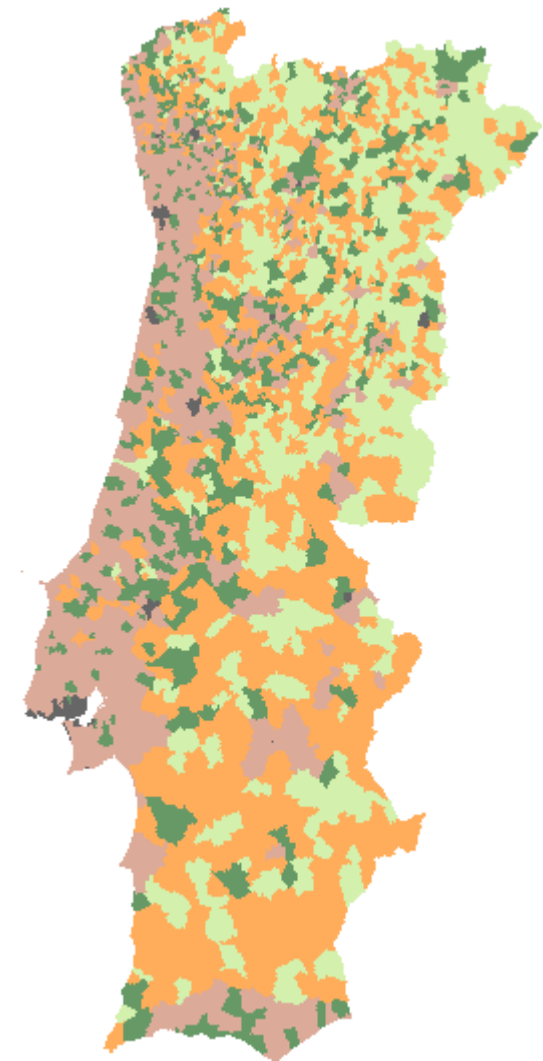
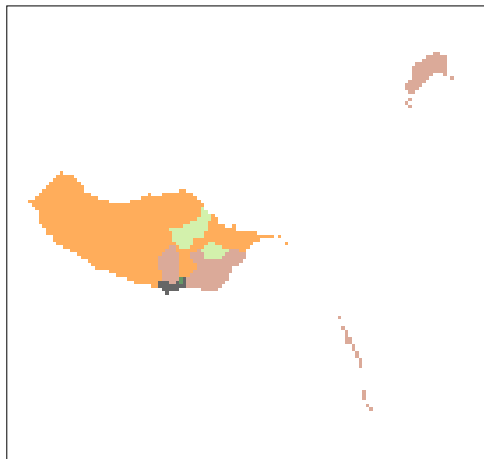
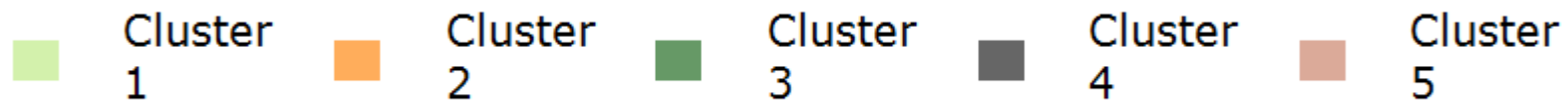
Units that are not rural, with very high living quarters' density, the highest education rates, the highest income, and the lowest car use

Cluster 5

Units that are not rural, with the lowest rate of elderly living alone, the highest car use. These are *freguesias* with a high living quarters' density, and high education rates.

CASE STUDY

Results in a GIS format



CONCLUSIONS



- ✓ *Age/Health, Gender, Educational Level, Residential Location, Level of Income, Household Structure and Car Availability* - the **7 FACTORS** - influence older people's mobility patterns and quality of life and their level of social exclusion due to transport disadvantage
- ✓ This two-step methodology is a flexible tool that allows to differentiate geographical units in different contexts and at different scales, as long as valid data on indicators that represent the 7 factors are available

THANK YOU.

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Further information:

- Santos, Teresa, Pinho de Sousa, Jorge & Macário, Rosário (2015). *Elderly Mobility and Social Exclusion: Identification of Vulnerable Geographical Units. 14th International Conference on Mobility and Transport for Elderly and Disabled Persons (TRANSED 2015), Lisbon, 28-31 July 2015 . (Conference Proceedings)*



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