

PROGRAMME and BOOK of ABSTRACTS

JOCLAD 2024

18 - 20 APRIL

LEIRIA, PORTUGAL



XXXI MEETING OF THE PORTUGUESE ASSOCIATION FOR CLASSIFICATION AND DATA ANALYSIS
XXXI JORNADAS DE CLASSIFICAÇÃO E ANÁLISE DE DADOS



Programme and Book of Abstracts

XXXI Meeting of the Portuguese Association for Classification and Data Analysis (CLAD)

18–20 April 2024

Leiria, Portugal

<https://sites.google.com/view/joclاد2024>

Sponsors

Banco de Portugal

Câmara Municipal de Leiria

Escola Superior de Tecnologia e Gestão do Instituto Politécnico de Leiria

Hotel TRYP Leiria

Instituto Nacional de Estatística/Statistics Portugal

Instituto Politécnico de Leiria

PSE – Produtos e Serviços de Estatística

Organisers

Associação Portuguesa de Classificação e Análise de Dados (CLAD)

Escola Superior de Tecnologia e Gestão do Instituto Politécnico de Leiria

Programme and Book of Abstracts

XXXI Meeting of the Portuguese Association for Classification and Data Analysis (JOCLAD 2024)

Editors: Adelaide Freitas, Conceição Amado, Fernanda Sousa, Nuno Lavado, Patrícia Pinto, Paula Brito, Ricardo Campos

Publisher: CLAD

Printed: Statistics Portugal

ISBN 978-989-35097-1-5

Depósito legal: 530193/24

Number of copies: 125

19 April, 16:25 - 16:45, Auditório 1

Using population census data to assist in sampling of survey on origins and discrimination

João S. Lopes¹, Afshin Ashofteh²

¹ Statistics Portugal, joao.lopes@ine.pt

² NOVA Information Management School, aashofteh@novaims.unl.pt

The survey ICOT was implemented to study the population diversity in Portugal. Given its specificities, its sampling procedure needed to efficiently target marginal populations. We propose a method to use census data to identify groups of parishes with significant representation of the target population. Within a hierarchical clustering and geospatial analyses, we selected six clusters of parishes shown to have a strong geographical structure and significant presence of ethnic minorities.

Keywords: ICOT, ethnic minorities, geographical information, hierarchical clustering

Statistics Portugal implemented the Survey on Living Conditions, Origins and Trajectories of Population Resident (ICOT) in 2023. The aim of this survey was to inform about the diversity of the resident population in Portugal regarding their origins, ethnic belonging/identification, generational trajectories and living conditions. The survey follows on from the National Plan to Combat Racism and Discrimination 2021-2025 [1], which aims to combat racism and ethnic discrimination in Portugal.

Despite their importance, however, severe limitations exist in the sampling frame and data collection of minorities. Literature has shown significant difficulties in sample design and methodology in gathering data on immigrant groups from various backgrounds. The strategy followed by Statistic Portugal was to use population census data to assist in efficient targeting of marginal population and ethnic minorities [2].

In this work, we characterized all 3092 parishes in Portugal using socio-demographic indicators collected in population census from 2021 [3], amounting to a total of 25 variables divided in five main themes: Sex-ratio, Naturality, Literacy, Education-level, and Religion. This information was used to perform a hierarchical cluster analysis to identify groups of parishes that should be targeted by the survey ICOT.

For the characterization of the clusters, first we calculated several thresholds to consider for each variable according to their percentile of the distribution across the 3092 parishes. Then, we calculated the averages of each variable for each group of parishes and attributed three levels of negative (left-tail) significance and three levels of positive (right-tail) significance.

Considering these levels of significance, we selected six clusters of parishes that can be

divided in two main types (Table 1): composed of populations with high level of illiteracy and incomplete primary education (A); and composed of marginal populations and ethnic minorities at risk of discrimination (B, C, D, E and F).

Table 1: Summary description of selected cluster of parishes

<i>Cluster</i>	Summary description
A	<u>Education-level</u> : Very low.
B	<u>Female ratio</u> : Very low. <u>Naturality</u> : Eastern Europe, Southern Asia, and other countries. <u>Religion</u> : Christian Orthodox, Buddhist, Hindu, Muslim, and other religions.
C	<u>Naturality</u> : Brazil, PALOP, UE e GB, and other countries. <u>Education-level</u> : Moderately high. <u>Religion</u> : Christian Orthodox, Protestant/Evangelical and other, and non-religious.
D	<u>Naturality</u> : Brazil, PALOP. <u>Education-level</u> : High. <u>Religion</u> : Christian Protestant/Evangelical and other, Muslim, and non-religious.
E	<u>Naturality</u> : EU and GB, and South Africa. <u>Religion</u> : Other Christian faiths.
F	<u>Female ratio</u> : Moderately low. <u>Naturality</u> : EU and GB, and other countries. <u>Religion</u> : Christian Orthodox, Protestant/Evangelical and other, Buddhist, Jewish, other religions, and non-religious.

Following the identification of six selected clusters of parishes, we represented them using a geospatial analysis by considering the geography of mainland Portugal. We observed strong geographical structure of the clusters. The identification of these groups and their subsequent geospatial analysis provides a framework for a sampling scheme considering oversampling to be used in the context of the survey ICOT.

Note: Afshin Ashofteh participated in this project during the research done under its work which was developed within Statistics Portugal.

References

- [1] Conselho de Ministros. *Plano Nacional de Combate ao Racismo e à Discriminação 2021-2025 - Portugal contra o racismo*. Diário da República, Portugal, 2021.
- [2] Statistics Portugal. *Censos 2021. O que nos dizem os Censos sobre a população de nacionalidade estrangeira residente em Portugal*. Statistics Portugal, Portugal, 2022.
- [3] Statistics Portugal. *Censos 2021. XVI Recenseamento Geral da População. VI Recenseamento Geral da Habitação: Resultados definitivos*. Statistics Portugal, Portugal, 2022.

SPONSORS

