TITLE : SUSTAINABLE TOURISM: DATA ANALYSIS OF THE SPANISH TOURISM INDUSTRY (1995-2022)

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1.0 Introduction

According to United Nations World Tourism Organisation (UNWTO), in 1950 there were 25million international tourism arrivals, which increased to 1.3 billion in 2017. The international tourism sector is expected to grow by 3.3% annually, until 2030, representing an expected 1.8 billion tourists crossing international borders.

It is projected, as the Human Development Index (HDI) improves across the world resulting in increased incomes per capita or per household, seasonal peaks in international travel may become a mainstay of the global tourism economy. However, the growth of tourism has led to concerns of mass travel leading to overtourism at selected travel destinations in Europe causing a schism between local residents and tourists.

In Spain, several protests by local residents and activist groups were observed at popular tourism destinations particularly in the cities of Barcelona, Malaga and Seville as well as the Balearic Islands made up of the Canary Islands, Formentera, Majorca, Menorca and Ibiza.

The general concerns of protesting groups and local residents were hinged on the cascading effects of mass tourism and overtourism resulting in an increased cost of living and a reduced quality of life for residents.

The UNWTO asserts that in 2023, ***"there were over 85 million tourists in Spain compared to a population of 47 million"***, further adding impetus to the concerns of overtourism and bringing into focus the carrying capacity of popular tourism destinations in the European country.

The goal of the data analysis of Spanish Tourism spanning the years 1995 to 2022, is to investigate the key concerns of overtourism by analysing key inbound travel metrics.

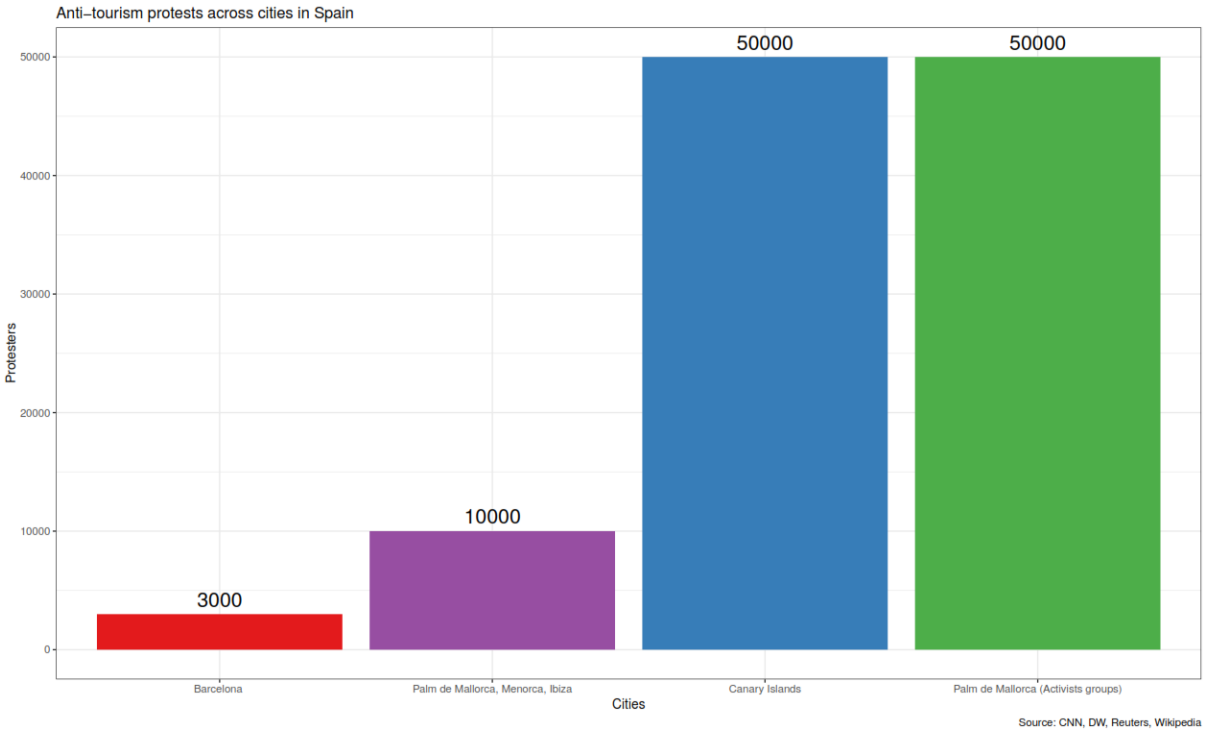

Figure 1: Anti-tourism protests across Spain

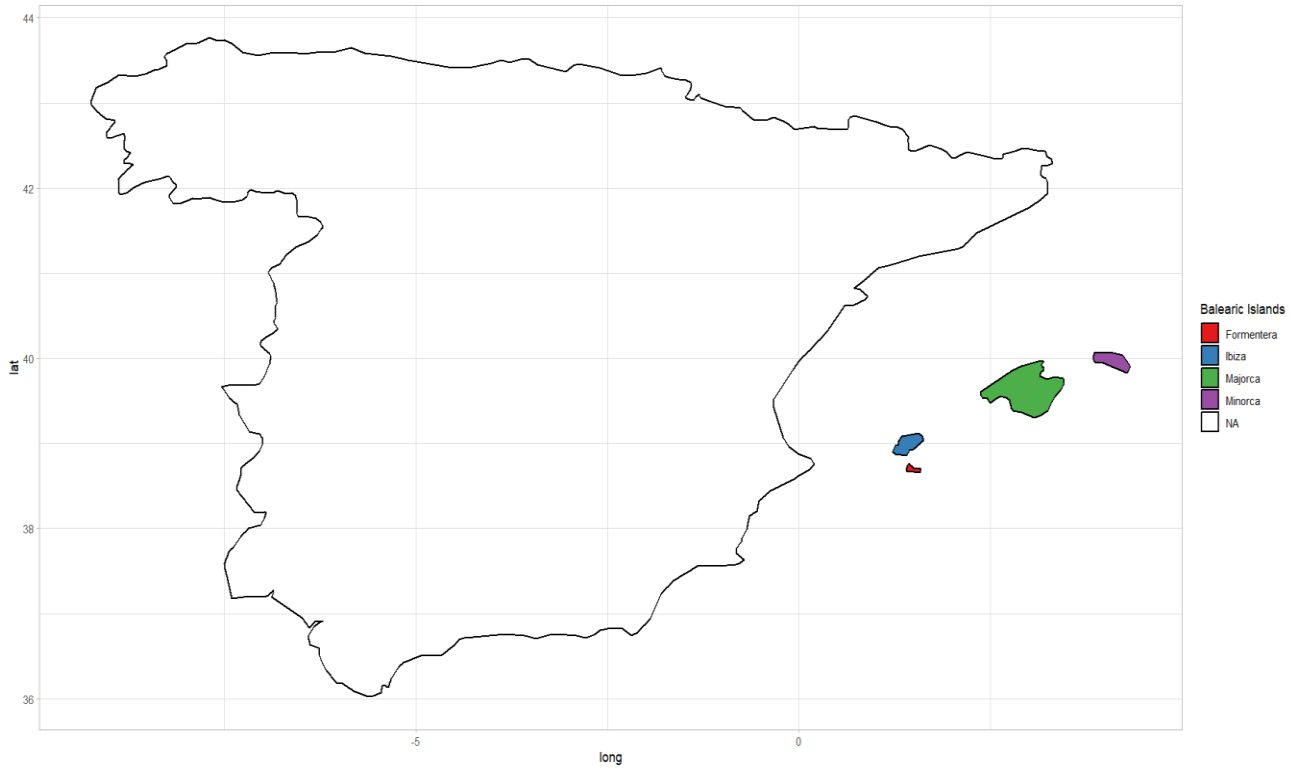

Figure 2: Tourism Hotspots patronised by tourists – Balearic Islands of Formentera, Ibiza, Majorca and Minorca

1.1 Research Objectives

The objectives of the data analysis project are as follows:

a) Assess the trend of inbound travel visitors to Spain over 25 years.
b) Investigate the regions of inbound travel to Spain spanning 25 years.
c) Determine the travel expenditure and travel purpose for inbound travelers.
d) Assess the occupancy rates and availability of accommodation units for inbound visitors.
e) Establish the summary statistical metrics for inbound tourists.
f) Outline the employment rates for direct and downstream hospitality industries engaged in Spanish tourism.

1.2 Research Question

The main research question with respect to the data analysis is as follows:

a) Is overtourism a fact or a myth in the Spanish tourism industry?

1.3 Methodology

The methodology for the analysis was carried out as follows:

a) The database for UNWTO which serves as a renowned global travel repository for UN registered nations was searched for credible and verifiable data on Spain.
b) The global dataset publicly available on the unwto website (www.unwto.org) was downloaded.
c) Further, all specific sub-datasets relevant to Spain were extricated from the global repository.
d) To ensure data integrity, the sub-datasets were renamed and aligned to the file names of the global dataset.
e) The datasets were pre-processed in MS excel to remove extra spaces (rows and columns) and irrelevant symbols without altering the cell contents.
f) The cleaned and processed files were renamed as secondary files, resaved as comma separated value (CSV) files and exported to RStudio.
g) Imported CSV files into RStudio, were further wrangled and transformed with relevant codes and syntaxes prior to analyses.
h) Final data cleaning, transformation and all visualizations were carried out in RStudio in line with the research objectives.
i) Finally, a report was knitted in Rmarkdown to display all codes, visualizations and conclusion of the study.

2.0 Discussion - Exploratory Data Analysis

A preliminary investigative analysis of the dataframes, generated after cleaning, transformation and wrangling of the data files, was carried out to glean preliminary statistical trends.

The Exploratory Data Analysis (EDA) focused on statistical summaries, percentage variations, cumulative summations, means as well as peaks (maximum) and troughs (minimum) values of trends. Percentage distributions for all datasets were conducted to observe trends and glean important observations.

2.1 EDA - Tourism accommodation establishments (1995 – 2022)

Preliminary analysis of tourism accommodation establishments in Spain spanning 1995 to 2022, indicated sharp peak of 54% in 1999 of accommodation units. This surge dipped between 2000 and 2011, however the number of tourism accommodation units during this period remained fairly stable. As shown in Figure 3, there were negative percentage changes in 2012, 2014, 2016, 2018, 2021 and 2022.

Importantly, the data infers that between 1995 to 2022 there has been a 92% increase in the number of accommodation establishments.

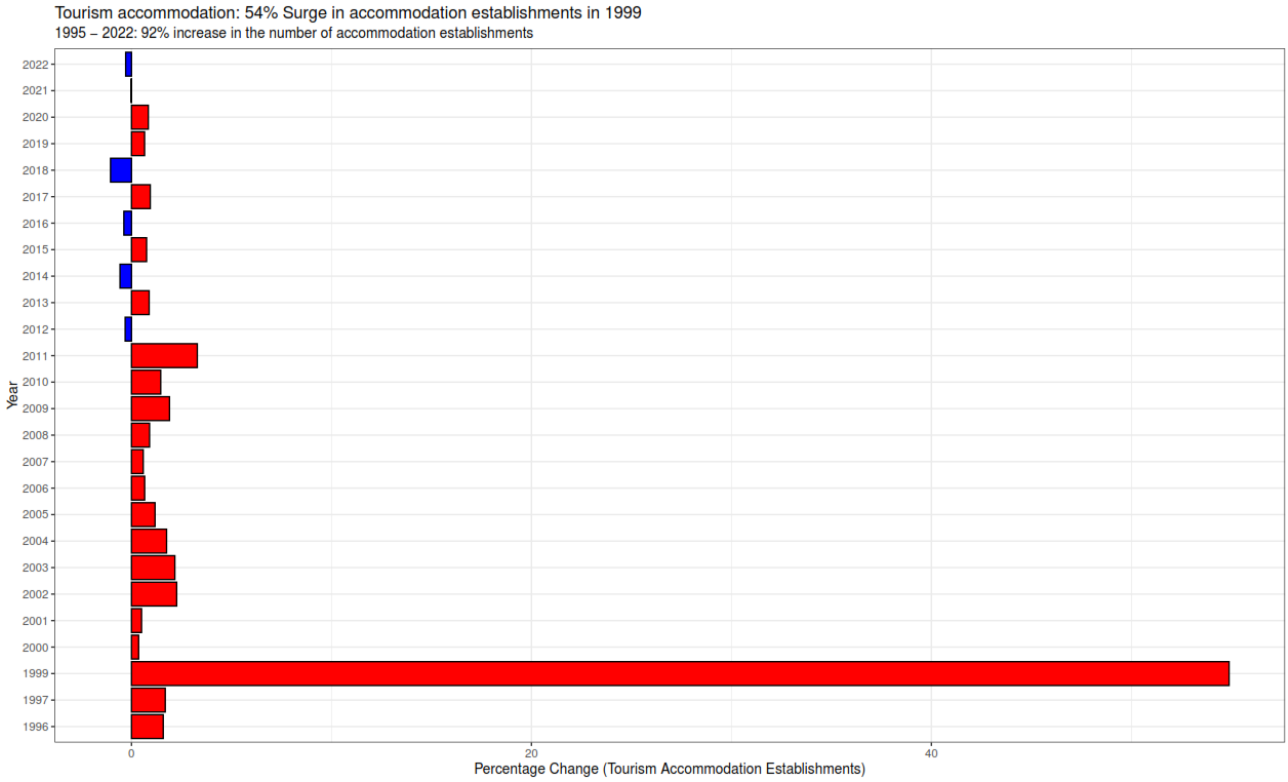

Figure 3: Percentage distribution of tourism accommodation establishments in Spain (1995 – 2022)

2.2 EDA – Tourism accommodation by available rooms (1995 - 2022)

As shown in Figure 4, the number of available rooms spiked by 14% in 1999 representing the highest percentage between 1995 and 2022. Marginal dips, inter alia, negative trends were observed in 2012 and 2014. It is worthy of mention that the cluster of available rooms between 2002 and 2011 was higher than the cluster between 2015 and 2022.

Generally, there was a 67% increase in the number of available rooms for tourist arrivals between the years under review.

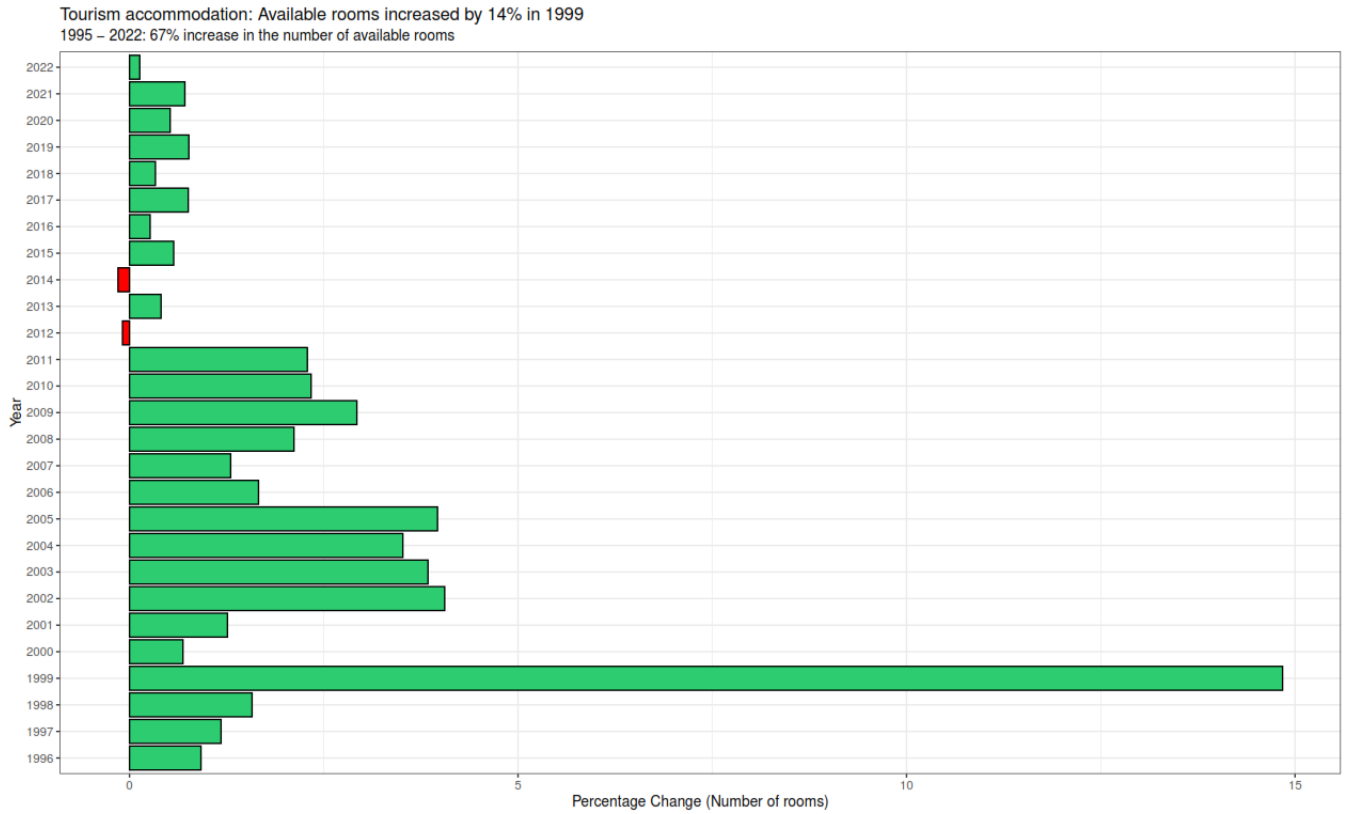

Figure 4: Percentage distribution of tourism accommodation by the number of available rooms (1995 – 2022)

2.3 EDA – Tourism accommodation by the number of bed-places (1995 – 2022)

Similarly, a sharp increase of 16% for the number of bed-places was observed in 1999. Nevertheless, a drop in bed-places was observed in 2014. However, the number of bed-places remained stable between 2015 and 2022.

Interestingly, the cluster of bed-places available between 2002 and 2011 was higher than the cluster between 2015 and 2022.

As displayed in Figure 5, there was an 86% increase in the number of bed-places between 1995 and 2022.

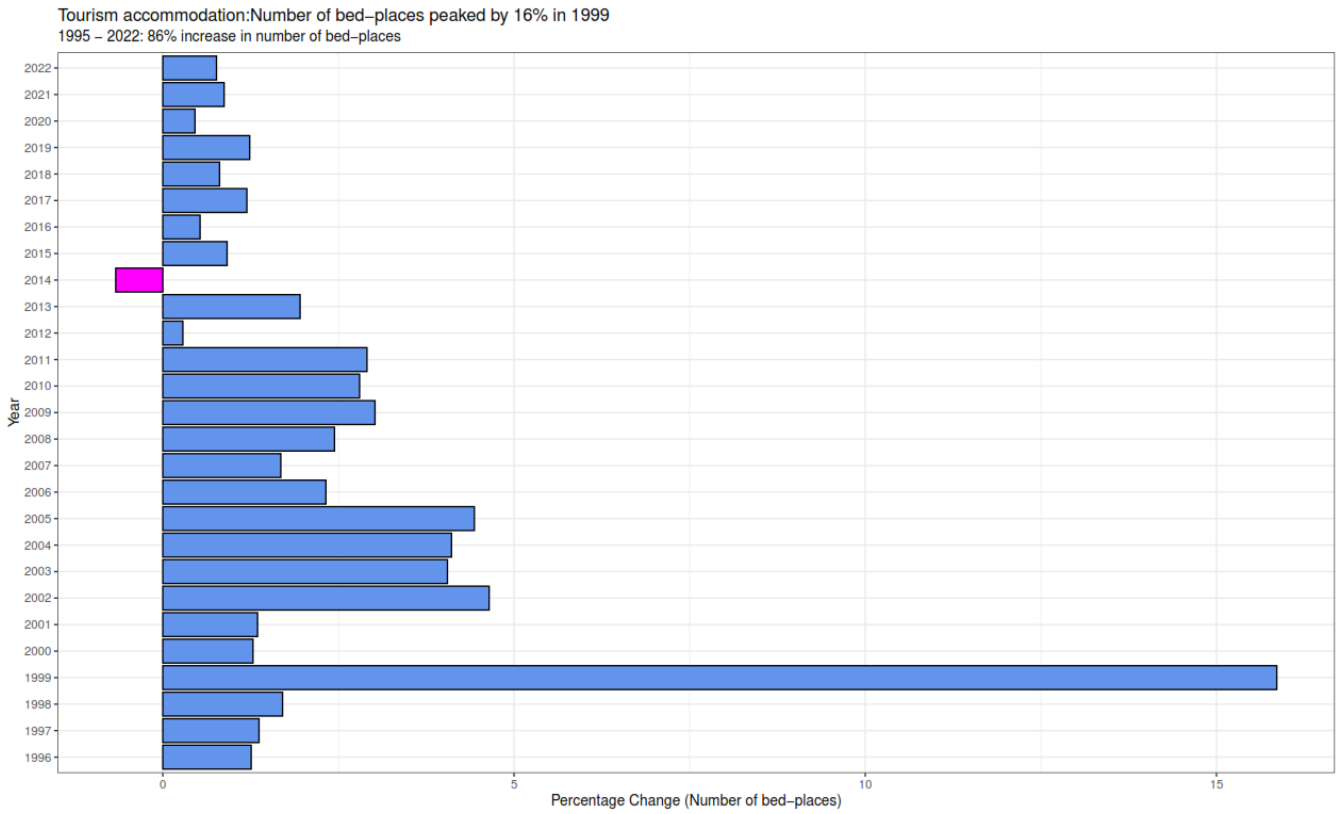

Figure 5: Percentage distribution of tourism accommodation by the number of bed-places (1995 - 2022)

2.4 EDA – Tourism accommodation by occupancy rates per rooms (1995 - 2022)

The available dataset for occupancy rates per rooms was drawn between 2009 and 2022. Importantly, it can be surmised that the emergence of the covid-19 pandemic, between late 2019 to 2022, caused a 40% drop in occupancy rates. This represented the sharpest dip in occupancy rates in the Spanish hospitality industry for the last decade. Nevertheless, the industry recovered from the downturn possibly caused by Covid-19 and bounced back with moderate to high occupancy rates in 2021 and 2022.

Ultimately, the period between 2008 and 2022 saw a 19% increase in occupancy rates per room in the tourism industry.

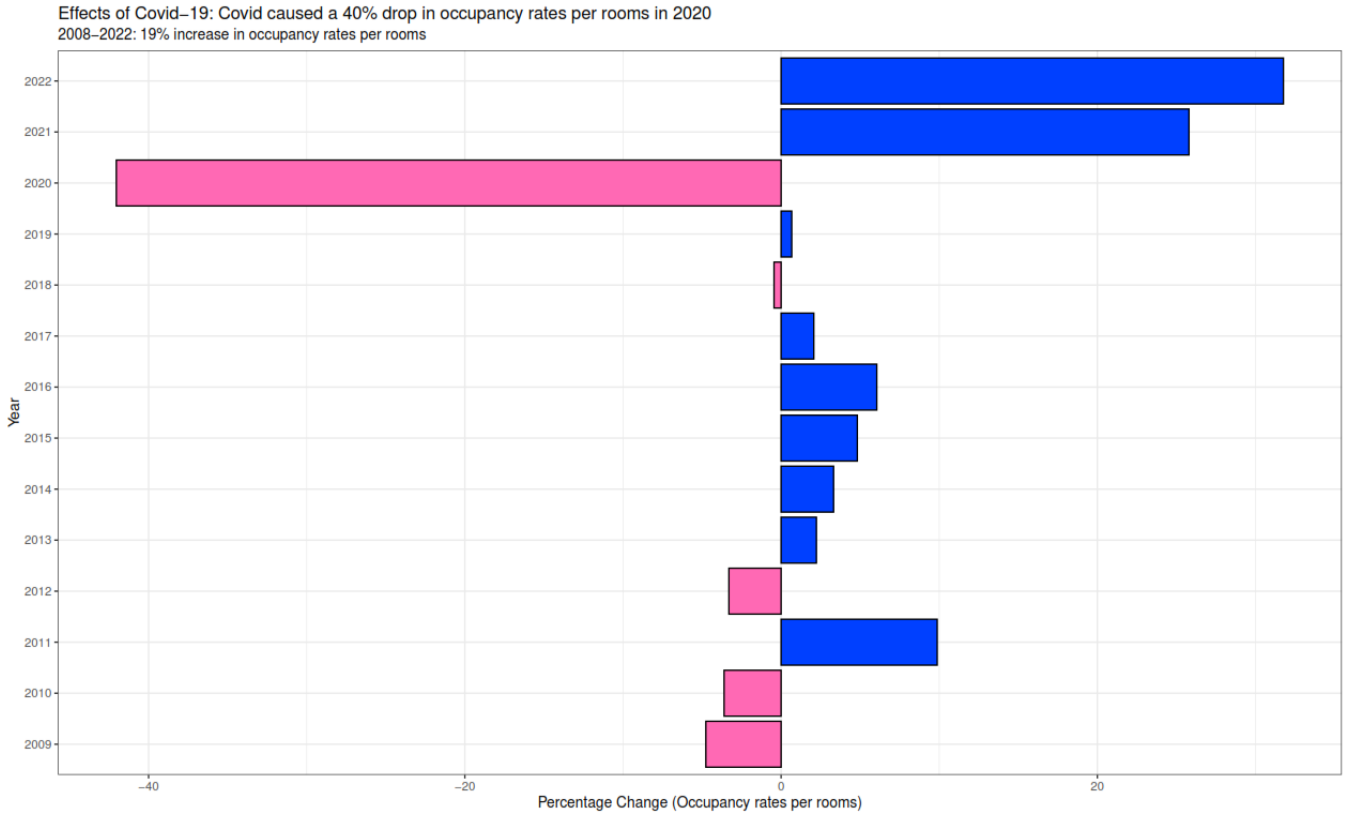

Figure 6: Percentage distribution of tourism accommodation by occupancy rates per rooms (1995 - 2022)

2.5 EDA – Tourism accommodation by occupancy rates per bed places

Occupancy rates per bed places, as shown in Figure 7, indicates a downturn in 2020 by 44% possibly due to Covid-19, representing the biggest drop in occupancies per bed-places. However, fairly moderate to high occupancy rates were recorded for 2021 and 2022 perhaps pointing to the attractiveness of Spain as a popular tourist destination.

For the period under review, the industry recorded a 6% decrease in occupancy rates per bed-places.

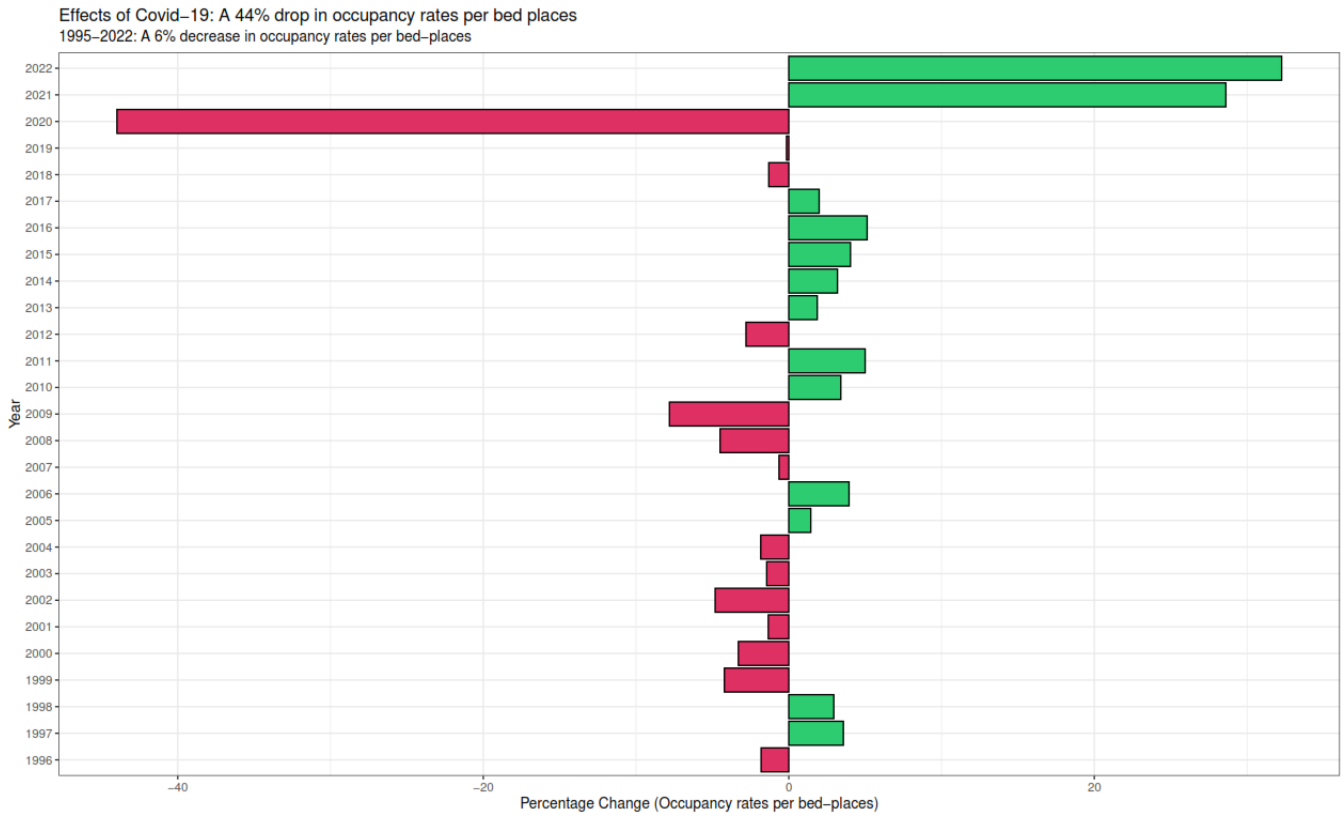

Figure 7: Percentage distribution of tourism accommodation by occupancy rates per bed-places

2.6 EDA – Tourism Accommodation by length of stay

The length of stay is the average duration of occupancy for a unit booking. On the average, the length of stay oscillated between 3 to 4 nights per booking. As shown in Figure 8, the trend for length of stay, displays a negative percentage change from 1995 to 2022. The biggest slump of 15% was noted in 2020. Interestingly, the industry has recorded a 26% decrease in the average length of stay for the period under review.

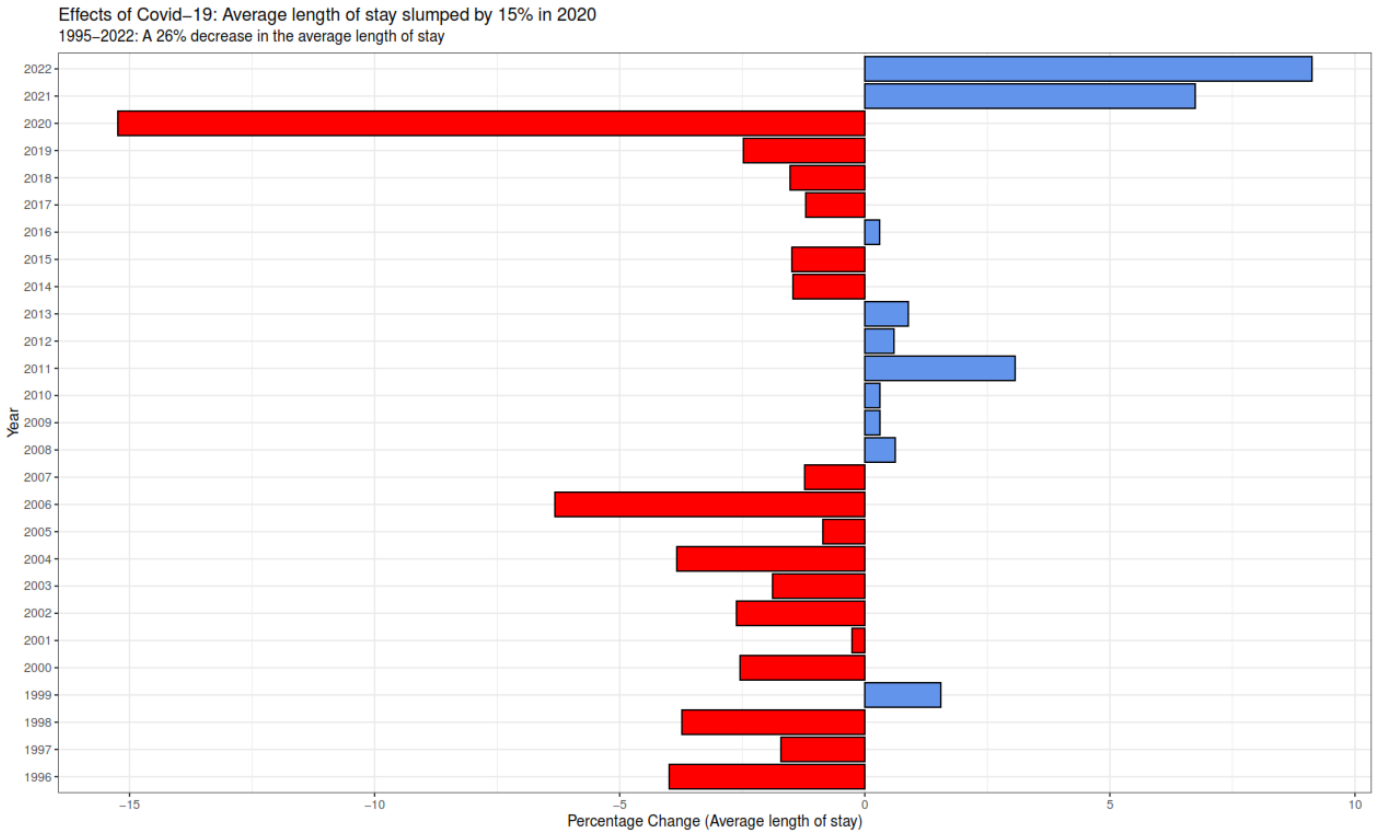

Figure 8: Percentage distribution of tourism accommodation by average length of stay

3.0 Findings

3.1 Accommodation Units (1995-2022)

In general, the data displays a water shed moment for the Spanish tourism industry in 1999. The analysis indicates the pivotal year for tourism (1999) experienced a significant growth for accommodation units especially for the number of bed-places. As shown in Figure 9, the number of bed-places sequentially experienced a robust year-on-year growth from 1999 and peaked in 2022 at 2 million units. This trend corroborates preliminary findings as earlier described for the exploratory data analysis. Significant percentage increases of 16% and 14% were observed for the number of bed-places and available rooms in 1999. This consequently reflected in growth rates of 86% and 67% for bed-places and available rooms in 25years.

Interestingly, the growth curve for the number of rooms mimicked the number of bed-places (Figure 9).

The average length of stay and the number of establishments remained relatively stable from 1999 to 2022.

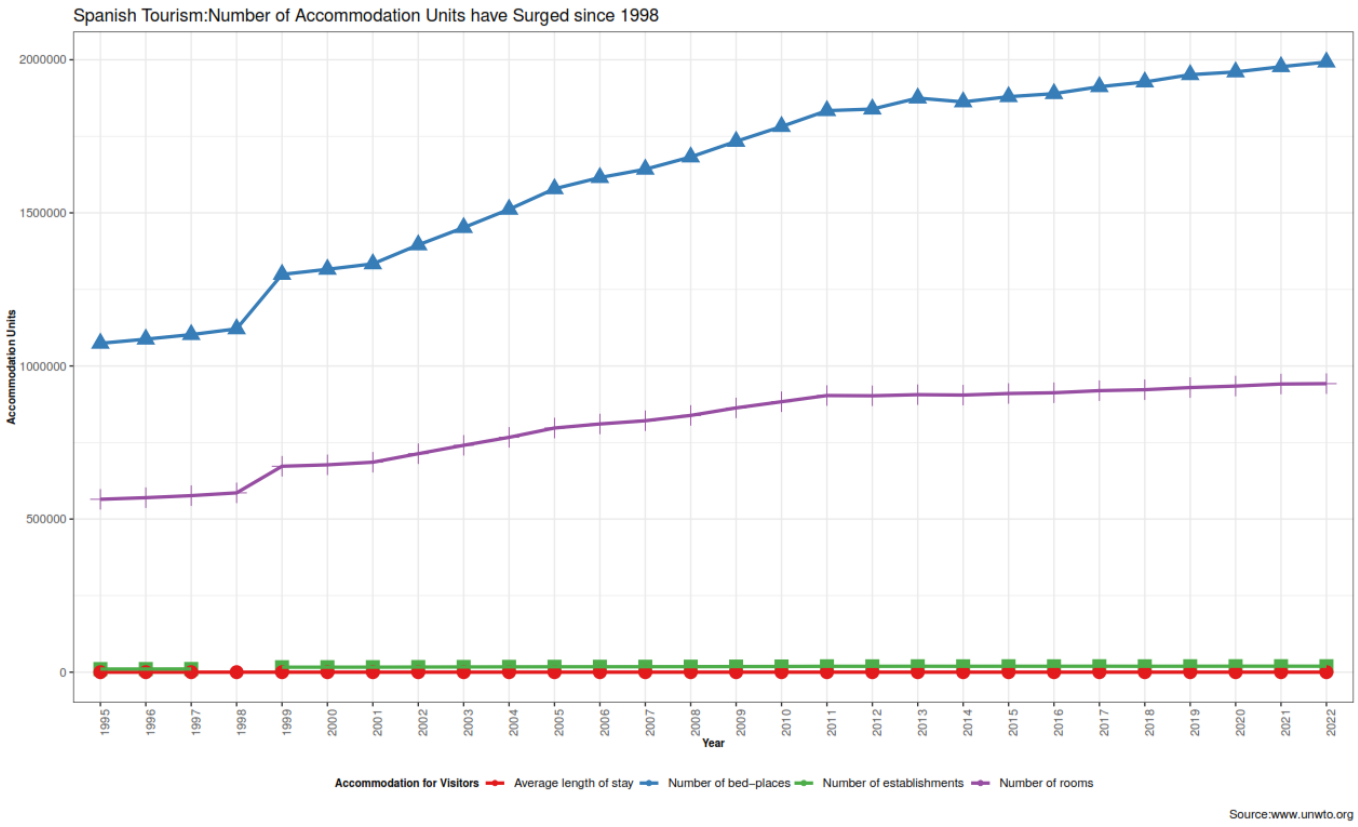

Figure 9: Distribution of accommodation units (bed-places, rooms, establishments)

3.2 Accommodation Occupancy Rates (1995-2022)

The data trends for occupancy rates per bed-places and rooms were analysed over the study period. Available data for occupancy rates per rooms commenced from 2008 to 2022 while occupancy rates per bed-places was from 1995 to 2022.

The trends for occupancy rates per bed-places statistically mirrored occupancy rates per rooms. The variables peaked in 2019 and nose-dived in 2020 as shown Figure 10. Nevertheless, occupancy rates rebounded to peaks earlier observed in 2019.

It may perhaps suffice, that the sharp rise in occupancy rates following the down-turn of 2020 attests to the allure and attractiveness of Spanish holiday destinations to inbound tourist arrivals.

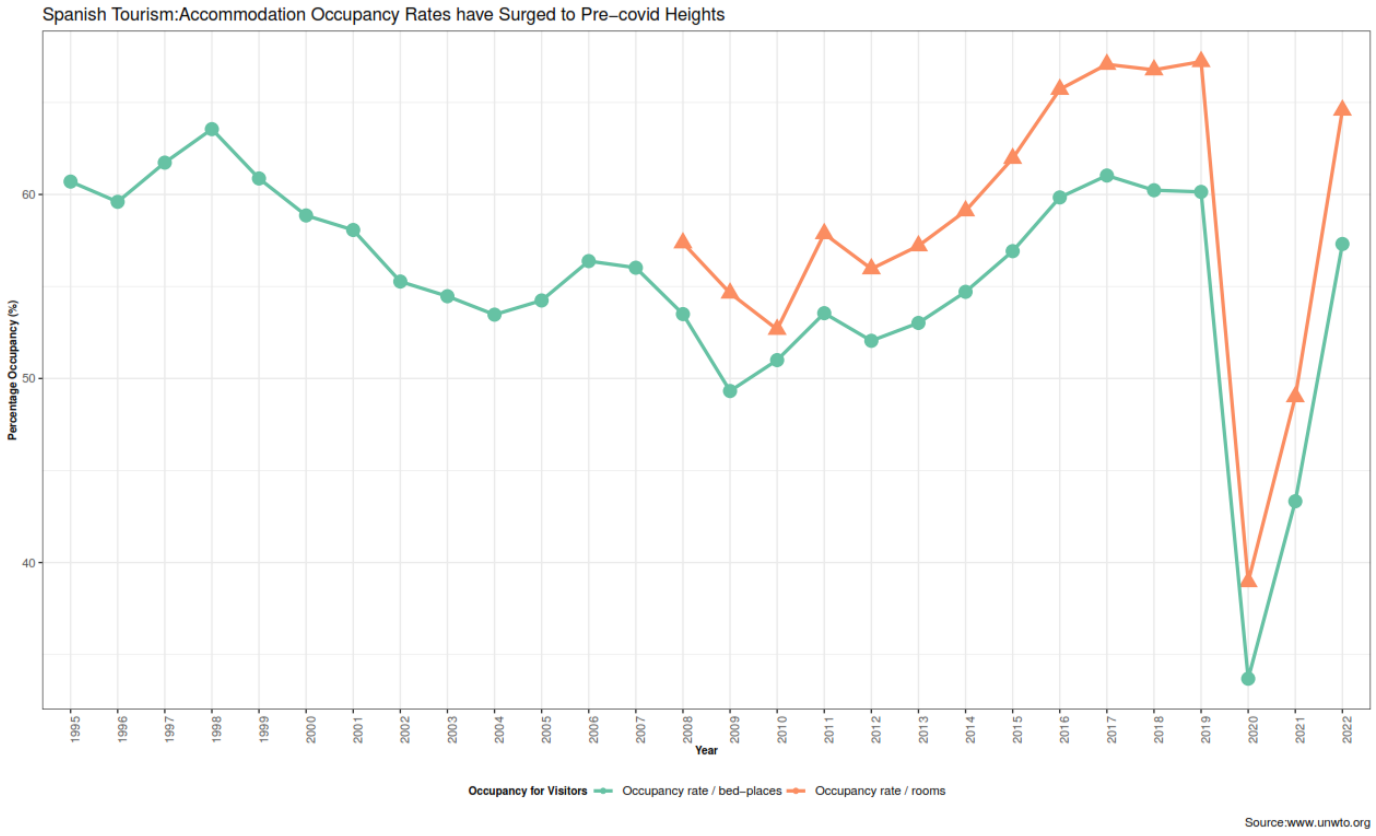

Figure 10: Distribution of accommodation occupancy rates (bed-places and rooms)

3.3 Inbound tourism arrivals (1995-2022)

Data analysis of inbound tourism arrivals for the period under review, displayed a chronological year-on-year growth for groups of visitor arrivals. Groups of overnight visitors mimicked same for same-day visitors or excursionists. As earlier mentioned, a slump in arrivals was seen in the year 2020 but rebounded to previous peaks in 2021 and 2022.

The observed trend for group arrivals reflected same for occupancy rates for the period under review.

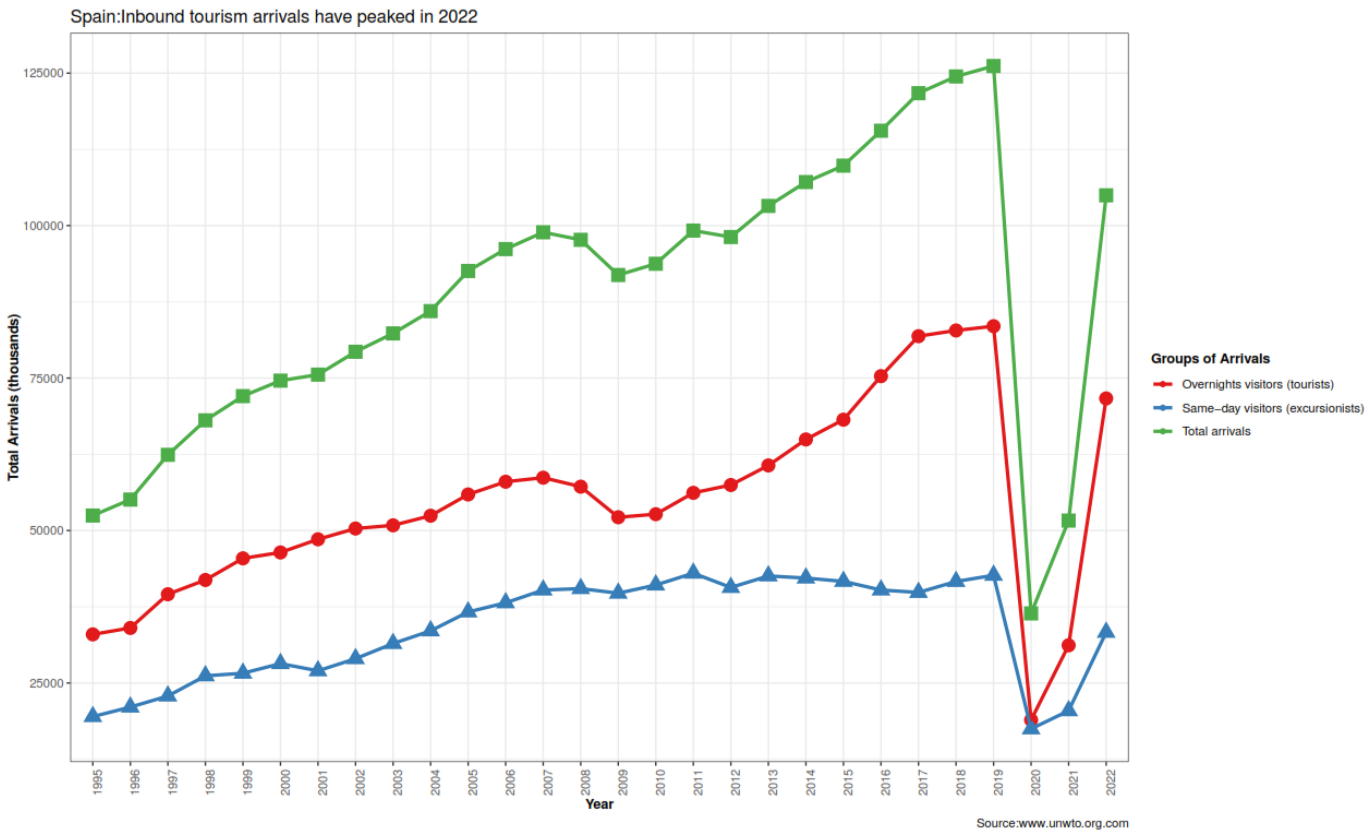

Figure 11: Distribution of Inbound group tourism arrivals

3.3.1 Dashboard – Occupancy rates and Group arrivals (1995-2022)

Pursuant to the latter observations, further analysis should be carried out with in-depth data for occupancy and group arrivals to un-earth, where possible statistical trends, to aid better planning and decision making.

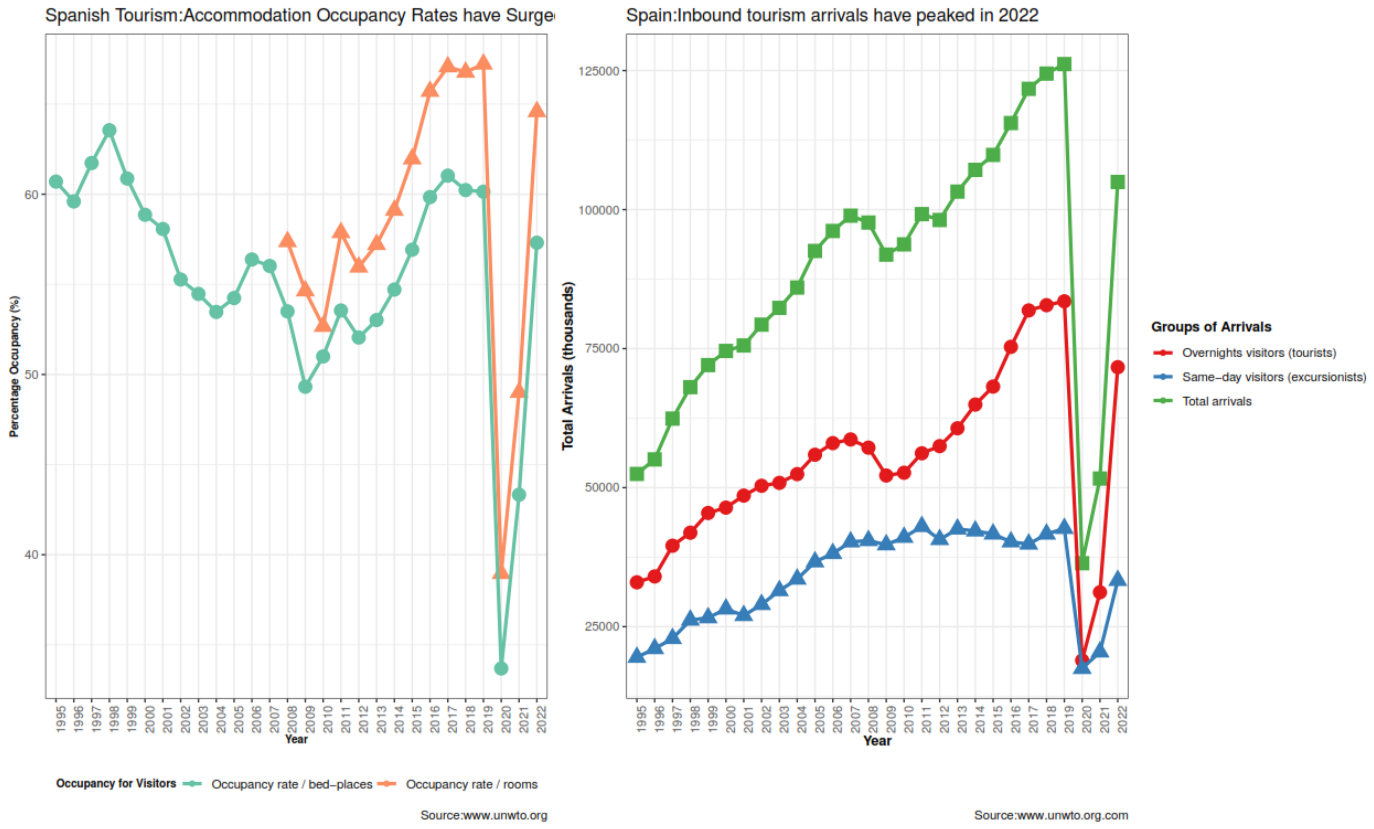

Figure 12: Comparative analysis – Distribution of Occupancy rates and group tourist arrivals in Spain

3.4 Regional tourism arrivals (1995-2022)

Data from the UNWTO indicates, 85million tourists patronised Spain in 2023. All tourists arriving in Spain, were categorised according to departure countries and regions. This was further processed into groups of arrivals from continents namely Africa, East Asia and the Pacific, Middle East, South Asia, Americas and Europe.

Analysis of regional tourism arrivals to Spain showed an overwhelming patronage of Spanish tourism destinations by arrivals from Europe. **It is may be fair to assume that the fluid and robust intra-European travel industry is patronised by EU citizens compared to other continental arrivals. This is exemplified by the finding as shown below for continental arrivals in Spain.** Hitherto, further analysis may corroborate the latter assertion.

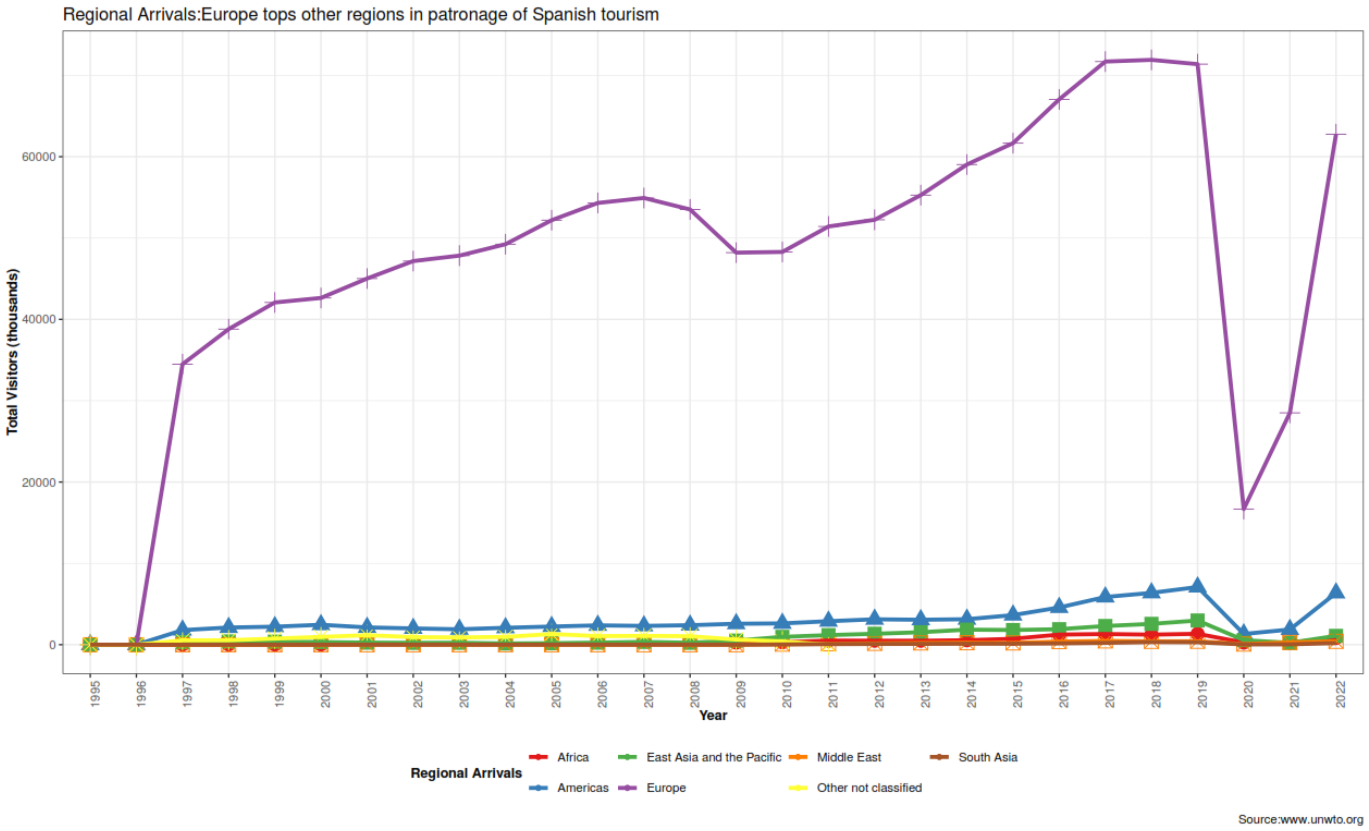

Figure 13: Distribution of regional (continental) tourism arrivals in Spain (1995-2022)

3.4.1 Regional distribution of tourism arrivals by region in Spain

An analytical deep-dive of the continental arrivals in Spain was conducted to observe the independent variables as shown in Figure 14. The total count of regional arrivals for each region were independently plotted for each year. The observed analysis, showed a spike in visitor arrivals by European visitors compared to other regions respectively. Peak arrivals for European tourists of 70,000 people were noted between 2017 and 2019.

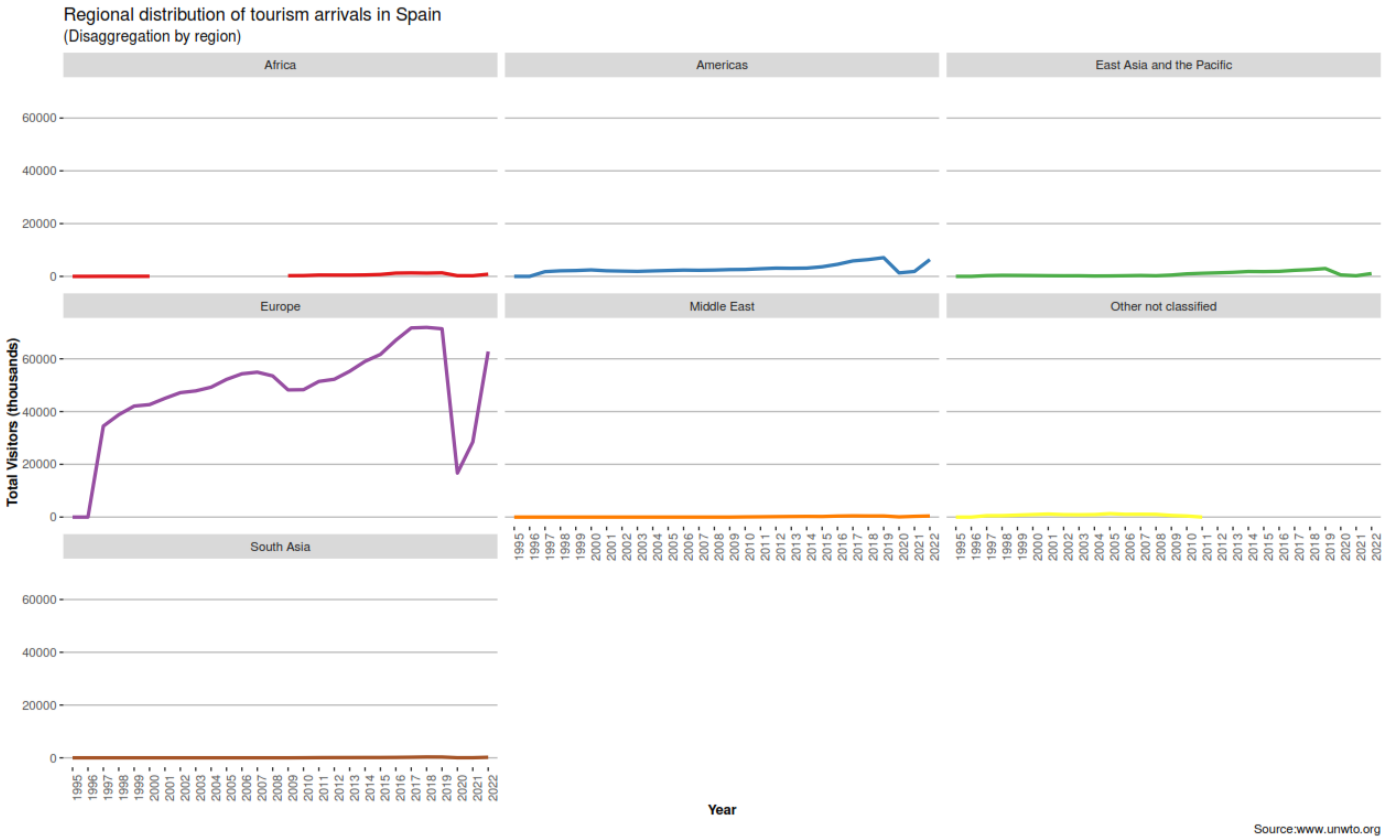

Figure 14: Distribution of regional (continental) tourism arrivals disaggregated by region

3.5 Travel expenditure by inbound tourists (1995-2022)

A survey of travel expenditure for inbound tourists revealed interesting outcomes. It was observed that tourists contributed millions of dollars to the Spanish economy annually. The contribution of tourism to the Spanish economy has increased significantly from 1995 to 2022. As shown in Figure 15 from a low of about 20 million dollars in 1995, tourists contributed more than 80million dollars to the Spanish economy in 2018. The trickle down effects to the local economies of Spanish cities and destination islands are significant.

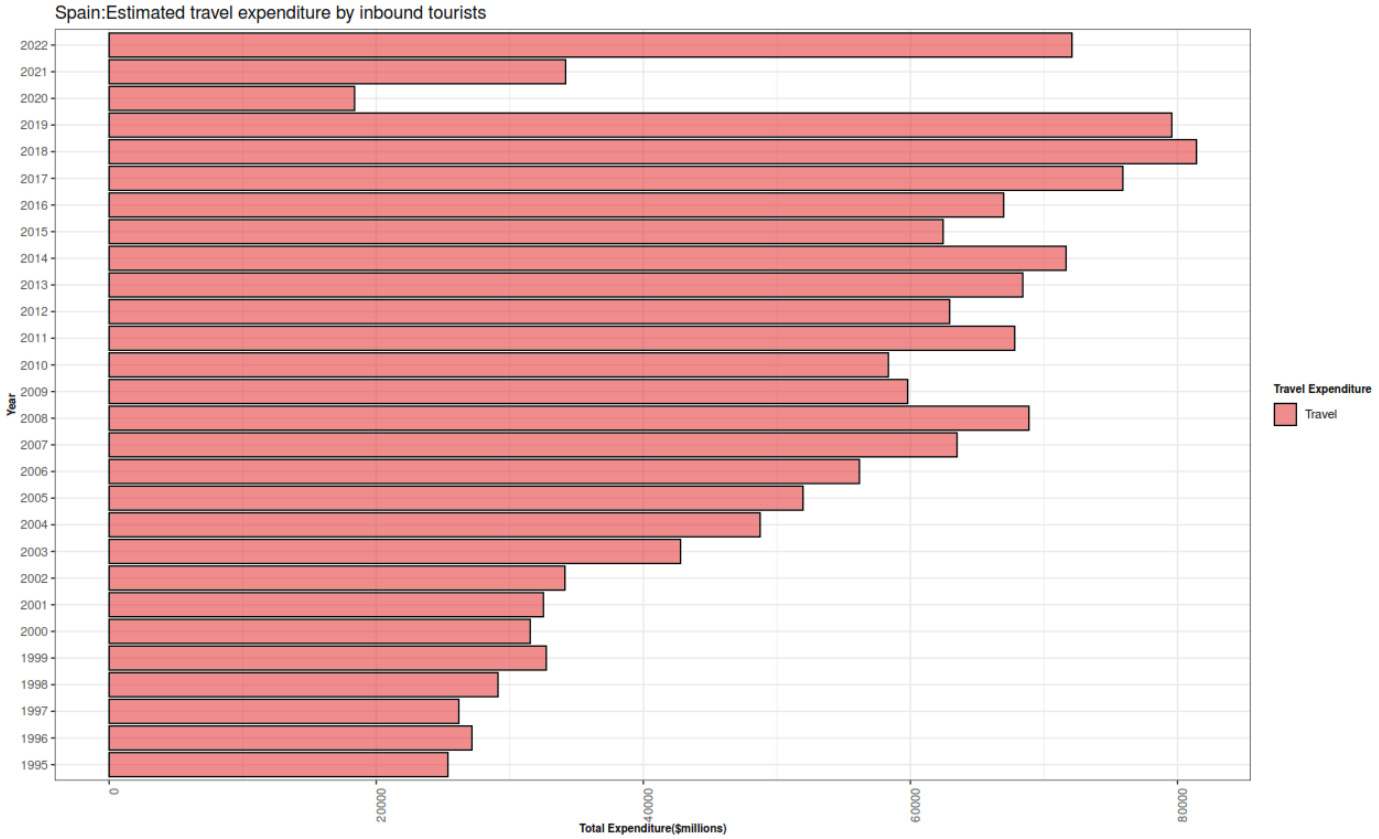

Figure 15: Distribution of tourists travel expenditure (1995-2022)

3.6 Travel purpose by inbound tourists (1995-2022)

Most tourists surveyed during the period under review indicated two main travel purposes: business and personal. A majority of tourists indicated the purpose of travel as personal. Business and professional reasons for travel paled in comparison to travel for personal purpose.

It is possible that most tourists holidayed for the purpose of leisure which infers a significant disbursement of travel and allied expenditure will be towards the latter.

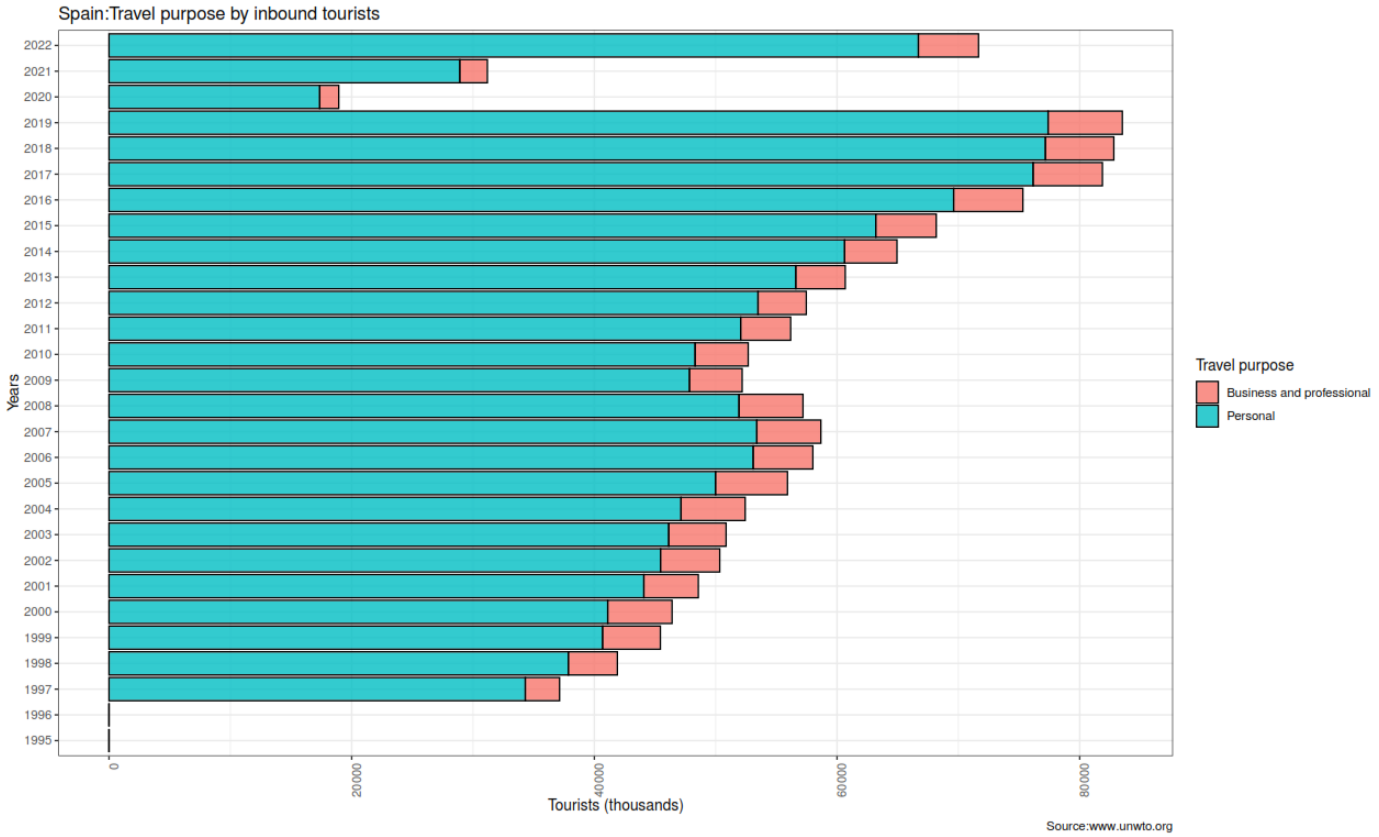

Figure 16: Distribution of travel purpose by inbound tourists

3.6.1 Dashboard – Travel expenditure and purpose of travel (1995-2022)

As reiterated earlier, analysis of data indicates a mirror trend for travel expenditure and travel purpose. Both variables increased sequentially from 1995 and peaked between 2018 and 2019. As seen from previous graphs, the Spanish tourism industry nose-dived in 2022 possibly attributed to the Covid-19 pandemic. However, the industry rebounded in the proceeding years of 2021 and 2022.

Again, it may be inferred for most visitors visiting for personal leisure, a large percentage of travel expenditure will be disbursed towards pleasure and leisure.

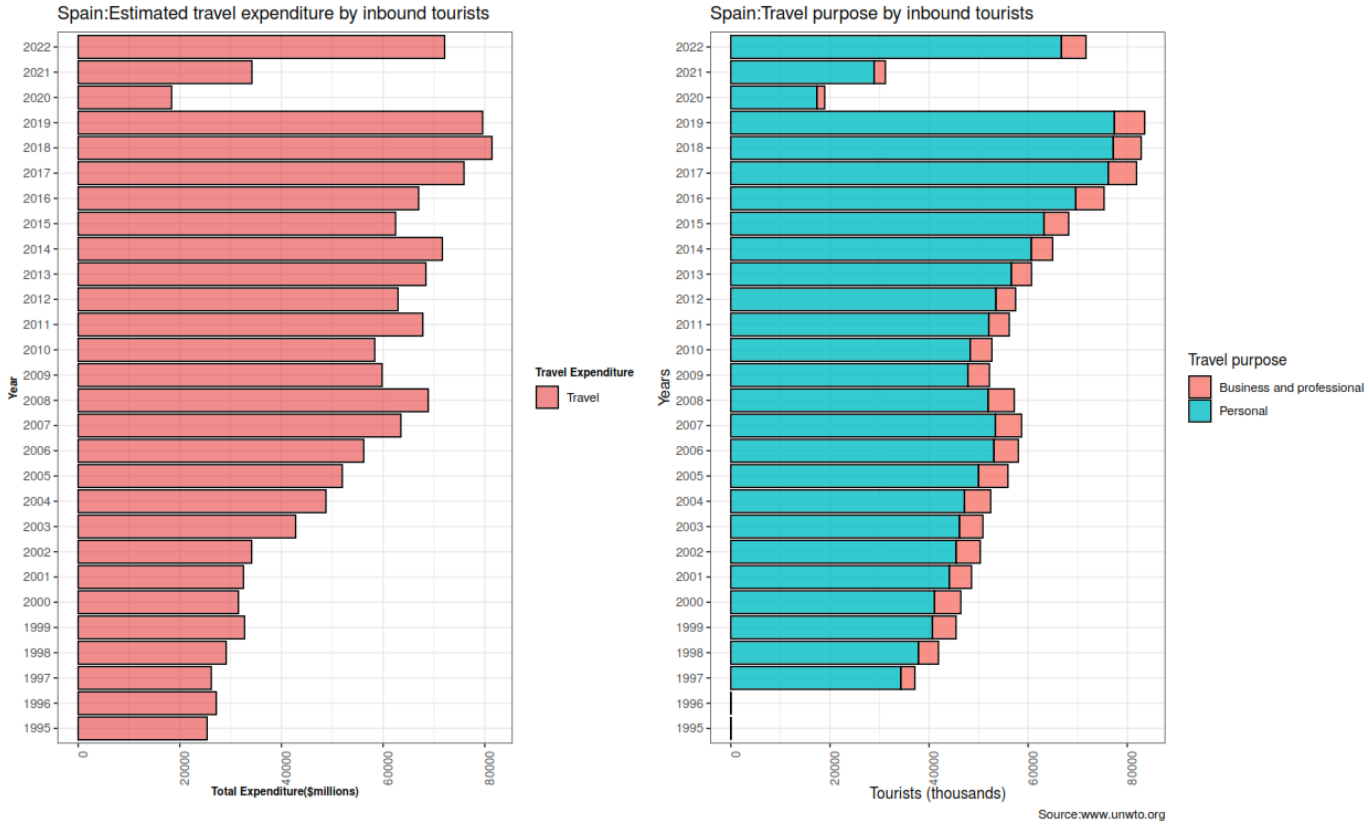

Figure 17: Comparative analysis – Distribution of travel expenditure and travel purpose.

3.7 Employment by tourism industries

The Spanish tourism industry generates employment in various sectors including the food and beverage, passenger transportation, accommodation and service, travel agencies and other accommodation sub-industry sectors. To analyse the employment by industry sectors, a percentage distribution was carried out for the sectors. **It was observed that the food and beverage industry generated about 51% of total employment in tourism. This was followed by the passenger transportation and other tourism industries. In third place for tourism employment by industry sub-sector was accommodation services and hotels.**

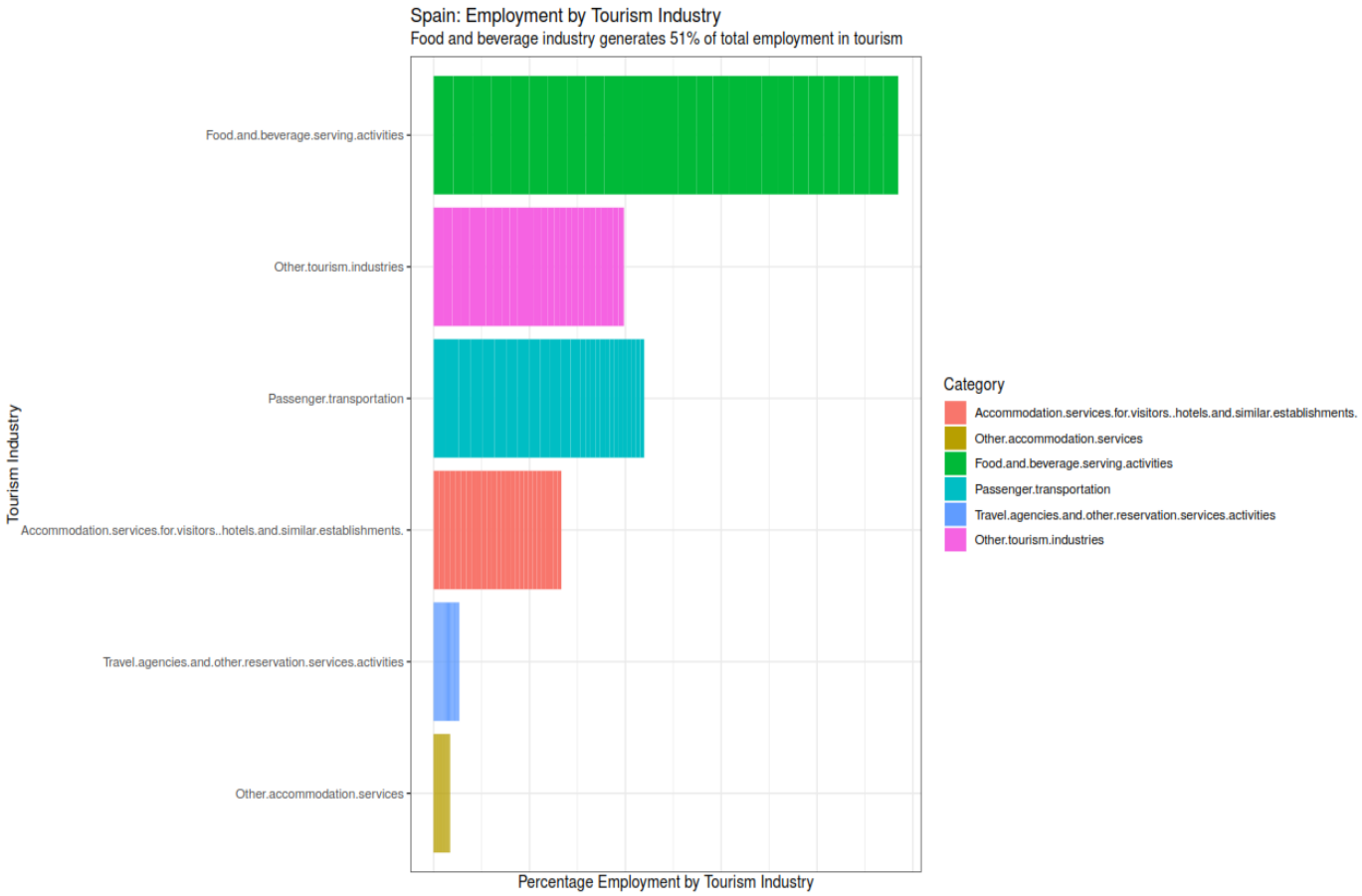

Figure 18: Percentage distribution of tourism employment by industry sub-sector

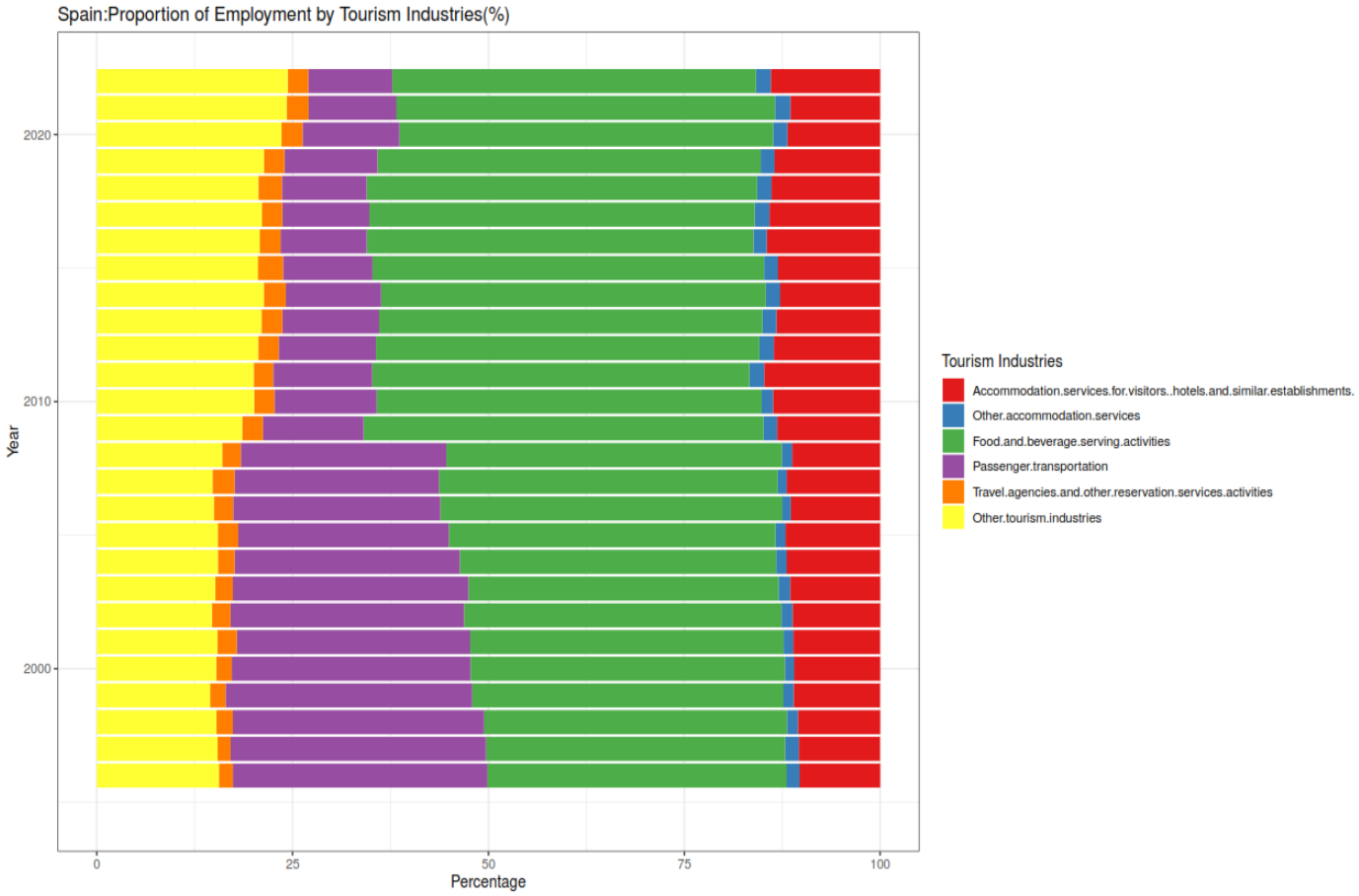

Figure 19: Proportion of employment by tourism industry

4.0 Conclusion

The following conclusions were drawn:

- Data analysis of the Spanish tourism industry displays a water shed moment for the Spanish tourism industry in 1999. The analysis indicates the pivotal year for tourism (1999) experienced a significant growth for accommodation units especially for the number of bed-places. The number of bed-places sequentially experienced a robust year-on-year growth from 1999 and peaked in 2022 at 2 million units.

- Despite the tourism down-turn of 2020 possibly attributed to the Covid-19 travel shutdowns, the sharp rise in occupancy rates in 2021 to 2022 attests to the allure and attractiveness of Spanish holiday destinations to inbound tourist arrivals.

- Data analysis of inbound tourism arrivals for the period under review, displayed a chronological year-on-year growth for groups of visitor arrivals.

- Analysis of regional tourism arrivals to Spain showed an overwhelming patronage of Spanish tourism destinations by arrivals from Europe. It is fair to assume that travel policies including a unified European Schengen visa programme facilitates a fluid and seamless intra-European travel.

- Tourists contributed more than 80million dollars to the Spanish economy in 2018.

- Most tourists surveyed during the period under review indicated two main travel purposes: business and personal. A majority of tourists indicated the purpose of travel as personal.

- It was observed that the food and beverage industry generated about 51% of total employment in tourism. This was followed by the passenger transportation and other tourism industries. In third place for tourism employment by industry sub-sector was accommodation services and hotels.

4.1 Overtourism – A fact or a myth

The available data and metrics established were not sufficient to investigate the case of overtourism. To establish the existence of overtourism in the Spanish tourism industry, metrics such as described below must be established and validated by data analysis:

- **Mass tourism**: This term refers to the large numbers of tourists visiting a destination, often resulting in overcrowding and strain on local resources.

- **Tourist saturation**: This describes the point at which a destination becomes overwhelmed by the number of tourists, leading to negative impacts on the local environment, economy, and community.
- **Carrying capacity**: This refers to the maximum number of tourists that a destination can accommodate without experiencing negative impacts on the environment, infrastructure, and local community.
- **Tourism overload**: This phrase describes the situation in which a destination is unable to cope with the number of tourists, leading to congestion, overcrowding, and strain on local resources.
- **Unsustainable tourism**: This term refers to tourism practices that are not environmentally, socially, or economically sustainable, often resulting in negative impacts on the local community and environment.