Tourism Case Analysis with the Chilean Government

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Executive Summary

Representatives of Chilean government (the Ministry of Economic Development and Tourism of Chile) are trying to improve the tourism industry in the country. Data was provided for 15 regions of Chile and 10 performance Dimensions were created. These dimensions are used as a benchmark for regions' performance.

Based on the problem statement, a Perform a Principal Component Analysis (PCA) was performed to create ranking for each one of the ten dimensions considered. Along with creating the rankings, eigenvalues and weights are calculated. Thereafter, specific recommendations were made regarding 3 regions that the Chilean government would focus on regarding tourism competitiveness, and 3 dimensions it should consider to improve it.

PCA and Rankings

Breakdown of analysis

01

METHODOLOGY

Data Cleaning, centering and scaling

Principal Component Analysis (PCA) performed on the scaled data, five components selected that represent >75% variance and eigenvalues are calculated

Linear equations are used to define each principal component and weights are calculated where they are multiplied by the PCA output to rank the components. The rankings are for each principal component per region

Because the PCA was performed in two parts (five dimensions at a time), the final step was to concatenate the two datasets, perform the PCA and determine a final ranking for each region per dimension

EIGENVALUES

Component	Total	% of Variance
1	8.2	82%
2	7.6	8%
3	2.5	3%
4	1.95	2%
5	0.72	2%
6	0.51	2%
7	0.31	1%
8	0.23	0%
9	0.04	0%
10	0.01	0%

Ten Dimensions PCA Region Ranking

Region	01 cultural heritage and events	02 natural resources and sustainability	03 human resources and tourism-related workforce development	04 tourism infrastructure	05 tourism mobility and transportation infrastructure	06 tourism related services	07 security and safety	08 economic performance	09 tourism promotion	10 governmental involvement and efficiency
Metropolitana	0.891685	0.422534	0.963079	0.86196	0.823252	0.931677	0.905245	0.973543	0.897147	0.726368
Valparaíso	0.397964	0.593401	0.211119	0.394539	0.292692	0.180911	0.082501	0.002268	-0.02282	0.091332
Los Lagos	0.060255	0.392826	0.144193	0.228366	0.381294	-0.02448	-0.05745	0.115806	0.103754	0.242656
Antofagasta	0.02426	-0.23474	-0.03651	-0.00091	-0.00511	0.118166	-0.05379	0.092882	0.116102	0.065398
Biobío	0.098304	-0.33446	0.105174	-0.09453	0.019775	-0.03785	0.175156	-0.06904	-0.08583	0.147177
Coquimbo	-0.11884	0.137198	-0.09469	0.051459	-0.15082	-0.16373	-0.09564	-0.17049	0.169696	-0.02933
Tarapacá	-0.06564	-0.07908	-0.01598	-0.04991	-0.09035	-0.12536	0.016082	0.050563	-0.04072	-0.2508
Araucanía	-0.15815	-0.09603	-0.13678	0.009561	-0.03692	-0.08445	-0.02161	-0.18796	-0.01403	0.062473
Magallanes y Antártica	-0.1032	0.000367	-0.10385	-0.11963	-0.01636	0.047006	-0.1307	-0.1368	-0.25456	-0.15061
Arica y Parinacota	-0.1519	0.01482	-0.18668	-0.13384	0.0138	-0.09982	-0.12377	-0.11736	-0.16663	-0.23268
Los Ríos	-0.14568	-0.11522	-0.21345	-0.09042	-0.23463	-0.1359	-0.14742	-0.1539	-0.1744	-0.07639
O'Higgins	-0.17332	-0.15705	-0.11296	-0.2863	-0.224	-0.16891	-0.13751	-0.04387	-0.21177	-0.07556
Maule	-0.20092	-0.13068	-0.19612	-0.22376	-0.16504	-0.22946	-0.12507	-0.15625	-0.16563	-0.01991
Atacama	-0.14685	-0.40467	-0.14161	-0.18404	-0.28467	-0.07901	-0.18861	-0.12707	-0.02771	-0.20877
Aysén	-0.20799	-0.00923	-0.18495	-0.36256	-0.32291	-0.12879	-0.09743	-0.07232	-0.1226	-0.29134

PCA Performed on all dimensions

REGION RANKING PER DIMENSION

Region	Overall Score	Overall Ranking
Metropolitana	-2.368115	1
Valparaíso	-1.3023988	2
Los Lagos	0.17151717	3
Antofagasta	-3.5860347	4
Biobío	-0.9303874	5
Coquimbo	4.44780316	6
Tarapacá	16.7929799	7
Araucanía	-3.1824753	8
Magallanes y Antártica	-3.2256356	9
Arica y Parinacota	-0.1522408	10
Los Ríos	-1.3277599	11
O'Higgins	-2.9748109	12
Maule	3.17444309	13
Atacama	-3.6002099	14
Aysén	-1.9366749	15

Region Breakdown

02

Visualizations that demonstrate key elements about different regions and highlight top regions with relative strengths and opportunity areas

Overall Region Ranking

Key Insights from Visualization

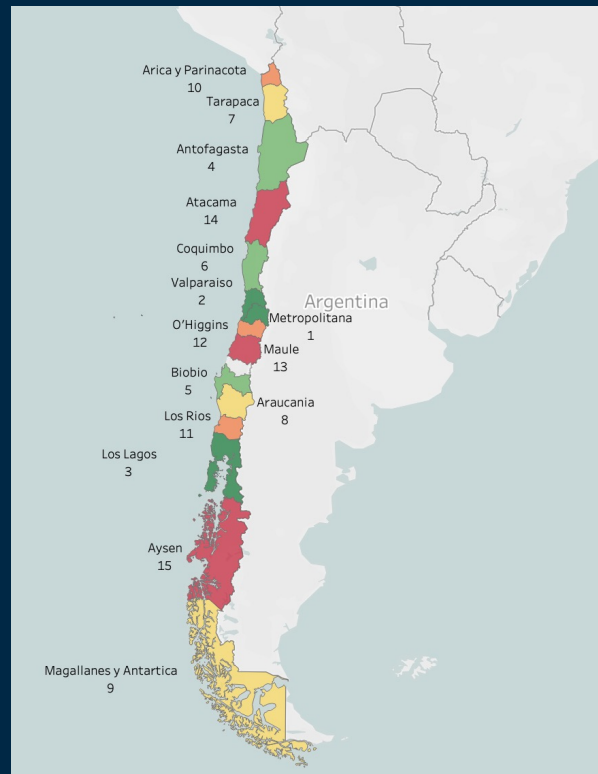Color gradient represents the ranking green being the highest and descending to red which is the lowest

Regions are also number ranking 1 being the highest and 15 the lowest

As shown in the map, regions that are top ranked are mainly concentrated in the central region of Chile

Neighboring regions Metropolitana and Valparaiso

Regions on the peripheral of Chile are generally ranked lower. For example, the southern part housing Aysen is ranked 15 which is the lowest ranking region

This visualization helps in resource management for the Chile government because some top-ranking regions are neighboring. Thus, they can share expertise and resources

Arica y Parinacota
10

Tarapaca
7

Antofagasta
4

Atacama
14

Coquimbo
6

Valparaiso
2

O'Higgins
12

Metropolitana
1

Maule
13

Biobio
5

Araucania
8

Los Rios
11

Los Lagos
3

Argentina

Aysen
15

Magallanes y Antartica
9

Rank Descending

1.00   15.00

Visualizations created using Tableau
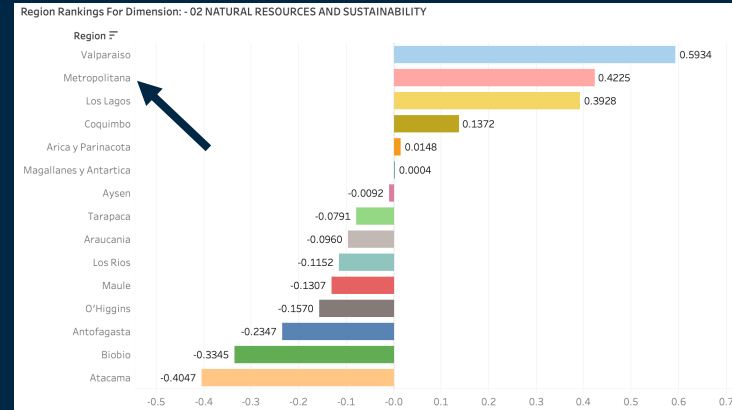
Focus Region 1: Metropolitana

Strengths

This region ranks in the top for almost all dimensions

This is a key tourism area in Chile and the Ministry of Economic Development and Tourism should maintain this ranking

Opportunities/Recommendations

The only dimension where this region does rank number 1 is Natural Resources and Sustainability. This is a target dimension the Ministry should improve to further enhance the region

Based on research, the city is known to have a waste disposal problem, and this does relate to the Natural Resources and Sustainability dimension. The ministry should solve this problem to not deter tourists

Region Rankings For Dimension: - 02 NATURAL RESOURCES AND SUSTAINABILITY

Region	Value
Valparaiso	0.5934
Metropolitana	0.4225
Los Lagos	0.3928
Coquimbo	0.1372
Arica y Parinacota	0.0148
Magallanes y Antartica	0.0004
Aysen	-0.0092
Tarapaca	-0.0791
Araucania	-0.0960
Los Rios	-0.1152
Maule	-0.1307
O'Higgins	-0.1570
Antofagasta	-0.2347
Biobio	-0.3345
Atacama	-0.4047

Metropolitana
1

Maule
13

Araucania
8

Visualizations created using Tableau

Focus Region 2: Valparaiso

Strengths

This region ranks in the top 5 in almost all dimensions. They particularly rank well in Cultural Heritage and Natural Resources dimensions

This region has great sight seeing places with its steep funiculars and colorful, clifftop homes that are a point of attraction for tourists
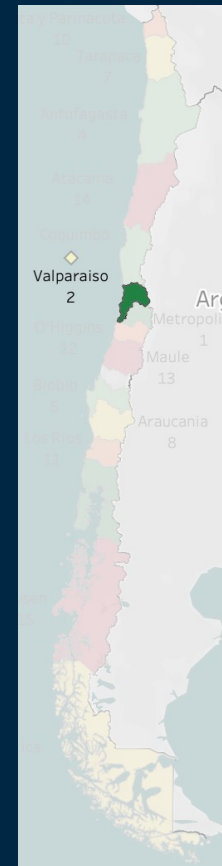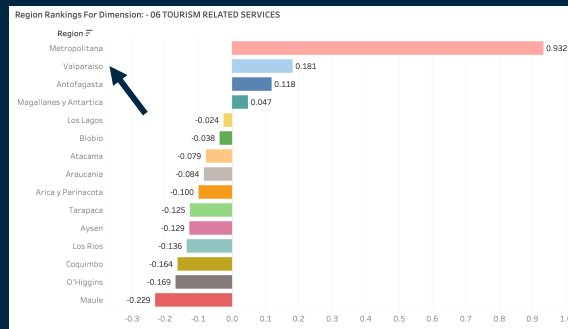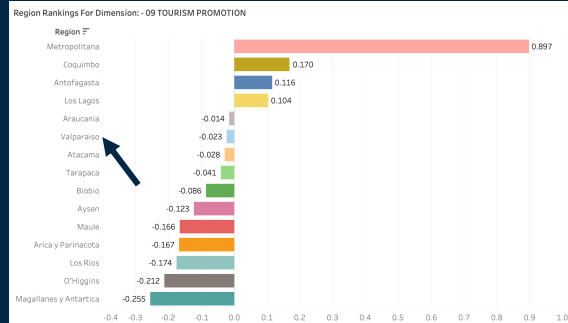
This region ranks number 2 in Tourism Related Services which is an important strength having in order to growth the region

Opportunities/Recommendations

The Ministry can focus on at least 2-3 dimensions like Tourism Mobility and Tourism Infrastructure to boost the area because it has a great potential to become a popular spot for tourists

There needs to be more tourism activism. The ministry should focus on and fund tourism promotion because the area ranks well in many aspects. This is important to capitalize on to further improve the city

Economic Performance is a dimension that can be improved automatically if the above points are addressed

Region Rankings For Dimension: - 09 TOURISM PROMOTION

Region	Value
Metropolitana	0.897
Coquimbo	0.170
Antofagasta	0.116
Los Lagos	0.104
Araucania	-0.014
Valparaiso	-0.023
Atacama	-0.028
Tarapaca	-0.041
Biobio	-0.086
Aysen	-0.123
Maule	-0.166
Arica y Parinacota	-0.167
Los Rios	-0.174
O'Higgins	-0.212
Magallanes y Antartica	-0.255

Region Rankings For Dimension: - 06 TOURISM RELATED SERVICES

Region	Value
Metropolitana	0.932
Valparaiso	0.181
Antofagasta	0.118
Magallanes y Antartica	0.047
Los Lagos	-0.024
Biobio	-0.038
Atacama	-0.079
Araucania	-0.084
Arica y Parinacota	-0.100
Tarapaca	-0.125
Aysen	-0.129
Los Rios	-0.136
Coquimbo	-0.164
O'Higgins	-0.169
Maule	-0.229

Region Rankings For Dimension: - 05 TOURISM MOBILITY AND TRANSPORTATION INFRASTRUCTURE

Region	Value
Metropolitana	0.823
Los Lagos	0.381
Valparaiso	0.293
Biobio	0.020
Arica y Parinacota	0.014
Antofagasta	-0.005
Magallanes y Antartica	-0.016
Araucania	-0.037
Tarapaca	-0.090
Coquimbo	-0.151
Maule	-0.165
O'Higgins	-0.224
Los Rios	-0.235
Atacama	-0.285
Aysen	-0.323

Valparaiso
2

Metropoli
1

Maule
13

Araucania
8

Visualizations created using Tableau

Focus Region 3: Biobio

Strengths

This region ranks in the top 3 for Cultural Heritage and Events. This aligns with research that states the region is known to be a culture heavy region

The city also performs well in the Security and Safety dimension which is an important factor for any tourism activity and good combination with Culture Heritage and Events
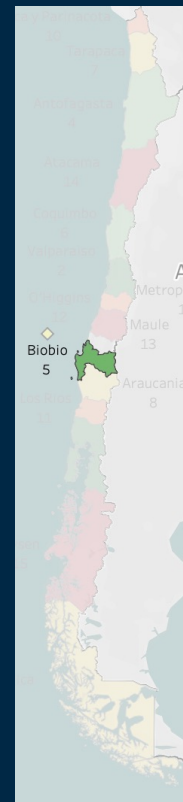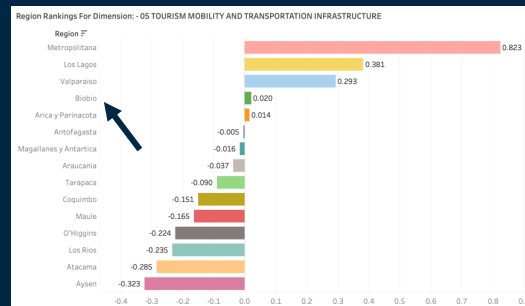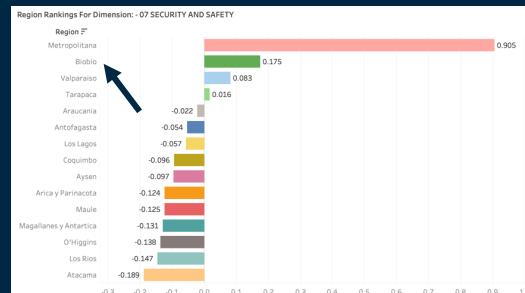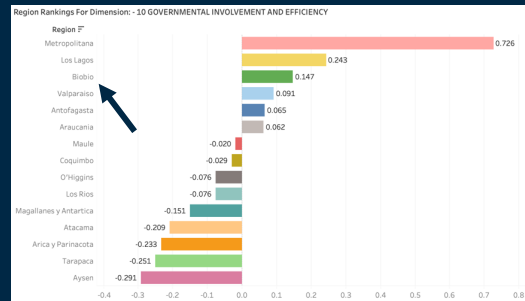
The region ranks in the top 3 for Governmental Involvement and Efficiency

Opportunities/Recommendations

The Ministry should focus on improving Tourism Mobility and Infrastructure to improve the tourist experience for this region. There are tourists that particularly want to visit regions with heavy cultural appearance

The region doesn't do well in Tourism Promotion which is a factor that the Tourism Ministry of Chile should promote given it strong culture heritage and events that are interesting to tourists

Because the region has is known to be populous with some data showing its one of the most populated regions in Chile, the Ministry should focus on further improving Security and Safety to get to similar level as Metropolitana

Region Rankings For Dimension: - 10 GOVERNMENTAL INVOLVEMENT AND EFFICIENCY

Region	Value
Metropolitana	0.726
Los Lagos	0.243
Biobio	0.147
Valparaiso	0.091
Antofagasta	0.065
Araucania	0.062
Maule	-0.020
Coquimbo	-0.029
O'Higgins	-0.076
Los Rios	-0.076
Magallanes y Antartica	-0.151
Atacama	-0.209
Arica y Parinacota	-0.233
Tarapaca	-0.251
Aysen	-0.291

Region Rankings For Dimension: - 07 SECURITY AND SAFETY

Region	Value
Metropolitana	0.905
Biobio	0.175
Valparaiso	0.083
Tarapaca	0.016
Araucania	-0.022
Antofagasta	-0.054
Los Lagos	-0.057
Coquimbo	-0.096
Aysen	-0.097
Arica y Parinacota	-0.124
Maule	-0.125
Magallanes y Antartica	-0.131
O'Higgins	-0.138
Los Rios	-0.147
Atacama	-0.189

Region Rankings For Dimension: - 05 TOURISM MOBILITY AND TRANSPORTATION INFRASTRUCTURE

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Biobio 5

Visualizations created using Tableau

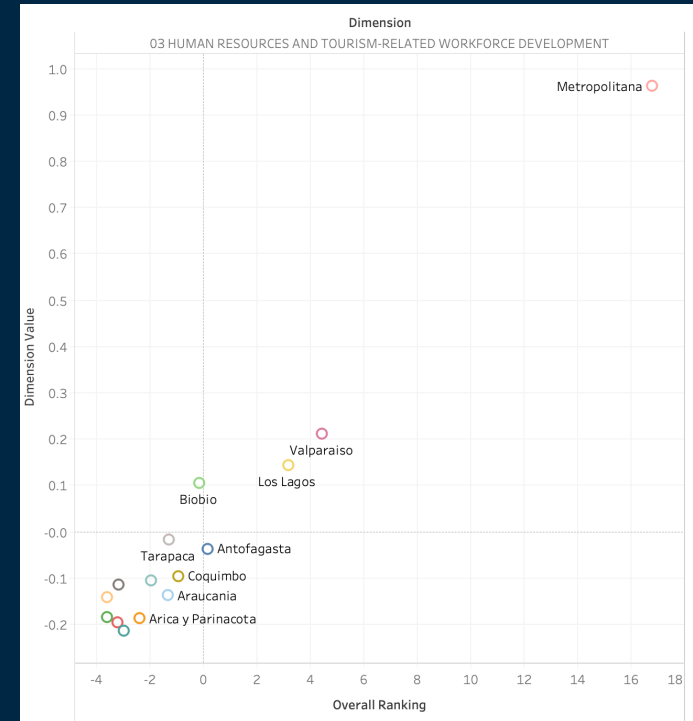# Dimension Recommendations and Impact

A higher level view of the specific dimensions the Ministry of Chile should improve to the entire tourism activity for the country of Chile

03

Focus Dimension: 3- HR and Tourism Related Work Development

Many regions rank poorly in this dimension. In our ever-changing world, especially post the COVID times, its important to adjust your tourism strategy to accommodate the new way of living. To elaborate, many people are working from home and can technically work from any spot. One of the things is people travelling and working at coffee shops and local areas. With that comes spending time around the towns they visit.
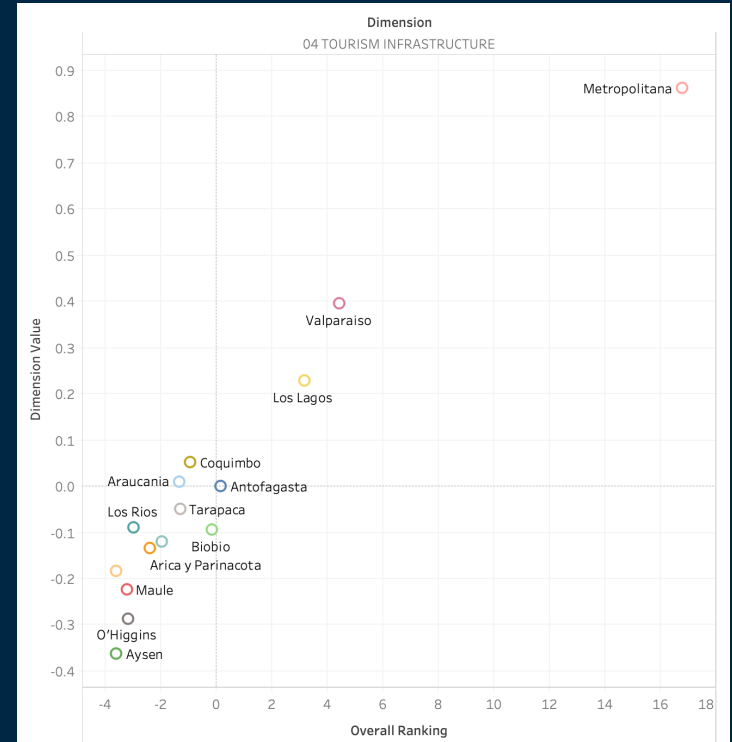
Thus, its important to have strong hiring strategies with great customer service such that tourists have a smooth experience when visiting these regions in Chile. In addition, its important to have good policing and safety in those regions so that tourists do not feel threatened to walk around or visit these areas.

Dimension
03 HUMAN RESOURCES AND TOURISM-RELATED WORKFORCE DEVELOPMENT

Visualizations created using Tableau

Focus Dimension: 4- Tourism Infrastructure

The Ministry of Economic Development and Tourism should also focus on Tourism Infrastructure especially for regions are were ranked low that have tourism activity. This basically covers elements like roads, railways, airports, and the like, which make a tourist destination accessible for tourists.

Tourism Infrastructure Readiness is a measurable factor that is studied by various institutions. Thus, it's critical for a country to have a well-established tourism infrastructure because there's a saying by the World Economic Forum "If you build it, they will come" and its basically about why infrastructure is crucial to tourism growth and competitiveness.

Dimension
04 TOURISM INFRASTRUCTURE

Visualizations created using Tableau

Focus Dimension: 9– Tourism Promotion

The Ministry of Economic Development and Tourism needs more Tourism Promotion in areas that perform well in many factors that are related to tourism. For example, there were regions that performed well in cultural heritage, natural resources and tourism infrastructure, but not so well in tourism promotion.

This is a dimension the Ministry can capitalize on to promote these regions in order to have a competitive edge in the OECD region against competitive countries like Argentina. Having a solid tourism activity is like an engine where many components need to work together to make it successful.

Dimension
09 TOURISM PROMOTION

Visualizations created using Tableau