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WHAT IF PRICES CHANGE? ANALYSIS OF INTERNATIONAL TOURIST MARKET SEGMENTS' COMPOSITION IN THE FACE OF INFLATION FLUCTUATIONS

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ABSTRACT

The Changes Price Index has considerable volatility that makes massive changes in the global market; subsequently, it could affect tourism demand and transform visitor profiles. The paper aims to answer the effect of it on international tourists and know the segment(s) beneficiated by this context. The research also considers that the CPI is inhomogeneous and involves different types to expand the analysis. The analysis will run a Latent Class model over the international tourist survey data conducted by the Spanish Statistic Office, first to obtain the clusters and later to analyze the elasticity of exogenous variables over the groups. The results show how low-expenditure profile is more sensitive to price changes; meanwhile, others with more added value are more inelastic. The main conclusion is that the business focused on the sun and sand segment and low expenses should adapt their supply by increasing the international tourist perceived value.

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Keywords: Changes Price Index; Price shock; International tourism; Composition of tourism demand; Latent Class Model.

¿Y si cambian los precios? Análisis de la composición de los segmentos del mercado turístico internacional ante las fluctuaciones de la inflación

RESUMEN

El Índice de Precios al Consumo (IPC) tiene una volatilidad considerable que provoca cambios masivos en el mercado mundial; en consecuencia, podría afectar a la demanda turística y transformar los perfiles de los visitantes. El objetivo del trabajo es responder al efecto que tiene sobre los turistas internacionales y conocer el segmento o segmentos beneficiados por este contexto. La investigación también considera que el IPC es heterogéneo e involucra diferentes tipos para ampliar el análisis. El análisis correrá un modelo de Clases Latentes sobre los datos de la encuesta de turismo internacional realizada por la INE, primero para obtener los clusters y después para analizar la elasticidad de las variables exógenas sobre los grupos. Los resultados muestran cómo el perfil de bajo gasto es más sensible a los cambios de precios; mientras, otros de mayor valor añadido son más inelásticos. La principal conclusión es que los negocios centrados en el segmento de sol y playa y bajo gasto deberían adaptar su oferta incrementando el valor percibido por el turista internacional.

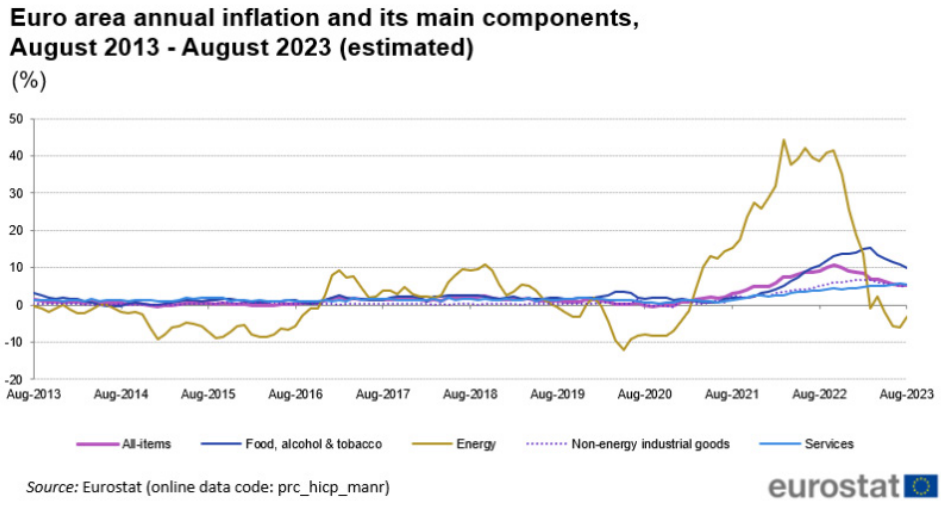
Palabras clave: Índice de precios de los cambios; Choque de precios; Turismo internacional; Composición de la demanda turística; Modelo de clases latentes.

1. INTRODUCTION

Multifactorial socioeconomic factors influence tourism demand and condition the sector dimension (Song *et al*., 2010). Among them is the economic situation, which concerns from local to international scale and could provoke excess or imbalance between the offerings and demand of tourist goods and services (Doğrul and Soytas, 2010). Hence, it leads economic analysts or tourist managers to consider how the situation could face the sector's future by considering the current global inflation context. Different circumstances explain it, starting with the first shock of the breakdown caused by the health crisis COVID-19, which follows other jaw-dropper crises, for example, an unexpected rise in energy costs, the suppliers' problems that threatened to shortage in the worldwide market or the war in Ukraine that has not stopped stressing the inflationary scenario in the European Union (see Figure 1). These price tensions will also cause variations in the tourism market (Meo *et al*., 2018); however, it is not a novelty since Morley (1994) raised this factor as an element to analyze tourism demand. In this sense, there have been several works that have recently advanced in the study of CPI in tourism (e.g. Durani *et al*., 2024). On the other hand, other studies have tried to segment the market based on changes in the prices of tourist properties (e.g., Durani *et al*., 2024; Zhubi *et al*., 2024). (Trovato and Ventura, 2024) However, to the best of our knowledge, there has been no other work that

has looked at the evolution of tourism segments as the CPI changes, taking into account both methodological approaches.

Figure 1
EURO AREA ANNUAL INFLATION AND ITS MAIN COMPONENTS



Source: Eurostat (2023)

Regarding the price uncertainty that has risen and fallen since the beginning of 2020, the current paper tries to study how the main tourism segments behave depending on price variations at the destination. The analysis will employ a sample of 318,765 tourists to implement a Latent Class Model (LCM) with external covariates based on the price variation indexes. It will allow the analyst to know the market segment's characteristics and proportion in the market and forecast how the demand composition will change if the price level varies. These results help better understand these groups' behavior in the face of the changes that occur in the prices of the main expenditure items that affect tourist activity.

The structure of the work is as follows: first, the paper describes the tourism reactions to volatilities caused by economic effects to formulate the working hypothesis later. The next step in the document is the methodology, which involves the description of the statistical method to segment the market and analyze the elasticities of index price variations in the composition of the market. The following section describes the data as a previous step to presenting the results. The discussion and conclusion engross the paper's final part, which compares the existing literature results with the obtained in the analysis as a previous step to reach the conclusions.

2. LITERATURE REVIEW

2.1. Crisis and tourism demand

The tourism sector, and even more so international tourism, is very vulnerable to the different crises that may arise, both health crises, such as the one experienced recently with the COVID-19 pandemic (Vena-Oya *et al*., 2022, a), but also financial crises (Khalid *et al*., 2020), which do not affect tourism demand in the same way. Regarding the latter, the literature lists different types of financial crises and how they can affect tourism demand (Khalid *et al*., 2020). Reinhart and Rogoff (2011) divide these economic crises that can adversely affect tourism into banking crises (such as the Global Financial Crisis-2008), sovereign debt crises, stock market crashes and finally those that have to do with prices and inflation. Focusing on the final typology, past studies have shown that its influence on tourism varies according to various factors (e.g. domestic or international tourism) (Khalid *et al*., 2020) or the different activities tourists undertake (Wang *et al*., 2009). Therefore, given the topicality of this inflationary crisis[1], this study will focus on this specific typology and how it affects the composition of international tourism demand.

2.2. CPI changes and the composition of the tourism demand

Several studies have identified tourist income and destination prices as two of the indicators that most affect tourism demand, especially in the case of international tourism (Song *et al*., 2010; Yap and Allen, 2011). Focusing on prices, it has been found that one of the most affecting factors is the price of oil given its relationship with inflation (Doğrul and Soytas, 2010; Katircioglu *et al*., 2015) and the reduction in consumer wages (Naccache, 2010), among factors that most affect tourism demand (Meo *et al*., 2018).

Thus, the influence of inflation or the price index (CPI) on tourist arrivals, both domestic and international, has been shown to be a crucial element in forecasting tourism flows (Song and Witt, 2000; Song *et al*., 2010). This is partly driven by the increase in the cost of living that high inflation produces (Ralston, 1999) and the fact that tourism is considered a luxury service (Lim *et al*., 2008). Overall, the traditional line followed in the literature is that of an inverse relationship between CPI and tourism demand (Khoshnevis-Yazdi and Khanalizadeh, 2017), since an increase in prices will affect both this demand and the quality of the service itself (Mangion *et al*., 2005). However, other authors question whether this relationship is always the norm (Ongan *et al*., 2017), as the tourism market is heterogeneous and different groups will have different elasticities (Untong *et al*., 2014). For example, Song *et al*. (2011) identify that one of the most important factors in the relationship between CPI and tourism demand is the place of origin of tourism and the relative impact of this increase (or decrease) on prices in the country of origin. Khoshnevis-Yazdi and Khanalizadeh (2017) did find a significant relationship between these two variables in their paper, but by using this CPI as a corrector for other variables, such as the exchange rate. On the other hand, Ekanayake *et al*. (2012) noted that tourism demand is elastic with

1 https://www.nytimes.com/2022/07/26/briefing/inflation-prices-ukraine-economy.html

respect to tourist income, but inelastic if we look at the CPI. Other studies even state that, depending on the type of tourist, they may not take into account or have not noticed this increase in prices (Oh and Ditton, 2005), with international tourism being more resilient to changes in the CPI (Khalid *et al*., 2020). However, there is consensus that this price variation will be more sensitive to the extent that spending is higher in the tourist's budget, such as transport (Seetanah and Khadaroo, 2009), leisure activities (Zheng and Zhang, 2013) and, of course, accommodation (Song *et al*., 2023). Based on these findings, the literature does not clarify the effect that alterations in the CPI will have on international tourism demand, but it does show that these alterations will change the composition of demand, since there will be factors that make some tourists less sensitive than others to prices (country of origin or type of tourism) (Ekanayake *et al*., 2012; Khoshnevis-Yazdi and Khanalizadeh, 2017), so the following hypothesis is established:

H1: Changes in price fluctuations affect the composition of the international tourism market.

2.3. CPI and tourist segmentation

The study of segmentation in tourism and how changes at the economic level affect them is a topic that has aroused the interest of the scientific community. Thus, some studies have tried to analyze how price may affect the preferences of different segments of tourists when paying for local food (Tiganis and Chrysochou, 2024). Other works have shown that there are certain segments of the population, in particular generation Z, that would be willing to pay extra prices when visiting certain types of destinations. (Pulido-Fernández *et al*., 2024). In this sense, it has been seen how the different pricing strategies of airlines (one of the most important expenses when we talk about international tourism) affect the purchasing decisions of certain segments of tourists. (Alonso and Socorro, 2024). Then, we see that segmentation is an effective tool for making concrete decisions in order to maximize the benefits from turism (Gorgoglione *et al*., 2024).

Taking into account these factors and the fact that tourism demand is elastic with respect to changes in prices (Ekanayake *et al*., 2012), it is clear that changes in the prices of the main expenditure items can affect the composition of the segments of tourists visiting a destination, especially if they affect the main expenditure items such as transportation, leisure activities, shopping or accommodation (Song *et al*., 2023; Alonso and Socorro, 2024).

We therefore pose the following research question:

RQ1: What is the effect of changes in the prices of the main expenditure items on international tourist segments?

3. METHODOLOGY AND DATA COLLECTION

3.1. Methodology

The empirical analysis will employ the Latent Class Model with covariates since it allows the analyst to obtain a market composition by considering some latent or endog-

enous class formed with a vector of categorical variables and observing how additional factors influence it (Linzer and Lewis, 2011). To apply this model, the researcher should introduce relevant variables that could characterize the market and group individuals with similar characteristics by considering a specific number of classes or aggregations. After that, the model adds external information to observe how its changes alter the cluster proportion in the whole composition.

The first phase will provide each segment's characteristics and the ratio they represent within the group. To carry out the analysis, the researchers need individual information from a relevant sample of the study universe and report factors that describe the characteristics of visitors. Therefore, the survey is the most adequate way to obtain the data since it could provide relevant categorical variables according to the study goals and allow construct groups to describe the market. At this point, defining the number of groups considered in the model is essential. The analyst should require both qualitative and quantitative outcomes to establish that number. Thus, the study will employ statistics such as Akaike, Bayesian Information Criteria (BIC), Chi2, GLoglikLihood or LoglikLihood to observe how they evolve as the model increases the considered groups. In the first four, the minimum will be pursued within a reasonable number of groups, while in the last case, a maximum will be sought. In the qualitative part, the considered grouping number should be helpful with the study's objectives and record significant disparities between groups, which should be identifiable and realistic.

The second phase demands information related to price variations and the stay length to incorporate them as external variables in the model. Both factors are crucial to explain how the market composition will change if the prices change and the tourists alter the spend time of their visit. It will make it possible to observe each group's elasticity based on the price variation, generating that the changes experienced by one group will be driven to another/s. Note that this allows the analyst to know how the market will be made up, but it needs to include information on tourist flows, which means not knowing the total demand for each of them. However, once the analyst or tourist managers know the participation percentage of each group in the face of the various inflation scenarios, they could employ short and medium-term flow tourist predictions and cross-reference it with those obtained groups to project scenarios.

3.2. Data collection

In order to implement the study, surveys of international tourists are needed, so we will use those collected by the National Statistics Institute (INE) in its Annual Tourism Expenditure Survey (EGATUR) (INE, 2023a). This survey has a cross-sectional and stable questionnaire that can be consulted in INE (2023b), and its methodology can also be checked in INE (2023c). This resource provides a lot of information that must be filtered and analysed before taking the variables that will make up the groups (Barreal *et al*., 2023). In this way, surveys with missing or atypical data on expenditure and stay are eliminated. It resulted in 318,765 surveys collected from October 2015 to September 2019. The study period was set by considering that this time has a stable Spanish national survey and does not involve any perturbance derived from any health issue (COVID-19) or inflationary stress. In order to

set up the endogenous variables, each must have a series of levels. Table 1 describes both the variables and their levels. Two blocks could define the descriptors employed to cluster the touristic profile and the activities. The first relates the origin, expenditure, primary motivation to visit Spain, the number of companions, and the accommodation type. Many papers previously used these variables; for example, Kastenholz *et al*. (2018). The second part described the tourist activities that the respondent made during the visit. Many authors focus on this topic for their research goals; in this sense, Eusebio *et al*. (2017) or Lee *et al*. (2020) involve some variables related to this subject in their analysis.

Table 1
DESCRIPTORS

Variable	Levels	Code	Variable	Levels	Code
Total reported daily expenditure per tourist	High (Máx.-D80)	Lv.1	Sports activities	Yes	Lv.1
	Medium-High (D80-D60)	Lv.2		No	Lv.2
	Medium (D60-D40)	Lv.3	Shows	Yes	Lv.1
	Medium-Low (D40-D20)	Lv.4		No	Lv.2
	Low (D20-Min)	Lv.5	Rural activities	Yes	Lv.1
Main Motivation	Culture and Leisure	Lv.1		No	Lv.2
	Sun and Sand	Lv.2	Parties or Nightlife	Yes	Lv.1
	Visiting Relatives	Lv.3		No	Lv.2
	Others	Lv.4	Shopping	Yes	Lv.1
Origin	Benelux (Belgium, Netherlands, Luxembourg)	Lv.1		No	Lv.2
	United Kingdom	Lv.2	Museums	Yes	Lv.1
	Germany	Lv.3		No	Lv.2
	France	Lv.4	City Tours	Yes	Lv.1
	Others European countries	Lv.5		No	Lv.2
	Rest of the countries	Lv.6	Sun and Sand	Yes	Lv.1
Accommodation	Market	Lv.1		No	Lv.2
	Non-market	Lv.2			
Number of accompanying persons	Alone	Lv.1			
	Couples	Lv.2			
	Friends and Family	Lv.3			

These variables are complemented by two exogenous variables that will measure the effect they have on the composition of the groups in the market. The first of these is the year-on-year price variation (INE, 2023d), which is previously employed in some papers to analyze tourism demand (Morley, 1994; Khoshnevis and Khanalizadeh, 2017; Khaidi *et al*.,

2019). This variable is associated with each survey observation according to the international tourist's main destination province. In addition, the length of stay will be used as a control dummy variable with the levels of very short (Min-Q1), short (Q1-Q2), medium (Q2-Q3) and long (Q3-Max) based on the responses to the questionnaire. The variable is also previously included in papers to analyze the tourism market (Alegre and Pou, 2006; Aguilar and Díaz, 2019). It shows that the very short stay has a range up to 4 days, the short stay from that point to 7 days, the medium stays up to 10 days, and the long stay from that point onwards.

4. RESULTS

The first step is to select the number of groups with which to implement the model (Barreal *et al*., 2023). For this purpose, the statistics described in the methodology have been calculated and it is observed that all of them obtain their optimal value when 4 groups are considered. In such a way that the Akaike, BIC, Chi2 and Glogliklihood reach their lowest value when four groups are considered, while the Logliklihood reaches the highest at that level as well.

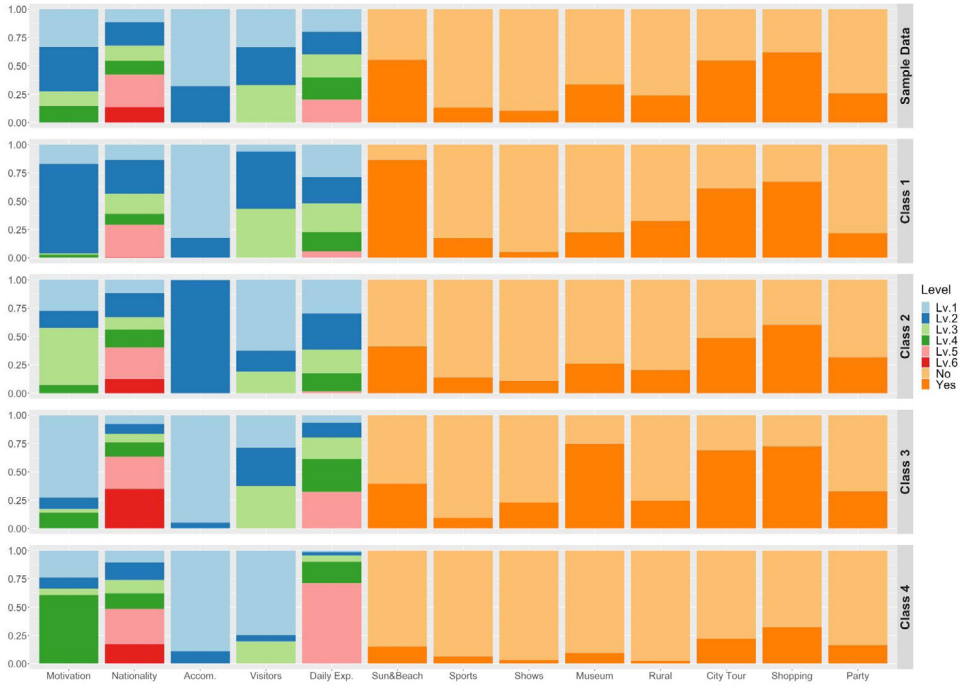
Once the segmentation has been carried out, different weights are obtained for each group, as well as differences in the characteristics that make them up. The following Figure 2, in the first row, shows how the weightings of each group are distributed in the total sample obtained. Thus, it can be seen that group 1 is the dominant group in the market, exceeding 40%, while groups 2 and 3 are very similar in terms of representation, with around 23%. Finally, group 4 represents about 14%.

With this distribution, each group has the characteristics presented in Figure 2. Here, the first line shows the distribution of the groups in the sample taking into account the different levels shown in Table 1 for the categorical variables and then the different groups of the segmentation. This makes it possible to identify the main characteristics of each group and to compare its result with the sample mean. In this way, the groups can be defined as follows:

- **Class 1 or European Sun and Sand (40.45%):** They are European tourists who are strongly motivated by the sun and sand as an element in their decision-making process when traveling to Spain. They frequently resort to market accommodation, tend to do so in company and their daily expenditure is characterised by being below average.
- **Class 2 or Low-cost Sun and Sand (22,36%):** They are tourists with a strong motivation to visit their relatives, although a significant number of visitors are motivated by the sun and the sand. What stands out most is that they use non-market accommodation, tend to travel alone and have a very low spending profile. In terms of activities, their frequency is below the market average.
- **Class 3 or Cultural (23,30%):** They are international tourists with a strong presence of non-European visitors who are mainly interested in cultural and leisure activities. Their accommodation is mainly in hotels or market establishments, their daily expenditure is high and their accompanying persons are not homogeneous, being very similar to the average values of the sample.

- **Class 4 or Other activities (13,89%):** They are tourists who travel alone or in groups and whose main motivation is to carry out academic, sporting or business activities, among others. Their origin is heterogeneous, but there is an interesting percentage from non-European areas. They use market accommodation during their stay, have a high spending profile and a low level of activities.

Figure 2
CHARACTERISATION OF THE SAMPLE AND SEGMENTATION GROUPS



Each of the groups presents characteristics associated with variables that are relevant for the tourism sector. Figure 3 below shows the averages for two very interesting variables for the tourism manager: stay and expenditure. It shows the attractiveness of group 4, which, being the smallest group, is the one with the highest daily expenditure. This same group, on the other hand, is also the one with the shortest stay, so it can be said that it is the one that generates the most revenue in the shortest time. Similar is group 3, although its expenditure is not as high and its stay shorter, but it is still an interesting segment if contrasted with groups 1 and 2, which have low levels of expenditure but longer stays. The latter two groups need more time to be able to generate the same economic impact as the previous two groups.

Figure 3
DIFFERENCE IN DAILY EXPENDITURE AND LENGTH OF STAY BETWEEN GROUPS

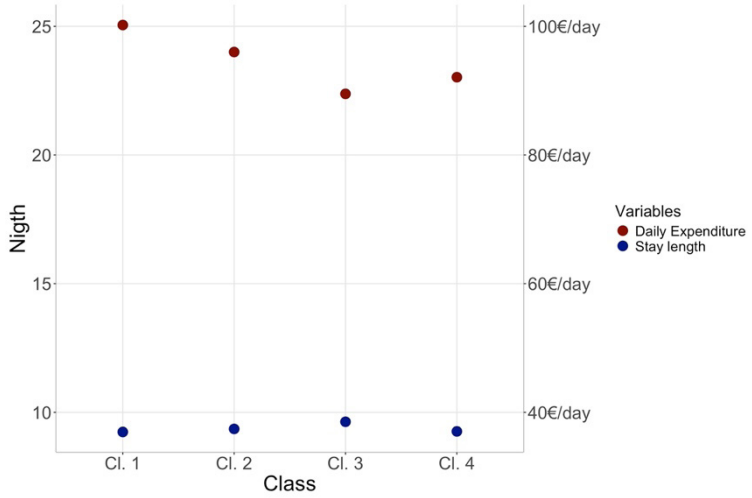
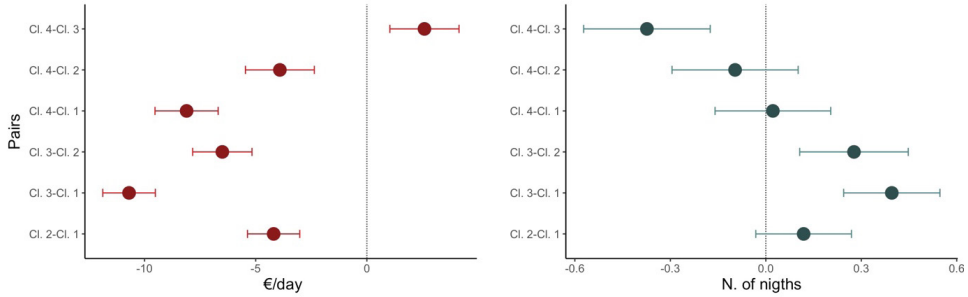


Figure 4 provides a graphical analysis of the difference in means for the variables above. It can be seen that the deviations are significant for all groups. This implies that a tourism manager will have a positive or negative effect on his or her expectations of daily stay and income if he or she decides to switch from one niche market to another. Thus, as mentioned before, the economic interest of group 1 and 2 is reduced and the manager will be interested in focusing on the other two because they generate economic flows in less time. The main problem is that group 4 is a small segment compared to what groups 1 and 2 cover (>60%).

Figure 4
DIFFERENCE IN MEANS BETWEEN GROUPS FOR DAILY EXPENDITURE AND LENGTH OF STAY



A MANOVA is then applied to analyse the significance of the differences in means between groups taking into account the variables describing the groups. In this way it is tested whether the variables are sufficiently heterogeneous between groups to be used for segmentation. Table 2 shows that at the global level the composition is relevant and shows overall differences between groups. The same table also includes an analysis of each of the factors separately. These show that they are all significant, demonstrating that individually they also show differences between groups.

Table 2
DIFFERENCE IN MEANS BETWEEN GROUPS FOR DAILY EXPENDITURE AND LENGTH OF STAY

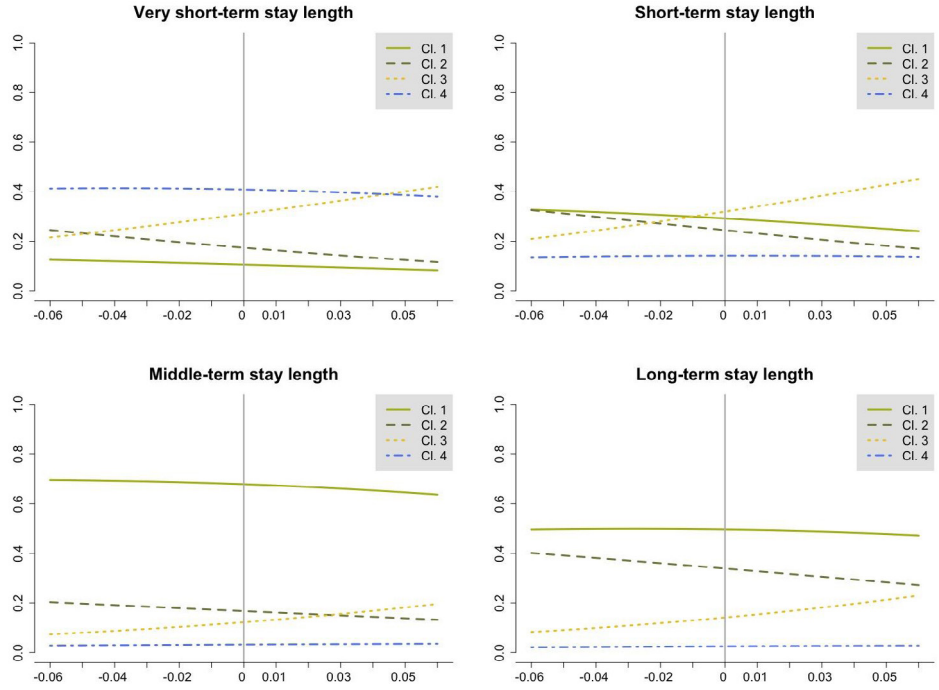
Global MANOVA		Pillai: 0.0085***			
		By Factor			
Variable	*F-value*	*Variable*	*F-value*	*Variable*	*F-value*
Expenditure	668.09***	Sport	53.98***	Shopping	35.511***
Origin	1080.6***	Shows	52.21***	Cultural	545.67***
Travel Type	24.791***	Rural	155.79***	City Tour	9.1304***
Accomodation	56.03***	Nightlife	17.307***	Sun and Sand	466.56***
Activities	499.92***	Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1			

The LCM is then applied with exogenous variables, for which the results are presented in Appendix A considering the year-on-year variation of prices considering the different types of stays. The results show that all the exogenous variables considered are significant, so that the control variables measuring the length of stay and the variation in prices are significant in explaining the probability of belonging to one group or another. This means that the probabilities of belonging to each of the classes obtained in the classification can be calculated depending on the levels of each of the independent variables. Figure 5 shows how the market equilibrium changes according to the year-on-year variation of the CPI for the different types of stay.

With this we can answer the research question posed. This suggests that an increase in prices causes group 3 to increase its market presence, becoming more and more accentuated the more prices change positively. This is mainly to the detriment of group 2, but also to a lesser degree group 1 and 4, depending to a large extent on the type of stay. Thus, if the stay is short and the price variation increases, then there is a transfer mainly between group 3 and 2. The other groups also show a fall in the market, but much more inelastic than group 2. This suggests that companies that are focused on a type of tourism such as group 2 should temporarily adapt their offer to receive tourists from group 3 and not see their economic capacity diminished. Group 4 has a residual presence when medium or

long stays are reported, so this transfer is not registered at these levels. For short stays, the increase in this segment is due to the gradual fall that groups 1 and 2 would experience as the price variation increases. The average length of stay shows a gradual decrease in group 1 but not as pronounced as in group 2. All this decline in market presence would be exploited by segment 1, which, depending on the level of variation, could become the second segment of the market. Finally, a similar situation occurs with long stays.

Figure 5
EVOLUTION OF THE REPRESENTATION OF EACH SEGMENT IN TERMS OF YEAR-ON-YEAR PRICE CHANGE

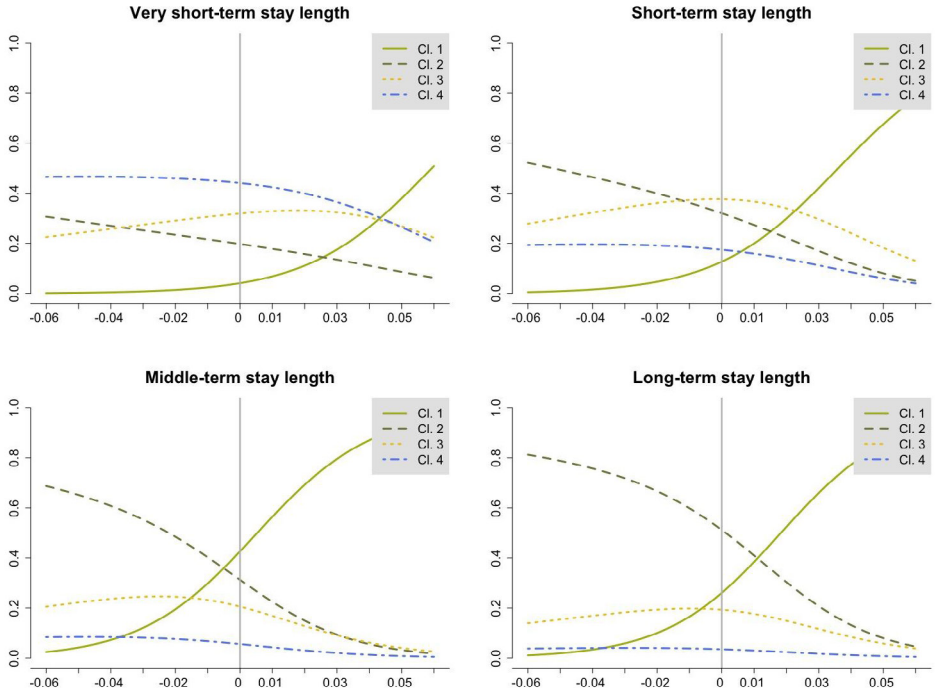


Source: based on the results in Appendix A.

The above details take into account the general variation in prices, so the study also proposes to analyse separately how the variations in the Hotel and Restaurant, Leisure and Culture, and Transport headings affect them. Appendix B details the results of the LCM taking into account as an exogenous variable the variation in hotel and restaurant prices and, after reordering the groups, Figure 6 is obtained. It shows that groups will vary strongly depending on whether prices rise or fall. That is, if only this category increases and the others follow *ceteris paribus*, then we will see how tourists from group 1 will have

a greater presence in the market and how the other groups will be reduced. It is striking how group 1, which has relatively low levels, if the market shows a price increase, then it would displace the other groups and become the main group in this segment of stays.

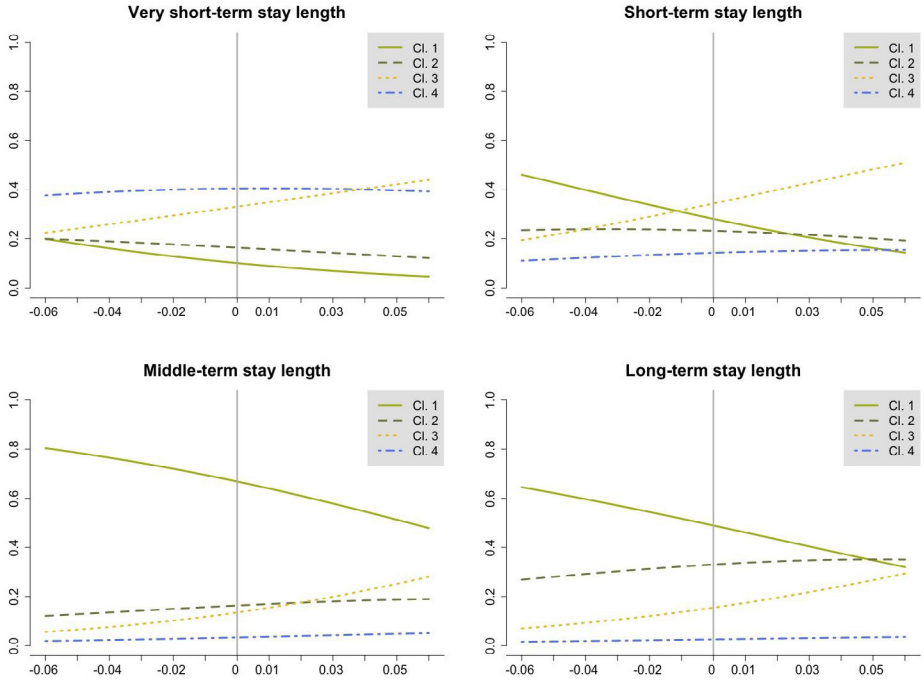
Figure 6
EVOLUTION OF THE REPRESENTATION OF EACH SEGMENT AS A FUNCTION OF THE YEAR-ON-YEAR CHANGE IN HOTEL PRICES



Source: Based on the results in Appendix B.

Figure 7 illustrates the different scenarios depending on the length of stay and the variations in prices linked to leisure and culture. In this case, the group that would grow would be group 3, so that the cultural segment would benefit if prices increase in its sector. This may be due to the pull effect that price increases can have and their attractiveness to international audiences from other parts of the world. There is also a slight positive, but highly inelastic, slope for segment 4 at certain stay levels. Most striking of all, however, is the loss of weight that segment 1 would experience, which would lose a lot of weight if leisure and culture prices were to increase. Finally, group 2 has a low elasticity, but with contradictory trends depending on the length of stay.

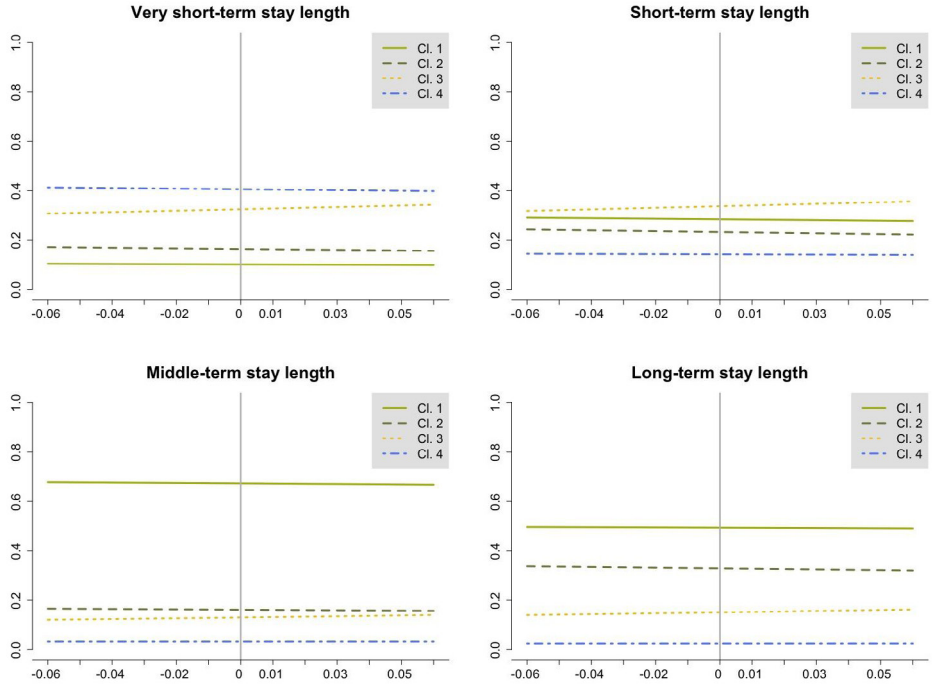
Figure 7
EVOLUTION OF THE REPRESENTATION OF EACH SEGMENT AS A FUNCTION OF THE YEAR-ON-YEAR PRICE CHANGE OF LEISURE AND CULTURE



Source: Based on the results in Appendix C.

Finally, Figure 8 analyses how price variation affects the concept of transport. It mainly shows that there is a certain inelasticity to this type of variation for the ranges considered. This means that the price changes present significant alterations but do not have a strong component to unbalance the market. In this sense, group 3 would increase its representation if internal transport prices were increased, but its strongest year-on-year increase of 5% does not imply more than an increase in the group of around 3%. This may be due to the fact that internal transport factors are not an issue with a high elasticity and that their increase is significant for the groups, but not strong enough to profoundly modify the international tourism market in Spain.

Figure 8
EVOLUTION OF THE REPRESENTATION OF EACH SEGMENT AS A FUNCTION OF THE YEAR-ON-YEAR CHANGE IN TRANSPORT PRICES



Source: Based on the results in Appendix D.

5. DISCUSSION

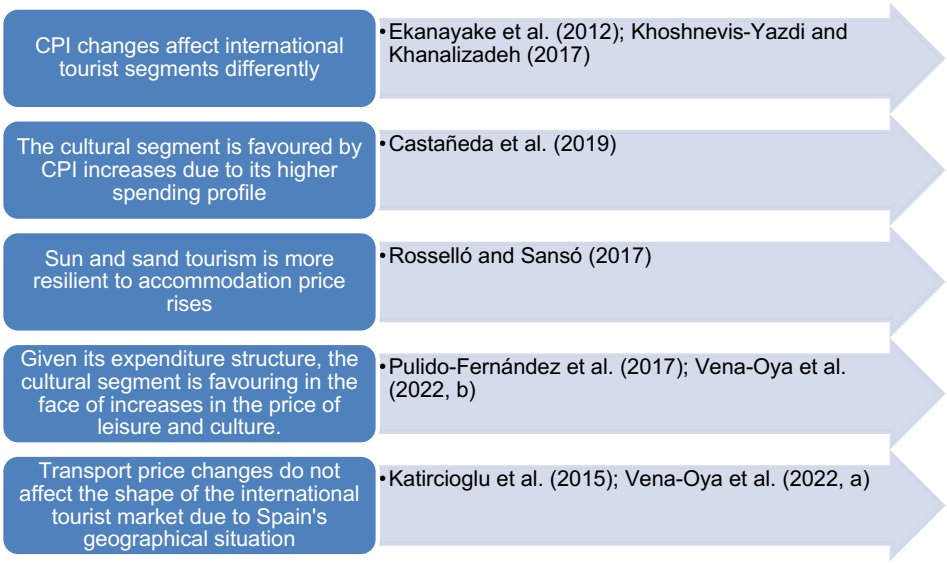
Figure 9 details the topics and references to be used in this section. Thus, the implications of the variables of this study on tourism are briefly presented in the quadrants, followed by the authors with whom the results obtained in this section have been discussed in the arrows.

Previous literature has been discussing the effect of price inflation on tourism demand (Song *et al*., 2010). While it is true that no consensus has been reached on the effect of price inflation on demand fluctuations (Ekanayake *et al*., 2012; Khoshnevis-Yazdi and Khanalizadeh, 2017), what is clear is that, depending on the different characteristics of international tourists, such as their origin, income or preferred type of tourism (Khalid *et al*., 2020), these price fluctuations will affect the composition of inbound tourism in a country.

Our results try to shed light on this discussion that is still latent in the literature on CPI and tourism. First, we show how these changes in the overall CPI recompose the

size of the different segments of international tourists visiting Spain. Looking at each of these segments, it can be seen that it is the Cultural segment (Class 3) that increases the most as the CPI rises. This is in line with various authors who state that, in effect, cultural tourism is more resistant to price rises as it is a typology with spending patterns above the sector average (Castañeda *et al*., 2019) than others such as sun and beach (Class 1 and 2).

Figure 9
FLOW-CHART OF THE DISCUSSION



Source: Own elaboration.

On the other hand, if we look at the different items of expenditure that mainly make up a tourist's budget, we can see how a rise in accommodation prices increases the presence of European Sun and Sand tourism, which may be due a several factors. Firstly, most of these tourists visit the destination in search of a specific climate in the summer market (Rosselló and Sansó, 2017), which makes them much more resilient to price changes than other types of tourism, such as cultural tourism (Rosselló and Sansó, 2017). If we focus on the changes in the CPI that occur in the leisure and culture items, we again find that a rise in prices causes the market to recompose itself in favour of the cultural tourism segment (Class 3). If we consider that, after accommodation and transport, leisure is a highly important budget item, especially for sun and beach tourism, the main demander of these services (Zopiatis and Pericleous, 2021; Pulido-Fernández *et al*., 2024), it is therefore more sensitive to price rises in this expenditure item. Moreover, recent literature affirms that the main expenditure of the cultural segment does not go precisely to paying for culture (Pulido-Fernández *et al*., 2017; Vena-Oya *et al*., 2022, b). Lastly, we see how

transport turns out to be inelastic with respect to the composition of the segments. Lastly, we see how transport turns out to be inelastic with respect to the composition of the segments. Although the price of oil is one of the main determinants of the CPI (Doğrul and Soytas, 2010; Katircioglu *et al*., 2015; Alonso and Socorro, 2024), regardless of the price of transport, given the orography of Spain, international tourists will arrive mainly by air, whatever the type of tourism (Vena-Oya *et al*., 2022, a), thus affecting equally each of the segments analysed these variations in the CPI of transport.

6. CONCLUSIONS

In the light of the results obtained, a number of implications can be drawn both academically and for international tourism management in the face of variations in the CPI. In terms of the main advances made by this work in the study of the relationship between inflation and the composition of tourism demand, it is the first effort to see precisely how this relationship affects the composition of a country's tourism by segments, while other studies have tried to estimate the relationship of the CPI on expenditure or total demand (Wan and Song, 2018). Analysis of inflation by expenditure items has also revealed which segments are most resilient to changes in these items. Thus, it can be seen that sun and sand tourism (Class 1) is less sensitive to increases in the price of accommodation than other segments, such as cultural tourism (Class 3). However, when faced with increases in the price of leisure and culture, it is the cultural segment (Class 3) that shows the most stable behaviour. Finally, the third expenditure item analysed, transport, shows practically inelastic behaviour for all the segments analysed. These contributions will help to understand the effect of inflation on the different tourist segments.

In addition, a series of recommendations can also be drawn from these results for the management of destinations in the face of inflationary crises such as the one we are currently experiencing. The first derives from statistical monitoring of the evolution of price indicators in order to understand the composition of demand and to be able to better adapt supply to changes in the market. Generally speaking, this means that if prices rise, the group that suffers the most is the one that spends the least, which clearly means that in this scenario, tourism services with low added value will find it more difficult to survive, as opposed to those with a higher economic added value on the part of the visitor. This means that those companies specialising in providing the visitor with quality and specialised goods and services will survive better in the market, as opposed to those seeking to benefit from economies of scale to offer lower economic value.

In more detail, it can also be suggested that the creation of package tours, including both transport (inelastic) and accommodation, may soften the decline in the cultural (Class 3) and other (Class 4) tourist segments in the face of accommodation price rises. This rise does not affect the larger segment 1 (sun and sand) which, by contrast, is affected by increases in leisure and culture prices. However, a good communication and promotion policy for these destinations can help to mitigate the effect of this rise, since, given the origin of these tourists (mainly from central Europe), these prices will in no way reach the prices they have in their countries of origin.

Finally, like any other study, this research has a series of limitations. Firstly, primary data has been used for the analysis of the results, but without the capacity to alter it for the final objectives of this research. Nevertheless, these types of data are extremely useful when one wants to reach a larger sample size that better reflects the reality of the destination (Mohamed *et al*., 2019; Almeida *et al*., 2020). Another limitation is that the study focuses only on a country like Spain, where prices at destination are lower than prices at origin in the main sending countries. This would be an interesting area for future research.

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APPENDIX A - LCM TO GLOBAL VARIATION PRICES

```
Predicted class memberships (by modal posterior prob.)
 0.4073 0.2314 0.2271 0.1342

============================================================
Fit for 4 latent classes:
============================================================
2 / 1
            Coefficient  Std. error  t value  Pr(>|t|)
IPC_VA_prov    -2.84269     0.47320   -6.007         0
Est_Q1          0.49698     0.02037   24.394         0
Est_Q2         -0.17628     0.01324  -13.318         0
Est_Q3         -1.40114     0.01216 -115.187         0
Est_Q4         -0.38119     0.01089  -35.017         0
============================================================
3 / 1
            Coefficient  Std. error  t value  Pr(>|t|)
IPC_VA_prov     8.92460     0.55392   16.112         0
Est_Q1          1.07409     0.01975   54.393         0
Est_Q2          0.09010     0.01345    6.697         0
Est_Q3         -1.71458     0.01484 -115.516         0
Est_Q4         -1.25637     0.01521  -82.588         0
============================================================
4 / 1
            Coefficient  Std. error  t value  Pr(>|t|)
IPC_VA_prov     2.68514     0.68498    3.920         0
Est_Q1          1.34895     0.01879   71.792         0
Est_Q2         -0.71634     0.01609  -44.516         0
Est_Q3         -3.03612     0.02617 -116.033         0
Est_Q4         -2.99058     0.02940 -101.716         0
============================================================
number of observations: 318765
number of estimated parameters: 107
residual degrees of freedom: 184212
maximum log-likelihood: -3200511
```

APPENDIX B - LCM TO HOSTELS AND RESTAURANTS VARIATION PRICES

```
Predicted class memberships (by modal posterior prob.)
 0.2263 0.4107 0.133 0.23

============================================================
Fit for 4 latent classes:
============================================================
2 / 1
             Coefficient  Std. error  t value  Pr(>|t|)
IPCH_VA_prov    47.92574     0.93184   51.431         0
Est_Q1          -2.05021     0.02607  -78.635         0
Est_Q2          -1.08711     0.02136  -50.899         0
Est_Q3           0.73045     0.02146   34.043         0
Est_Q4           0.30001     0.02167   13.844         0
============================================================
3 / 1
             Coefficient  Std. error  t value  Pr(>|t|)
IPCH_VA_prov    -6.73821     1.21565   -5.543         0
Est_Q1           0.32289     0.02454   13.160         0
Est_Q2          -0.76819     0.02597  -29.585         0
Est_Q3          -1.30394     0.03588  -36.343         0
Est_Q4          -1.70793     0.03829  -44.607         0
============================================================
4 / 1
             Coefficient  Std. error  t value  Pr(>|t|)
IPCH_VA_prov   -13.15733     0.94847  -13.872         0
Est_Q1          -0.47971     0.02168  -22.130         0
Est_Q2          -0.16226     0.02000   -8.112         0
Est_Q3           0.41984     0.02242   18.729         0
Est_Q4           0.97531     0.02153   45.291         0
============================================================
number of observations: 318765
number of estimated parameters: 107
residual degrees of freedom: 184212
maximum log-likelihood: -3197507
```

APPENDIX C - LCM TO LEISURE AND CULTURE VARIATION PRICES

```
Predicted class memberships (by modal posterior prob.)
 0.2323 0.1336 0.4075 0.2266

=========================================================
Fit for 4 latent classes:
=========================================================
2 / 1
             Coefficient  Std. error  t value  Pr(>|t|)
IPCO_VA_prov     4.46024     0.55296    8.066         0
Est_Q1           0.90405     0.01395   64.812         0
Est_Q2          -0.48734     0.01480  -32.925         0
Est_Q3          -1.58426     0.02660  -59.548         0
Est_Q4          -2.55405     0.02887  -88.467         0
=========================================================
3 / 1
             Coefficient  Std. error  t value  Pr(>|t|)
IPCO_VA_prov    -8.06363     0.40151  -20.083         0
Est_Q1          -0.48325     0.01983  -24.375         0
Est_Q2           0.18929     0.01244   15.220         0
Est_Q3           1.40954     0.01125  125.247         0
Est_Q4           0.39259     0.00972   40.409         0
=========================================================
4 / 1
             Coefficient  Std. error  t value  Pr(>|t|)
IPCO_VA_prov     9.70383     0.44522   21.796         0
Est_Q1           0.70230     0.01436   48.918         0
Est_Q2           0.39025     0.01160   33.630         0
Est_Q3          -0.18999     0.01556  -12.212         0
Est_Q4          -0.75882     0.01414  -53.656         0
=========================================================
number of observations: 318765
number of estimated parameters: 107
residual degrees of freedom: 184212
maximum log-likelihood: -3199869
```

APPENDIX D - LCM TO TRANSPORT VARIATION PRICES

```
Predicted class memberships (by modal posterior prob.)
 0.2267 0.134 0.232 0.4073

=============================================================
Fit for 4 latent classes:
=============================================================
2 / 1
             Coefficient  Std. error  t value  Pr(>|t|)
IPCT_VA_prov    -1.20624     0.19962   -6.043         0
Est_Q1           0.22153     0.01252   17.693         0
Est_Q2          -0.85964     0.01508  -57.017         0
Est_Q3          -1.37266     0.02873  -47.770         0
Est_Q4          -1.78218     0.03163  -56.349         0
=============================================================
3 / 1
             Coefficient  Std. error  t value  Pr(>|t|)
IPCT_VA_prov    -1.66235     0.15969  -10.410         0
Est_Q1          -0.68099     0.01451  -46.924         0
Est_Q2          -0.36939     0.01178  -31.358         0
Est_Q3           0.21325     0.01573   13.559         0
Est_Q4           0.77775     0.01435   54.202         0
=============================================================
4 / 1
             Coefficient  Std. error  t value  Pr(>|t|)
IPCT_VA_prov    -1.33495     0.16241   -8.220         0
Est_Q1          -1.15501     0.01892  -61.059         0
Est_Q2          -0.16962     0.01217  -13.935         0
Est_Q3           1.63774     0.01366  119.884         0
Est_Q4           1.18154     0.01409   83.848         0
=============================================================
number of observations: 318765
number of estimated parameters: 107
residual degrees of freedom: 184212
maximum log-likelihood: -3200696
```