

Hypermarkets' Distribution in Italy.

A Geographical Analysis

*Un'Analisi in Chiave Territoriale
della Distribuzione degli Ipermercati in Italia*

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Riassunto: Nel presente lavoro viene analizzata la distribuzione territoriale degli ipermercati in Italia, secondo alcuni caratteri legati al territorio in cui essi esercitano la loro attività. Lo studio è condotto attraverso l'utilizzo di modelli loglineari stimati per l'Italia nel complesso e per le singole ripartizioni geografiche, sottolineandone le rispettive peculiarità.

Keywords: Log-linear models, Hypermarket, Spatial Distribution.

1. Introduction

Hypermarkets are a very complex type of large scale distribution, both for their organisative structure and for the wide range of commercialised goods.

Their selling surface is greater than 2,500 square metres, organised in different departments, each of those can be either a supermarket¹ or a department store².

Although in Italy there are not so many hypermarkets – compared to the other kinds of large scale distribution – their selling surface as a whole is very large. More in detail, in Italy their number and the total selling surface have increased, in the decade 1991-2001, at an annual average rate of 10.7 and 11.8 per cent respectively.

Taking into consideration these aspects, it can be interesting to study the localisation of the hypermarkets, in order to verify if and to what extent some factors, related to geographical aspects, affect the establishment of these stores in a fixed area.

The main aim of this paper is to highlight the link between territorial factors and hypermarkets' localisation in Italy.

Main results of the analysis performed on a dataset built up with data of 358 hypermarkets are hereafter illustrated.

The application of a log-linear model allowed to draw some conclusion on this issue, both at a national level and at a level of four geographical areas in which Italy is considered to be partitioned.

¹ Store which selling surface is greater than 250 square metres, where food products are commercialised.

² Store which selling surface is greater than 400 square metres, where non food products are commercialised.

2. Analysis and main results

The dataset considered for the elaboration concerns hypermarkets established in Italy on the first of January 2002. Data were displayed in three-variable tables, one for each of the considered domains (national and four areas), on the basis of variables which take into consideration the features of the hypermarkets localisation. The variables are: “Inhabitants” (3 categories-classes), “Altitude” (2 classes), “Level of tourism” (2 classes). A log-linear model was estimated for each of the above mentioned geographical domains; for this purpose parameters for the frequency of the hypermarkets in the single cells were identified, on the basis of each combination of the categories of the above variables, considered as a Poisson variable. In this way we assume that the exact number of hypermarkets in Italy is unknown. For this reason, simple and interactive effects, due to the association of single categories, were estimated. In the following paragraphs main results are resumed.

a. Italy

Most of the hypermarkets (45.5 per cent) are established in town with less than 25,000 inhabitants. They are mainly located in plain areas and in non-tourism places. The log-linear model estimated states that double-variable interactions are significant; In particular, hypermarkets tend to be placed in small sized town, characterised by “low tourism” whatever is their altitude. Moreover, if we consider large sized cities, they are concentrated in plane areas, whatever is their tourism degree. Three-variable interactions are not significant.

Table 1- *Expected frequencies of the hypermarkets according to the estimated model. Italy.*

ALTITUDE OF THE AREA	TOURISM	POPULATION CLASS			TOTAL
		Up to 25,000	Between 25,000 and 100,000	Over 100,000	
Plain	Tourism area	11.6	19.9	39.2	70.6
	Non-tourism area	74.4	33.1	23.8	131.4
Hill-Mountain	Tourism area	27.1	37.9	19.6	84.6
	Non-tourism area	49.9	18.1	3.4	71.4
	TOTAL	163	109	86	358

Source: Elaboration on Ministry of industry data.

b. North-west

146 hypermarkets are located in the North-west area.

The log-linear model estimated is the same as that adopted for Italy as a whole. All the double-variable interactions are significant, as observed in the previous case and the likelihood ratio goodness-of-fit statistic indicates that three-variable interactions are not significant.

Table 2- *Expected frequencies of the hypermarkets according to the estimated model. North-west.*

ALTITUDE OF THE AREA	TOURISM	POPULATION CLASS			TOTAL
		Up to 25,000	Between 25,000 and 100,000	Over 100,000	
Plain	Tourism area	1.3	4.7	7	13
	Non-tourism area	52.7	20.3	3	76
Hill-Mountain	Tourism area	11.7	11.3	5	28
	Non-tourism area	26.3	2.7	0	29
	TOTAL	92	39	15	146

c. North-east

In the North-east area 81 hypermarkets are operative.

The estimated log-linear model indicates that only simple effects of the categories of the considered variables are significant. More in detail, hypermarkets are mainly located in plain areas, in town with less than 25,000 inhabitants, while tourism interest of the area is not relevant.

Table 3- *Expected frequencies of the hypermarkets according to the estimated model. North-east.*

ALTITUDE OF THE AREA	TOURISM	POPULATION CLASS			TOTAL
		Up to 25,000	Between 25,000 and 100,000	Over 100,000	
Plain	Tourism area	11.7	6	9.1	26.7
	Non-tourism area	14.5	7.5	11.3	33.3
Hill-Mountain	Tourism area	4.8	2.5	0	7.3
	Non-tourism area	6	3.1	4.7	13.7
	TOTAL	37	19	25	81

d. Centre

76 hypermarkets are established in the Centre of Italy.

The localisation model that was estimated is different from those described so far. The most relevant effect on the expected frequencies is produced by the categories of the variables concerning tourism: they are mainly in medium and large sized tourism places (14 of them are in Rome). Moreover the model shows a double-variable interaction between population class and altitude, very close to the significance level.

Table 4- *Expected frequencies of the hypermarkets according to the estimated model. Centre.*

ALTITUDE OF THE AREA	TOURISM	POPULATION CLASS			TOTAL
		Up to 25,000	Between 25,000 and 100,000	Over 100,000	
Plain	Tourism area	1.0	8	12.1	21.1
	Non-tourism area	0	0	3.9	3.9
Hill-Mountain	Tourism area	12.1	16.7	13.0	41.9
	Non-tourism area	3.9	5.3	0	9.1
	TOTAL	17	30	29	76

e. South and islands

This is the area with the lower number of hypermarkets located in it (55).

The estimated model shows a high double-variable interaction between population class and altitude of the area. More in detail, this kind of distributive activity has developed in hilly areas and in town with less than 25,000 inhabitants; in addition, if population increases they tend to be located in plain.

Table 5- *Expected frequencies of the hypermarkets according to the estimated model. South and islands.*

ALTITUDE OF THE AREA	TOURISM	POPULATION CLASS			TOTAL
		Up to 25,000	Between 25,000 and 100,000	Over 100,000	
Plain	Tourism area	0	2.4	5.6	8.0
	Non-tourism area	4.3	4.8	11.3	20.3
Hill-Mountain	Tourism area	4.4	4	1.7	10.0
	Non-tourism area	8.7	7.9	0	16.7
	TOTAL	17.4	19	18.6	55

Table 6- *Statistics on the parameters and the adopted models.*

variables	North-West		North-East		Centre		South and Islands		Italy	
	Chi-square	p-value	Chi-square	p-value	Chi-square	p-value	Chi-square	p-value	Chi-square	p-value
clpop	34.88	<0.0001	5.59	0.0612	5.53	0.0629	5.80	0.0160	23.64	<0.0001
zona	5.40	0.0201	11.95	0.0005	7.91	0.0049	-	-	9.51	0.0020
tipotur	-	-	0.94	0.3332	13.02	0.0003	-	-	-	-
clpop*tipotur	35.36	<0.0001	-	-	5.20	0.0743	-	-	57.25	<0.0001
clpop*zona	10.42	0.0055	-	-	-	-	6.91	0.0315	23.11	<0.0001
tipotur*zona	21.58	<0.0001	-	-	-	-	-	-	23.91	<0.0001
likelihood ratio	0,15	0.9274	10.45	0.1071	1.9	0.3876	5.04	0.5384	3.86	0.2766

In table 6 main statistics on the estimated parameters and the models are resumed.

3. Conclusions

Considering some geographical variables, hypermarkets' development in Italy is characterised by differences among local areas. In the North, where most of them are established, tourism of the place in which they perform their retail trade activity is not relevant, while they are mainly concentrated in small-sized towns (less than 25,000 inhabitants). In the Centre hypermarkets are essentially located in hilly tourism medium sized places, while in the South and islands most of them are in non-tourism areas and in medium or large sized towns (more than 25,000 inhabitants).

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