Multi–destination trips: a survey on incoming tourism in Sicily

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Abstract

The knowledge of the actual magnitude and of the main features of tourism flows in a given destination is an essential prerequisite for the evaluation of tourism impacts and externalities. Indeed, many pleasure trips are often characterized by the visit of more than a single destination. Despite the topic is well documented in literature, the empirical results are limited to a few pioneering studies. This lack may be attributable to the failure of the tourism organizations to collect data on multi-destination trip behaviours, as it results, for example, from the system of the European statistics on tourism (according to the Council Directive 95/57 EC), where information on the average number of visited destinations within a single trip are not provided. This paper aims at discussing the main implications of multi-destination trips both on tourism statistics and in destination management, and also to describe the research design and the main preliminary results of a survey on the incoming tourism in Sicily. Some remarks dealing with positive and negative impacts of unobserved tourism and of multi-destination trips are reported at the end.

Keywords: multi-destination trip, tourists behaviours, spatial movements, tourism statistics, border survey.
Journal of Economic Literature Classification: L83, C83.

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Introduction

By definition, tourism implies a movement of people from an origin place to a destination one, consequently, its analysis strongly depends on the way in which these places are defined. Most of the theoretical models for the analysis of the tourists behaviours and the main statistical sources, focus their attention only at two points of the trip: the originating and the destination region (Leiper, 1989). According to a simplified model of tourism mobility, official statistical sources use of the concept of "main destination" in order to obtain the bbijective correspondence between the originating and the destination region. However, many pleasure trips imply the visit to more than one single destination (inter-destinations) or to several "attractions" within the same destination (intra-destination). The topic is well documented in literature (Pearce and Elliot, 1983; Leiper, 1989; Pearce, 1995), mainly with reference to international movements. It is common knowledge that international tourism statistics published by the UNWTO are simply a collection of statistics produced by every single country, collected from more than 150 world's countries by the UNWTO and published in its annual volumes. Multi-destination trips at an international level (visits to more than one country during the same trip) can produce a bias if arrivals on collective establishments are used as a proxy of the number of international tourists. Similar considerations can be also done for lower territorial scale, i.e. national, regional, and subregional scale. Parroco and Vaccina (2005a) have underlined the matchlessness between data on arrivals of guests in collective establishments on a given region and the number of tourists in the same region. The main reasons are related to: a) the use of unofficial establishments (e.g. relatives' or friends' houses, unregistered rented houses and rooms, boats, etc.) for tourists purposes, which determines the so-called "unobserved tourism" (Vaccina et al., 2011), considering that information on these kind of flows are not included in official statistics on guests arrivals; b) the lack of information regarding guests' motivation, which does not allow the distinction between tourists and other guests; c) the so-called "double counting" effect of arrivals which occurs every time a tourist changes accommodation establishment during the single trip, being registered more than once. These issues have several implications in the evaluation of tourism impacts, as it will be discussed in the conclusive section. However, it is already possible to identify two potential perspectives. On one hand, a more realistic picture of the tourism magnitude in a given destination would allow to evaluate tourism impacts (both positive and negative) by considering its real dimension; on the other hand, the evaluation of the impacts that the different tourists segments (e.g. official vs unofficial tourism, first-time visitors vs repeaters, mono-destination vs multi-destinations, etc.) produce in the destination under the economic, social, cultural and environmental perspective is even more complex and it is only in part addressed to the present contribution. By considering the lack of

empirical studies that face with the issue of multi-destination trips, this paper aims at providing an example of a survey design and of a questionnaire implemented in order to quantify the phenomenon (although only for the incoming tourism), and at underlining some of the main features of multi-destination trips behaviours in Sicily. More precisely, the next section aims at discussing some of the issues related to the multi-destination trips, as it results from a literature review. The section 2 analyses the main implications of the multi-destination trips on tourism statistics, which determine several sources of bias by using guests' arrivals as a proxy of the number of tourists. The section 3 describes, from an empirical point of view, the research design of a survey on incoming tourism in Sicily (co-founded by the Italian Ministry of University and Research) aiming at analysing (among other aspects) the tourists' mobility in the Island, and at quantifying the impact of tourism mobility in the official tourism statistics, is described in section 3. Some of the main preliminary results of the survey are presented in section 4. Final comments and policy implications conclude this work.

1 Multi-destination trip behaviour: current issues and future challenges

Tourism implies a movement of people in time and space, from their place of usual residence to a destination (or destinations). Surprisingly, the analysis of the tourism mobility within one single destination and among several destinations has not been taken adequately into account, despite a deeper knowledge of tourism movements is an essential prerequisite for logistics and for the management of economic, social, and environmental impacts of tourism. As a matter of fact, most of the models of pleasure trips behaviours are based on the hypothesis that tourists visit a single destination, even if this premise is almost unreliable. Several authors (Baxter and Ewing, 1981; Mings and McHugh, 1992; Tussyadiah et al., 2006) examined the behavioural structure of multi-destination tourism trips, by underlining significant differences with mono-destination trips, under the behavioural and the motivational perspective. However, the empirical studies on this topic are limited to a few pioneering studies (see Lau and McKercher 2007; Mings and McHugh 1992; Wu and Carson 2008). Despite the importance of knowing travel itineraries has been recognized since long time (Leiper, 1989; Dietvorst, 1995; Fennell, 1996), only relatively few studies made the attempt at modeling spatial movements among several destinations and within the same destination. The main reasons for this lack are attributable both on the difficulties associated to the collection of information on multi-destination trips (Lew and McKercher, 2002), and on the lack of clarity on what should be meant for "multi-destination" trip. Dealing

with the first issue, official statistics on tourism (at least in the European Union, according to the Council Directive 95/57 of the Council of the European Union 1995, now repealed by the Regulation 692/2011 of the European Parliament and of the Council, EuropeanParliament 2011) do not provide any kind of information on multi-destination trips and on trip itineraries, neither from the supply side (statistics on guests arrivals), nor from the demand side (which focuses its attention mainly on the "main destination" visited). This implies that in order to analyse the phenomenon, ad-hoc surveys need to be implemented.

According to the second issue, the lack of clarity of the term "multi-destination" trip is attributable to the strong dependence of this concept to the definition of the destination itself, from the geographical scale undertaken (Hwang and Fesenmaier, 2003), and from the empirical context of interest. For example, whereas some authors (Mings and McHugh, 1992; Stewart and Vogt, 1997) focused their attention on the visits of the attractions within a destination, other authors (Oppermann, 1995) defined the term destination in a wider sense, by including the whole regions. Still, Leiper (1989) pointed out that in order to qualify a stop as a "visit" it is necessary for the tourist to spend some time in that place, or that there is some specific tourist interest in that stop. In order to define a multi-destination trip, many studies have considered the overnights as a discriminating factor. This standpoint will be undertaken in the present work and in the empirical research in Sicily described below. The importance of analysing multi-destination trip behaviours is also related to the relevance of this phenomenon for the regional tourism development. The multi-destination vacation experience will require longer than the average stays and will attract mainly those who have active lifestyles and more discretionary time and income. Individual destinations will have the opportunity to explore new markets in a cost effective manner and to develop a more competitive product. At a regional level, the local tourism organizations can exploit the potential of the profitable diversification and the rebranding of a destination/region. For these reasons, one of the key issues is related to the identification of factors affecting the choice of making a multi-destination trip. These are usually distinguished in: physical factors (related to the destination morphology and logistics); human factors (motivations, socio-economic features, etc.); time availability and budget. As concerns physical factors, some authors (Lue et al., 1996) have pointed out the importance of the "cumulative attractions" that in a multi-destination trip can arouse more interest than the case in which each attraction is visited separately in different trips. This would impliy that a set of destinations could attract more tourists when they are located close to each other than the case in which they are distant and isolated. Also the accessibility exerts a strong influence on tourists' propensity in making a multi-destination trip. As concerns the human factors, a first distinction can be made between fully independent tourists and organized tourists, that tend to be more confined within their "environmental bubble" (Cohen, 1972), and to

undertake fixed itineraries. On the contrary, independent tourists tend to explore more deeply the destination and have more possibilities to change itineraries during their trip. Moreover, it has been recognized (Crompton, 1979; Lue et al., 1993) that also motivational factors have a strong influence on tourists behaviour in terms of mobility inter and intra-destination. Therefore, pleasure vacationers generally tend to visit more destinations than business travelers, but also people visiting friends and relatives (VFR) would have a different behaviour, in terms of mobility, than other tourists categories. VFR tourists tend to spend more time with their family or friends, than visiting several destinations. Several authors (Oppermann, 1993; Letho et al., 2004; Wang, 2004), have pointed out some differences in terms of mobility behaviour between those who visit the destination for the first time and the so-called "repeated visitors". However, their findings are not the same. Those who are in the destination for the first time tend to visit the more "classical" places; on the contrary repeated visitors tend to explore secondary places (Lau and McKercher, 2007). However, the propensity in making multi-destination trips is bigger for the repeated visitors than for the first-time visitors (Wang, 2004). Finally, all tourists' movements are influenced by the time availability and the budget. As a matter of fact, time has a strong influence on spatial touristic movements toward a single destination and among several destinations (Chavas et al., 1989; Walsh et al., 1990; McKean et al., 1995). Time has both an absolute and a relative impact on the tourist behaviour. Indeed, the overall time spent for vacation is almost stable, with possible extensions or reductions related to the economic availability that the business cycles leave to consumers for pleasure activities. Nevertheless, given the same amount of time, significant differences emerge in the ways in which tourists choose to spend their time. Some tourists could decide to spend more time during the trip by visiting many intermediate destinations, whereas some others could decide to maximize the time to spend in the main destination, by minimizing the time required to reach the destination itself. The means of transportat chosen, and the budget availability would have an influence in the way in which vacation time is spent. Moreover, some people can choose to visit many places, whereas other people can decide to visit few places and spend more time in there. In a nutshell, the knowledge of the factors that affect the tourists' mobility is an essential prerequisite for the management and the planning of tourism services in a demand-oriented perspective, according to the different segments of the tourism demand.

2 Main implications of multi-destination trips on tourism statistics

The limits of the official statistical sources on tourism, despite they still have not been adequately analysed, have already been pointed out by several authors, both at an international (Leiper, 1989; Pearce, 1995; Lickorish, 1997), and at a national, regional, and subregional level (Parroco and Vaccina, 2005b; Tomaselli and Vaccina, 2006). Although the topic is too wide to be tackled in the present work (it would require a detailed analysis of both the demand and the supply-side tourism surveys made by the national and international organizations) we want to point out the biases created if multi-destination trips are not adequately taken into account. As above, tourism statistics usually deals with two points of the travel: the originating region and the destination one; by ignoring in this way the possibility that a single tourist visits more than one destination. Mostly, when guests' arrivals in accommodation establishments are used as a proxy of the number of tourists in a given region, the aggregation process made by summing all the arrivals recorded in different places (e.g. municipalities) will produce a bias (Parroco and Vaccina, 2005a). This is the so-called "double counting" effect, which will be as much greater as higher is the territorial level (e.g. country), and as much greater is the propensity of tourists of making multi-destination trips with overnights in different accommodation establishments. It follows the impossibility of measuring the tourism demand through the tourism supply. For example, Lickorish (1997) has pointed out that in 1990 UNWTO reported a total of visitors to Europe from USA at over 15 million, whereas the European Travel Commission (ETC), by using the US Government departure figures, gave a total under 7 million. Both the estimates were correct, but ETC records visitors as individuals making a trip around Europe, whereas WTO gives a total of frontier crossings, so that one individual visitor touring through a number of countries may be counted several times. In order to partially compensate for this problem, some authors (Pearce and Elliot, 1983; Leiper, 1989) have suggested the use of several indexes for the analysis of the international "tourism systems". These indexes are essentially based on the comparison between the demand- and the supply-side information. The so-called Main Destination Ratios (MDR) (Leiper, 1989) is defined as the percentage of arrivals by tourists in a given place for those who consider that place as the main or only destination in the current trip, to the total arrivals in that place (Leiper, 1989, pg. 533). This approach is drawn on data collected at two points in each tourism system: the generating point, where trips begin and the destination, where tourists visit. However, this approach has some limits, since the estimates derived from the demand-side statistics (at least in the most of the European countries), given their sampling nature, have a good degree of precision at a regional level,

this does not allow the analysis of the multi-destination trips at a subregional level. Still, whereas the demand-side surveys record all types of establishments used by tourists during their trip, the supply-side surveys collect information only regarding the so-called "official establishments" (provided on a commercial basis), which in many cases only represent a small part of the total potential supply in a given destination (e.g. second houses, boats, friends' or relatives' houses, etc.). This generates the so-called "unobserved tourism" (Vaccina et al., 2011), given by the use of the unofficial establishments for tourism purposes. Moreover, the "double counting" affects also the meaning of one of the most used tourism indicator: the average length of stay, given by the ratio between presences (nights spent in collective establishments) and arrivals. This indicator is often seen as a proxy of the duration of the trip. This interpretation is almost incorrect since, for example, a reduction of the average length of stay can be determined by an increase in the number of destinations visited, rather than by a reduction of the duration of the trip.

3 The research design of the survey on incoming tourism in Sicily

Considering the deficiencies in the official tourism statistics above described, a research group of the University of Palermo composed mainly by social statisticians has planned a survey covering the whole Sicily thanks to a co-founding of the Italian Ministry of University and Research. The survey aimed at quantifying the real magnitude of tourism in the island by trying to estimate two of the main biases related to statistics on guests arrivals: the double counting effect, and the so-called "unobserved tourism", given by the use of the unofficial establishments for tourism purposes (Vaccina et al., 2011). A first problem in tourism surveys is related to the mobile nature of tourists. A large body of literature is related to the methods and the techniques used to analyse mobile populations. These are generally included in the wider term of the hard-to-reach populations (Muhib et al., 2001; Magnani et al., 2005) or difficult-to-reach populations (Mecatti, 2004), mobile (Kalton, 1991; Kalsbeek, 2003), rare and elusive (Kalton and Anderson, 1986; Kalton, 2009; Sudman et al., 1988), or hidden (Magnani et al., 2005) populations. Although there is not a widespread accepted definition of the categories mentioned above, immigrants, homosexuals, homeless, and other similar categories of individuals are usually defined as hard-to-reach populations, and they are studied with sampling methods able to face with the problems associated with their sampling. A distinctive feature of all these populations (including tourists) is given by the absence of a complete list of the population units. Moreover, they are often mixed, and

not immediately recognizable, with other units (e.g. in tourism with residents or with other travelers), which make more difficult and expensive their selection. A review of the sampling and selection techniques for hard-to-reach populations can be founded in several contributions (Kalton, 1991; Muhib et al., 2001; Kalsbeek, 2003; Kalton, 1993; Kalton and Anderson, 1986; Kalton, 2009; Kakinami and Conner, 2010), and the chosen solutions range from non-probabilistic (e.g. snow-ball, respondent driven, targeted sampling, etc.) to probabilistic (Time-Location Sampling - TLS) methods. Time-location sampling is used to sample a population for which a sampling frame cannot be created but locations are known at which the population of interest can be found, or for which it is more efficient to sample at these locations (Karon, 2005, pg. 3180). TLS (also known as venue sampling) is a probabilistic method used to recruit members of a target population at specific times in set venues. The sampling framework consists in venue-day-time units (VDT) – also known as time-location units – that represent the potential universe of venues, days and times. For example, a VDT unit could be a defined period of four hours on a Monday in a specific venue. The fieldwork team identifies a range of time-location units in order to locate the members of the target population through interviews and key informants, service providers, and members of the target population. Then, the team visits the venues and prepares a list of VDT units that are considered potentially eligible on the basis of checking the number of the present people.

For the survey on incoming tourism in Sicily, a complex sampling design was adopted. The units of interest were represented by Italian (not resident in the island) and foreign tourists leaving the island at the end of their vacation. In this way, it was possible to collect direct information (from the demand-side) related to the whole period spent in the island, by minimizing the recall bias (if compared to the more common telephone surveys generally used in the demand-side tourism surveys). A detailed description of the sampling design is contained in DeCantis et al. (2010). Given the insularity of Sicily, according to the TLS design, almost all the places from where it is possible to leave the island were selected: the airports of Palermo, Catania, and Trapani, the ports of Palermo and Catania, and the Strait of Messina (only the two airports of the two small islands Pantelleria and Lampedusa were not included in the survey). The periods covered by the survey were selected according to the official data on the tourists flows in the island: Spring, Summer, and Autumn, during which more than the 80 % of the "official" tourists flows are concentrated. By integrating the official data coming from different statistical sources (tourism statistics from the demand side and from the supply side, daily air passengers, daily ferries leaving the Straits, etc.), unequal first-stage units selection probabilities of the Venue-Day-Time (VDT) units were determined. For the second stage units, a pseudo-probabilistic approach was adopted, through a systematic selection of the units in the days and places previously selected, according to

Table 1: Questionnaire section on tourism mobility

		Type of establishment									
Places visited	Nights spent	01. Rural facilities	02. Holyday or work camp	03. Hotels and similar establishments	04. Camping	05. Bed and Breakfast	06. Youth Hostel	07. House/Room rented	08. Relatives or friends house	09. Second home	10. Other (specify)
		☐	☐	☐	☐	☐	☐	☐	☐	☐	...
		☐	☐	☐	☐	☐	☐	☐	☐	☐	...
		☐	☐	☐	☐	☐	☐	☐	☐	☐	...
		☐	☐	☐	☐	☐	☐	☐	☐	☐	...

strict rules given to the interviewers. Adequate estimation procedures taken into account for the adopted complex samplign design, have been suggested to make inference on the main relevant parameters, by using also calibration techniques and complex estimators, such as ratio estimators and post-stratified estimators (Levy and Lemeshow, 2008).

The research instrument was represented by a questionnaire of 29 questions. The questionnaire was divided into different sections: filter questions, organization of the trip, motivations and expectations, type of holyday (sun, sea and sand; cultural, etc.), mobility, expenses, satisfaction. The specific section of the questionnaire related to the collection of information on tourism mobility is presented in table 1. In this section, the tourist was asked to specify all the places (municipalities) that he/she visited during his/her trip, with at least one overnight stay. For each place visited, he/she was asked to specify the number of nights spent, and the type of accommodation establishment used, in order to be able to distinguish between official and unofficial establishments. Through this section it was possible to relate the information collected with the two aspects of interest: tourism mobility and unobserved tourism.

4 Main preliminary results

According to the sampling design descibed in the previous section, between summer 2009 and Spring 2010, a total of 3,935 tourists leaving Sicily at the end of their trip were interviewed, Sicilians and other travelers (non-tourists) were excluded from the sample. As written above, two of the main topics of interest were related to the analysis of tourism mobility and to the quantification of the unobserved tourism.

The above-mentioned TLS design implementation was treated as a two-stage stratified sampling design with unequal selection probabilities for the first-stage units, and with constant selection probabilities for the second-stage units. The first-stage units are constituted by the combination of places, days and hours, i.e. Venue-day-time units (VDT, i.e. primary sampling units: PSU). Let M be the total number of VDT. The second-stage units are constituted by the tourists that were selected within the first stage units through a systematic selection procedure. An integration of the official data coming from different statistical sources was used: tourism surveys from the demand side (Istat, 2011b), from the supply side (Istat, 2011a), data collected by the Bank of Italy on international tourism (Bank of Italy, 2011), data on daily air passengers and on daily ferries leaving the Strait. The first-stage units selection probabilities of the VDT units (for the i-th place, and the j-th time) were consequently determined (i.e. $P_{i,j}$).

For the second stage units, a pseudo-probabilistic approach was adopted, through a pseudo-systematic selection of the units in the days and places selected, according to strict rules given to the interviewers (De Cantis, Ferrante, 2011). After the survey, ex-post information on number of passengers within each VDT selected unit were asked to official authorities and managers of the different places selected (e.g. GESAP s.p.a. for Palermo Airport, SAC s.p.a. for Catania Airport, AirGEST Trapani Airport, and the Port Authorities for the ports of Palermo, Catania, and Messina). Considered the information on the number of people travelling in each VDT selected, a monthly estimate of the proportion of incoming tourists and of other travelers categories was used to determine the number of tourists within each VDT selected (i.e. second-stage units population), and, subsequently, the second-stage units selection probabilities ($\pi_{h|i,j}$, i.e. the probability of selecting the h-th tourist within the selected $VDT_{i,j}$) (for a more detailed description on the auxiliary information, see De Cantis, Ferrante, 2011). Once obtained the set of $y_{h,i,j}$, values (where Y is the variable of interest), a direct estimator of Hansen-Hurwitz class is given by the following (for simplicity, stratification is ignored):

$$\hat{Y} = \frac{1}{m}\sum_{i=1}^{s}\sum_{j=1}^{t_i}\sum_{h=1}^{n_{i,j}}\frac{y_{h;i,j}}{\pi_{i,j}\pi_{h|i,j}} = \frac{1}{m}\sum_{i=1}^{s}\sum_{j=1}^{t_i}\frac{1}{P_{i,j}}\frac{N_{i,j}}{n_{i,j}}\sum_{h=1}^{n_{i,j}} y_{h;i,j} = \sum_{i=1}^{s}\sum_{j=1}^{t_i}\sum_{h=1}^{n_{i,j}} w_{i,j}y_{h;i,j}$$

where m represents the number of first stage units included in the sample; for each $VDT_{i,j}$ selected, $n_{i,j}$ represents the number of second stage units included in

the sample, among the total $N_{i,j}$ units; finally, $w_{i,j} = N_{i,j}/(mP_{i,j}n_{i,j})$ represent the final sampling weights. According to this estimator, the direct formula for standard error is given by the following expression:

$$SE(\hat{Y}) = \sqrt{\frac{1}{m(m-1)} \sum_{i=1}^{s} \sum_{j=1}^{t_i} \left(\frac{\frac{N_{i,j}}{n_{i,j}} \sum_{h=1}^{n_{i,j}} y_{h;i,j}}{P_{i,j}} - \hat{Y} \right)^2}$$

Moreover, it is particularly interesting that, for this specific sampling design (two stage sampling with unequal first stage units probabilities with replacement) the standard error does not depend on the second stage sampling design.

Table 2 reports the distribution of people interviewed in relation to the number of destinations visited during their trip in Sicily. From the analysis of data reported in table 2, it is possible to observe that about the 32% of interviewed people visited more than a destination during their trip in Sicily. Estimates were obtained with the R *Survey* package (Lumley, 2010) by implementing a two-stage cluster design (the same results were obtained through SAS *Surveymeans* procedure, see Levy and Lemeshow 2008). A total number of incoming tourists in Sicily, during the periods of interests equal to 2,602,586 were estimated, with a standard error equal to 102,979. The average number of visited destinations resulted equal to 1.64 with a standard error of 0.04. However, there is another bias in official statistics on guests' arrivals above described: the unobserved tourism. In order to quantify the relevance of the phenomenon, in the mobility section of the questionnaire, the different types of accommodation establishments used by tourists were distinguished in two main categories: official establishments, and unofficial establishments. The official establishments category includes: hotels, residences, camping, rural facilities, holyday and work camps, bed and breakfasts, youth hostels; whereas unofficial establishments are: second houses, rented houses or rooms, relatives' and friends' houses, and a residual category which includes boats, free campings, and other unofficial establishments. In order to stress the relevance of both the double counting effect and the unobserved tourism, table 3 reports the distribution of the number of visits and of the number of the nights spent in each establishment, by the tourists interviewed.

By analysing the data in table 3, it is possible to observe that the 3,935 tourists interviewed made about 6,500 visits in Sicily with at least one overnight stay (actually the total visits were 6,509, but 24 visits were missing of the type of establishment chosen). However, only a part of these visits (65% - 4,237 over 6,485) would result from official statistics on guests' arrivals. In the remaining 35% of the visits, tourists used unofficial establishments, so they would not result in official statistics on guests' arrivals. The 3,935 tourists spent about 38 thousands nights in Sicily, with an average length of their trip in Sicily of about 9.8 nights (38,644

Table 2: Distribution of incoming tourists interviewed by number of visited destinations in Sicily (with at least one overnight) (Summer-Autumn 2009; Spring 2010)

Number of visited destinations	Tourists	%
1	2,683	68.18
2	567	14.41
3	318	8.08
4	195	4.96
5	74	1.88
6 or more	98	2.49
Total	**3,935**	**100.00**

Table 3: Visits, overnight stays and average duration of visit by accommodation category, from 3,935 interviews to incoming tourists in Sicily, Summer and Autumn 2009, Spring 2010

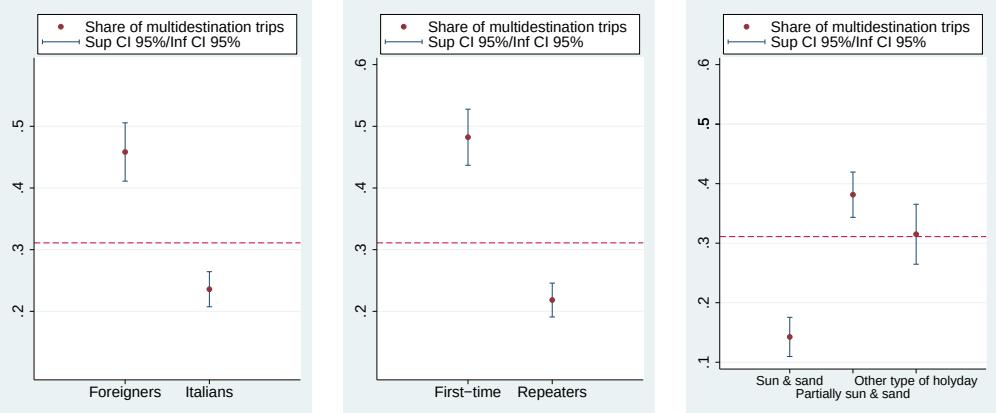
Accommodation establishment category		Visits	Overnight stays	Average duration of visit
Official establishments	Rural establishments	152	589	3.88
	Holyday camps	24	200	8.33
	Hotels	2,615	11,071	4.23
	Camping	377	1,183	3.14
	Bed and Breakfast	1,023	3,359	3.28
	Youth hostels	46	129	2.8
Unofficial establishments	House or room rented	461	4,607	9.99
	Relative and friends houses	1,354	12,587	9.3
	Owned houses	307	4,502	14.66
	Other unofficial establishments	126	4,502	3.31
	Total	**6,485**	**38,644**	**5.96**

Table 4: Estimates of incoming tourism in Sicily in terms of arrivals and overnight stays in official and unofficial establishments, Summer and Autumn 2009, Spring 2010

Variable of interest	Estimate	Standard Error
Official arrivals	2,695,256	187,493
Unofficial arrivals	1,541,493	79,923
Official overnight stays	10,361,903	548,806
Unofficial overnight stays	15,346,341	887,097

over 3,935). The 43% of the total nights were spent in official establishments, and about the 57% in unofficial establishments. It is useful to stress how the ratio between nights spent in each establishment category and the visits made on the same category produces an index – the average length of stay – which has a different meaning from the average length of the trip – given by the ratio between the total number of nights spent and the number of tourists. As a result, the average length of stay should be interpreted as a measure of the length of the stay or, more exactly, as a synthetic measure of the average length of stay in *each* accommodation establishment category. It is noticeable that this index varies among the different establishments categories, with higher values for unofficial establishments, and lower values for the official ones.

The estimates of the unobserved tourism both in terms of arrivals and overnight stays, and of their standard errors, are reported in table 4. It can be observed that about the 36% of the arrivals (2,695,256 over 4,236,749) and about the 60% (15,346,341 over 25,708,244) of the overnight stays were made in unofficial establishments. The relatively low values of the standard errors stress the robustness of the results and enhance the relevance of the unobserved tourism in the island. These results can be still improved, for example thanks to the use of the post-stratification techniques (Levy and Lemeshow, 2008), by using the available information on official arrivals and overnight stays. It is also possible to start to explore some of the factors that can be related to the multi-destination trip behaviour, according to the brief literature review presented in section 2. Subgroup estimates of the share of tourists making a multidestination trip in Sicily were calculated, and in figure 1, the subgroup estimates are reported in relation with: (a) tourists nationality, (b) first-time vs repeated visitors, and (c) type of holyday. It can be observed that given an overall value around the 31% (and a standard error of 0.01), the share of tourists making a multi-destination trip in Sicily is higher for foreign tourists than for the Italians (43.84% vs 23.59%, figure 1.a), and this difference is significant, as it can be observed through the confidence intervals. Another important factor related to the multi-destination behaviour, stressed by the academic literature, is given by the distinction between the first-time and the repeated visitors. The graph in figure



(a) (b) (c)

Figure 1: Estimates of the share of multi-destination trips in Sicily in relation to some specific market segments

1.b suggests that the first-time visitors are more likely to make a multi-destination trip in the Island, compared to the repeaters (48.23% vs 21.84%). Wang (2004) has suggested that this could be due to a loyalty process of repeaters with specific places in the destination visited, although this phenomenon would require a more detailed analysis. Finally, if we consider the type of holyday made by the tourists (figure 1.c), those who came in Sicily for a sea and sand holyday, are more likely to visit a single destination (only the 14.25% made a multi-destination trip), whereas those who made only partially a sea and sand holyday, or who made a different type of holyday (cultural tourism, eco-tourism, etc.) are more inclined to make a multi-destination trip (38.15% and 31.51% respectively).

By remanding to a future work the implementation of multivariate models for a more detailed analysis of the factors affecting the multi-destination trip behaviour in Sicily, it seems useful to explore the main travel itineraries made by the sampled tourists in Sicily. As described in the previous section, the questionnaire section on the mobility allowed collecting information also on the destinations (municipalities) visited by tourists (with at least one overnight stay). Although we cannot be sure that the list of destinations is ordered (since no strict instructions were given to the interviewers and the interviewed in this sense), these information are very important and rare, and they allow to reconstruct the main travel itineraries made by the tourists in Sicily, and to differentiate them in relation to specific segments of the tourism demand (single-destination, two-destinations, etc.). In order to analyse the tourists itineraries, based only on the sampling results, the occurrences of the destinations were "counted" thanks to SPAD 5.5. textual analysis software, in relation to the different number of visited destinations (one destination, two destinations, and so on). A first important result is related to the number of

Table 5: Main tourists itineraries of incoming tourists in Sicily, according to the number of visited destinations

Pos.	Two-destinations paths	Freq.	Pos.	Three-destinations paths	Freq.	Pos.	Four-destinations paths	Freq.
1	Palermo Agrigento	95	1	Palermo Agrigento Syracuse	32	1	Agrigento Syracuse Taormina Palermo	12
2	Palermo Cefalu	80	2	Taormina Catania Syracuse	23	2	Catania Aeolian Islands (2 islands) Etna	3
3	Catania Syracuse	77	3	Agrigento Syracuse Taormina	20	3	Catania Syracuse Agrigento Palermo	3
4	Taormina Syracuse	69	4	Palermo Agrigento Catania	19	4	Letojanni Palermo Agrigento Lipari	3
5	Syracuse Agrigento	68	5	Aeolian Islands (3 islands)	17	5	Palermo Cefalu Agrigento Taormina	3
6	Taormina Catania	57	6	Catania Syracuse Agrigento	14	6	Agrigento Palermo Noto Syracuse	2
7	Catania Palermo	50	7	Palermo Taormina Syracuse	12	7	Catania Porto Empedocle Palermo Noto	2
8	Palermo Taormina	49	8	Palermo Catania Syracuse	11	8	Catania Syracuse Agrigento San Vito Lo Capo	2
9	Palermo Syracuse	46	9	Palermo Cefalu Agrigento	9	9	Catania Syracuse Messina Palermo	2
10	Aeolian Islands (2 islands)	37	10	Cefalu Palermo Taormina	9	10	Cefalu Palermo Syracuse Ragusa	2

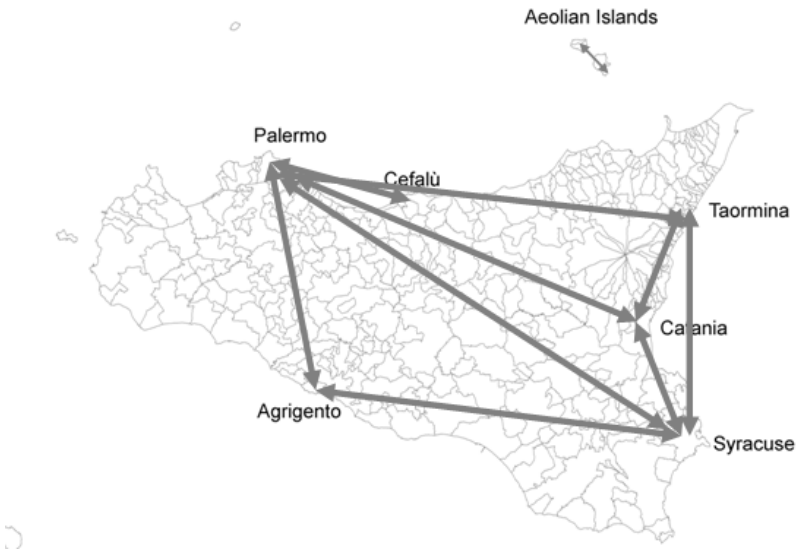


Figure 2: Some of the main tourists itineraries in Sicily

municipalities visited by the tourists in Sicily. The interviewed tourists, in fact, visited the 68% of the 390 Sicilian municipalities, at least once. The municipality with more visits was Palermo (the capital of the Region) followed by Catania (534 visits) Syracuse (423 visits), Taormina (423), Agrigento (343) and Cefalú (315). Whereas these results could be derived also from the official tourism statistics, the way in which the different destinations in Sicily are combined in tourism trips is unknown. Table 5 reports the ten more frequent itineraries made by the tourists interviewed, and in figure 2 some of the two-destinations paths are traced, in order to give a first idea of tourists mobility in Sicily.

Although the analysis of tourists paths is complex and it needs to be taken into account for the different segments of the tourism demand, these apparently simple information offer several insights for a deeper knowledge of the tourists behaviour in Sicily.

5 Policy implications and conclusions

Despite being almost well investigated both under the theoretical perspective and in relation to the main factors affecting the tourists' mobility, the multi-destination trip behaviour is still lacking of empirical applications, in relation to different geographical contexts (international, national, regional, and subregional). Before discussing some of the main implications of tourists' mobility from a marketing and a management point of view, a first important issue to underline is the direct link among tourism statistics, multi-destination trips, and the quantification of the real magnitude of tourism. Both statistics from the supply-side and from the demand-side, do not take adequately into account the multi-destination trip phenomenon, so they result biased, although this bias is also difficult to quantify. The aim of the empirical survey described above was to provide a first measure of this bias from a quantitative point of view. However, the correction of official statistics is only the first step. In the analysis of the tourism mobility (inter and intra-destinations), the multi-destination trip behaviours need to be taken into account, within appropriate theoretical models, considering that many of the issues related to the analysis of the tourism demand and of its segmentation, could not ignore the number and the types of destinations visited during a single trip by the tourists. For tour operators, for example, the strategy of packaging destinations is not new, but a deeper knowledge of the factors affecting the multi-destination choice could help to provide tour packages that would adequately take into account the different segments of the tourism demand. Multi-destination trips have also important consequences for destinations and public authorities. Tourists might combine new destinations with existing ones. Therefore, the choice of the kind of destination to be developed must be made along with the consideration of the destination combination. The choice then relies on the characteristics of the new destination, compared with the existing destinations, and the knowledge of the main travel itineraries, and of the hierarchy systems of the different destinations (main destinations, secondary destinations, etc.), is an essential prerequisite for the adequate implementation of the destination marketing and management policies. From a mesoeconomic and macroeconomic perspective, the characteristics of tourists' mobility have important implications also in the transportation and the logistic planning and management and, more in general, in the adequate provisioning of tourism services. With reference to Sicily, tourism seems to be strongly concentrated in few main destinations that are the more frequent stops. However, there are many secondary destinations and an accurate analysis could help the process of regionalization of Sicily according to a demand-oriented approach. Finally, by comparing the information on the number of visited destinations, and on the number of presences in unofficial establishments with official accommodation statistics, it will be possible to obtain a more reliable picture of the tourism phenomenon in the region. The evaluation of

the positive and negative impacts on tourism, on different perspectives (economic, social, cultural and environmental) is difficult without adequate information on tourism flows, both under the quantitative (actual magnitude) and the qualitative point of view (segmentation of tourism flows). This work aimed at underlining the deficiencies and the main problems affecting accommodation statistics, when used as a proxy of tourism flows, for destination management purposes. However, it is possible to make some considerations about the specific externalities that can derive from the two phenomenon of interest: the unobserved tourism and the multi-destination trips. As for the unobserved tourism, several studies found that the residents benefiting from tourism have a higher level of support for it (Tosun, 2002), and this could be the case of people renting rooms or houses for tourism purposes. Regarding the negative impacts of the unobserved tourism, beyond the more classical negative impacts stressed by the academic literature for tourism activity in general (e.g. crowding of public services, cultural commercialization, higher crime rate, prostitution and gambling, see Lindberg and Johnson 1997), these are related to the tourism market itself, since the unofficial establishments compete in the tourism market, without bearing many of the costs associated with their presence in the market (e.g. taxes). Other negative impacts can be related to an increasing of housing prices for residents and more generally in a rivalry between tourists and residents for the use of destination resources. On the other hand, the tourism movements (both among several destinations, and within a single destination) generate both positive and negative impacts. The latter are related to the overcrowding of public transports and on a subsequent increasing of the price levels. However, to ensure an adequate provisioning of tourism resources, the policy makers, aware of the multi-destination phenomenon, could orient their efforts to a better management of transportation services, by taking also into account for the tourists' needs. These improvements could positively affect also residents. To sum up, the empirical study described in the present work allowed us to achieve a primary aim of quantification of two important phenomena: the multi-destination trips and the unobserved tourism. Future researches could improve additional methodological and empirical aspects. From the methodological perspective, it is important to improve the sampling design in order to make it more suitable for the observation of the tourism phenomenon, and for the implementation of the probabilistic techniques of units' selections. Still from the methodological point of view, also the development of new research instruments for the collection of the information on the multi-destination trip is still a challenging issue. From an empirical perspective, same-day travelers still represent a less explored phenomenon, even if it is as much as important for tourism policies. Whereas, tourism activities made by residents (in Sicily) would certainly have different characteristics (also in terms of mobility and unobserved tourism), the analysis that requires appropriate sampling design, techniques, and tools needs to be adequately planned.

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