

Multi-destination Trips: A Survey on Incoming Tourism in Sicily

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Abstract 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 studies are limited to a few pioneering studies. This lack may be attributable to the failure of tourism organizations to collect data on multi-destination trip behaviors, as it results, for example, from the system of European statistics on tourism (according to the Council Directive 95/57 EC), where no information on the average number of destinations visited within a single trip are provided. This paper aims to analyze the main implications of multi-destination trips both on tourism statistics and in tourism planning, and to describe the research design and the solutions adopted for the analysis of incoming tourism in Sicily. Some results related to the number of destinations visited and on the main travel itineraries undertaken by tourists in Sicily derived from the survey are presented.

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Introduction

Tourism phenomenon implies, by definition, a movement of people from an origin place to a destination one. Thus, its analysis is strongly dependent from the way in which these places are defined. The majority of theoretical models for the analysis of tourists behaviours, and main statistical sources focus their attention only at two point of the travel: the originating region and the destination one (Leiper, 1989). Official statistical sources make use of the concept of "main destination" to obtain the biunivocal correspondence between the originating region and the destination one, according to a simplified model of tourism mobility. 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 acknowledge that international tourism statistics published by UNWTO are simply a collection of statistics produced by every single country, which are collected from more than 150 world countries by UNWTO and published in its annual volumes. Multi-destination trips at an international level (visits to more than a country during the same trip) can produce a bias if arrivals on accommodation establishments are used as a proxy of the number of international tourists. Similar considerations can be done also for lower territorial scale, i.e. national, regional, and sub-regional. Parroco and Vaccina (2005a) highlighted the un-matching between data on arrivals of guests in accommodation establishments on a given region and the number of tourists in the same region. The main reasons are related to: a) the use of un-official establishments (e.g. relatives or friends houses, un-registered rented houses and rooms, boats, etc.) for tourists purposes, which determines the so-called "un-observed tourism" (Vaccina et al., 2011), since information on these kind of flows are not included in official statistics on guests arrivals; b) the lack of information regarding guests motivation, which do not allow the distinction between tourists and other travellers; c) the so-called "double counting" effect of arrivals which occurs every time that a tourist change accommodation establishments during a single trip, being registered more than once. The next section aims at discussing some of the issues related to multi-destination trip, as it results from literature review. The third section analyses the main implications of multi-destination trips on tourism statistics, which determines several sources of bias by using guests arrivals as a proxy of the number of tourists. From the 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) aimed at analysing (among other aspects) tourists mobility in the Island, and at quantifying the impact of tourism mobility in official tourism statistics, is described in the fourth section. Some of

the main preliminary results of the survey are presented in the fifth section. Final comments and policy implications conclude this work.

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

Tourism implies a movement of people in time and space, from their place of usual residence to the destination (or destinations). Surprisingly, the analysis of tourism mobility within a single destination and among destinations has not been taken adequately into account, despite a deeper knowledge of tourism movements is a fundamental pre-requisite for logistics, for the management of economic, social, and environmental impacts of tourism. The majority of models of pleasure trip behaviour is, in fact, based on the hypothesis that tourists visit a single destination, even if this hypothesis is almost un-reliable. Several authors (Baxter and Ewing, 1981; Mings and McHugh, 1992; Tussyadiah et al., 2006) examined the behavioural structure of multi-destination tourism trips, highlighting strong differences with mono-destination trips, under the behavioural and motivational perspective, however the empirical studies on this topic are limited to a few pioneering studies (e.g., 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 of modelling 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. With reference to 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 information on multi-destination trips and on trip itineraries, neither from the supply side (statistics on guests arrivals), nor from the demand side (which focus their attention mainly on the "main destination" visited). This implies that to analyze the phenomenon ad-hoc surveys need to be implemented.

Regarding 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 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 to the attractions within a destination, other authors (Oppermann,

1995) defined the term destination in a wider sense, by including whole regions. Still, Leiper (1989) highlighted that to qualify a stop as a "visit" it is necessary that tourist spent some time on that place, or that there is some specific touristic interest in that stop. To define a multi-destination trip, many studies considered the overnights as discriminating factor, which is the perspective which will be undertaken in the present work, and in the empirical research in Sicily below presented. The importance of analysing multi-destination trip behaviour is also related with the relevance of this phenomenon for regional tourism development. The multi-destination vacation experience will require longer than average stays and will, in general, attract those with 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 the regional level, regional tourism organizations can exploit the potential for profitable diversification and rebranding of a destination/region. For these reason, one of the key-issue is related with 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.), and time availability and budget. Regarding physical factors some authors highlighted the importance of "cumulative attractions" in a multi-destination trip can exert more interest than the case in which each attraction is visited separately in different trips. This would implies that a set of destinations can attract more tourists when they are located close to each other than the case in which they are distant and isolated. Also the accessibility exert a strong influence on tourists' propensity in making a multi-destination trip. With reference to human factors, a strong distinction can be made between fully independent tourists and organized tourists, since organized tourists 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 they 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. So pleasure vacationers generally tend to visit more destinations than business travellers, but also people visiting friends and relatives (VFR) would have a different behaviour, in terms of mobility, than other tourists categories. VFR tourists, in fact, tend to spend more time with their family or with friends, than in visiting several destinations. Several authors (Oppermann, 1993; Letho et al., 2004; Wang, 2004), highlighted 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 greater for the repeated visitors than for the first-time visitors (Wang, 2004). Finally, all tourists movements are influenced by time availability and budget. Time has, in fact, a strong influence on spatial touristic movements toward the destination and among several destinations (Chavas et al., 1989; Walsh et al., 1990; McKean et al., 1995). Time exert both an absolute than a relative impact on tourist behaviour. Indeed, the overall time spent for vacation is almost stable, with possible extensions or reductions related to economic availability which business cycles leaves to consumers for pleasure activities. Nevertheless, given the same time, strong differences appear 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. The mode of transportation chosen, and 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 less places, spending more time in them. Summarizing, the knowledge of factors affecting tourists mobility is an essential pre-requisite for the management and planning of tourism services in a demand-oriented perspective, according to the different segments of tourism demand.

2 Main implications of multi-destination trips on tourism statistics

The limits of official statistical sources on tourism, despite being still not adequately analyzed, have been already highlighted by several authors, both at an international (Leiper, 1989; Pearce, 1995; Lickorish, 1997), and at a national, regional, and sub-regional level (Parroco and Vaccina, 2005b; Tomaselli and Vaccina, 2006). Although the topic is too wide to be addressed in the present work – since it would require a detailed analysis of both demand and supply-side tourism surveys made by national and international organizations – we want to highlight the biases created if multi-destination trips are not adequately taken into account. As above anticipated, tourism statistics are usually referred at two point 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. Particularly, when guests arrivals in accommodation establishments are used as a proxy of 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 considered (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 an impossibility of measuring tourism demand through tourism supply. For example, Lickorish (1997) highlighted that in 1990 UNWTO reported a total of visitors to Europe from USA at over 15 million, whereas the European Travel Commission (ETC) using US Government departure figures gave a total under 7 million. Both estimates were correct, but ETC records visitors as individuals making a round trip to 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. To partially compensate for this problem, some authors (Pearce and Elliot, 1983; Leiper, 1989) proposed the use of several indexes for the analysis of international "tourism systems". These indexes are essentially based on the comparison between demand- and 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 whom that place is the main or sole 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 systems, at generating point, where trips began and at destination where tourists visit. However, this approach presents some limits, since the estimates derived from demand-side statistics (at least in the majority of European countries), given the sampling nature, have a good degree of precision at regional level, which does not allow to analyze multi-destination trips at sub-regional level. Secondly, whereas demand-side surveys record all the types of establishments used by tourists during their trip, supply-side surveys collect information only regarding the so-called "official establishments" (provided on a commercial basis), which in many cases represent only 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 "un-observed tourism" (Vaccina et al., 2011), given by the use of un-official 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

Given the above described deficiencies in official tourism statistics, a research group of the University of Palermo composed mainly by social statisticians, thanks to a co-founding of the Italian Ministry of University and Research, planned a survey covering the whole Sicily. The survey aimed to quantify the real magnitude of tourism in the Island, trying to quantify two of the main biases related to statistics on guests arrivals: the double counting effect, and the so-called "un-observed tourism", given by the use of un-official establishments for tourism purposes (Vacina 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 techniques used to analyze mobile populations. These are generally included in the wider term of 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 universally accepted definition of the above-cited categories, immigrants, homosexuals, homeless, and other similar categories of individuals are usually defined as hard-to-reach populations, and they are studied with sampling methods with are 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 travellers), 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 solutions adopted ranges from non-probabilistic (e.g. snowball, 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 constructed 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). 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 of venue-day-time units (VDT) – also known as time-location units – which 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 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 which are considered potentially eligible on the basis of checking the number of people present.

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 demand-side 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 which 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 official data on tourists flows in the Island: Spring, Summer, and Autumn, during which more than the 80 % of "official" tourists flows are concentrated. By integrating official data coming from different statistical sources (tourism surveys from the demand side and from the supply side, daily air passengers, daily ferries leaving the Straits, etc.), 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 systematic selection of the units in the days and places selected, according to strict rules given to the interviewers. Adequate estimation procedures which take into account for the complex samplign design adopted, have been proposed to make inference on the main relevant parameters, by using also calibration techniques and complex estimators, such as ratio estimators and post-stratified estimators.

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 (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) which he/she visited during his/her trip, with at least one overnight stay. For each places visited he/she was asked to specify the number of nights spent, and the type of accommodation establishment used, to be able to distinguish between official and un-official establishments. Through this section it was possible to relate the information collected with the two aspects of interest: tourism mobility and un-observed tourism.

Table 1: Questionnaire section on tourism mobility

Places visited	Nights spent	Type of establishment									
		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)
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4 Main preliminary results

Between summer 2009 and Spring 2010, a total of 3.935 tourists leaving Sicily at the end of their trip were interviewed, according to the sampling design described in the previous section. Sicilians and other travellers (non-tourists) were excluded from the sample. As above told, two of the main topics of interest of the whole survey were related to the analysis of tourism mobility and to the quantification of the so-called un-observed tourism. Although the data below presented are only preliminary sampling results, which still need to be reported to the population of reference according to the sampling plan adopted through inference process, it is already possible to present some insights related to both phenomenon of interests. 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 people interviewed visited more than a destination during their trip in Sicily. The average number of destinations visited is equal to 1,65 with a standard deviation of 1,19. As above told, multi-destination trips generate a double counting effect on guests arrivals data, which increases as the number of destinations visited increases. However, there is another bias in official statistics on guests arrivals above described: the so-called un-observed tourism.

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

Number of destinations visited	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

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 un-official establishments. Official establishments category includes: Hotels, residences, camping, rural facilities, holiday and work camps, bed and breakfast, youth hostels; whereas un-official establishments are: second houses, houses or rooms rented; relatives and friends houses, and a residual category which includes boats, free camping, and other un-official establishments. To highlight the relevance of both the double counting effect and of the un-observed tourism, table 3 reports the distribution of the number of visits and of the number of the nights spent in each establishments, by the 3.935 tourists interviewed.

By the analysis of data in table 3 it is possible to observed 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 results from official statistics on guests arrivals. In the remaining 35% of visits, tourists used un-official establishments, so they would not result in official statistics on guests arrivals. The 3.935 tourists spent about 38 thousands of nights in Sicily, with an average length of their trip in Sicily of about 9.8 nights (38.644 over 3.935). The 43% of the total nights were spent in official establishments, and about the 57% in un-official establishments. It appears useful to highlight how the ratio between nights spent in each establishment category and the visits made on the same category produce 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. So, the average length of stay had to 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. It can be observed that this index varies

Table 3: Visits, overnight stays and average duration of visit by accommodation establishment category, from 3.935 interviews to incoming tourists in Sicily, Summer Autumn 2009, Spring 2010

Accommodation establishment category		Visits	Overnight stays	Average duration of visit
<i>Official establishments</i>	Rural establishments	152	589	3,88
	Holiday 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
<i>Un-official establishments</i>	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 un-official establishments	126	4,502	3,31
	Total	6.485	38.644	5,96

among the different establishments categories, with higher values for un-official establishments, and lower values for the official ones.

It is also possible to start to explore some of the factors that can be related to multi-destination trip behaviour, according to the brief literature review presented in section 2. By recalling that data presented are still raw data from the sample, which need to be calibrated to take adequately into account for the sampling design, by the analysis of figure 2 multi-destination trips seem to be related to: (a) tourists nationality, (b) first-time vs repeated visitors, and (c) type of holiday. It can be observed that the share of tourists making a multi-destination trip in Sicily is higher for foreign tourists than for the Italians (43,65% vs 23,93%, figure 2.a).

Another important factor related to multi-destination behaviour highlighted in academic literature, is given by the distinction between first-time and repeated visitors. The graph in figure 2.b suggests that first-time visitors are more likely to make a multi-destination trip in the Island, compared to the repeaters (45,11 vs 23,40). Wang (2004) suggested that this can be due to a loyalty process of repeaters with specific places in the destination visited. Finally, if we consider the type of holiday made by tourists (figure 2.c), those who came in Sicily for a sea and sand holiday, are more likely to visit a single destination (only the 15,76% made a multi-destination trip), whereas those who made only partially a sea and sand

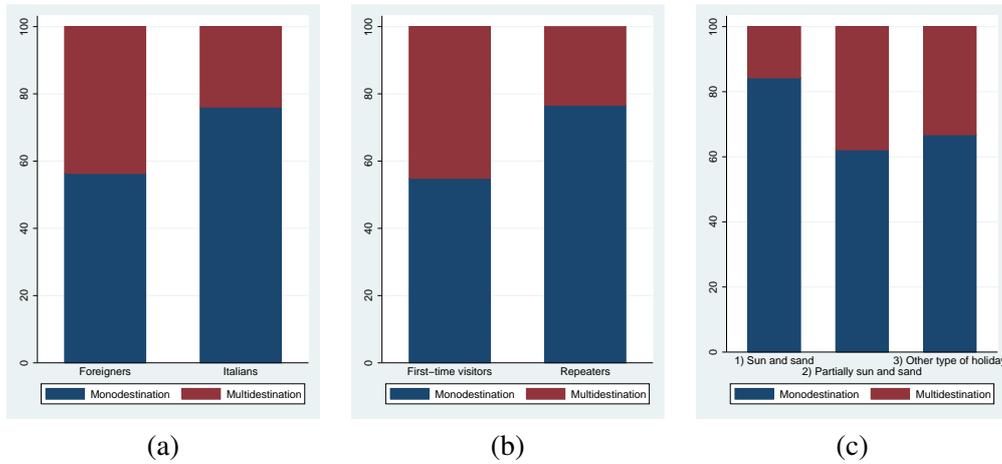


Figure 1: Multi-destination trip behaviour in relation some specific market segments

holyday, or who made a different type of holyday (cultural tourism, eco-tourism, etc.) are more inclined in making a multi-destination trip.

By remanding to a future work the implementation of multivariate models to make inference on multi-destination trip behaviour, 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 mobility allowed to collect 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), this information are very important and unique, and they allow to reconstruct the main travel itineraries made by tourists in Sicily, and to differentiate them in relation to specific segments of tourism demand (single-destination, two-destinations, etc.). To analyze tourists itineraries, the occurrences of the destinations were "counted" thanks to SPAD 5.5. textual analysis software, in relation to the different number of destinations visited (one destination, two destinations, and so on). A first important result is related to the number of municipalities visited by tourists in Sicily. The 68% of the 390 Sicilian municipalities, in fact, was visited at least once by tourists interviewed. 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). Table 4 reports the ten more frequent itineraries made by tourists interviewed, and in figure 3 some two-destinations path are traced, to give a first idea of tourists mobility in Sicily.

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

Table 4: Main tourists itineraries of incoming tourists in Sicily, according to the number of destinations visited

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

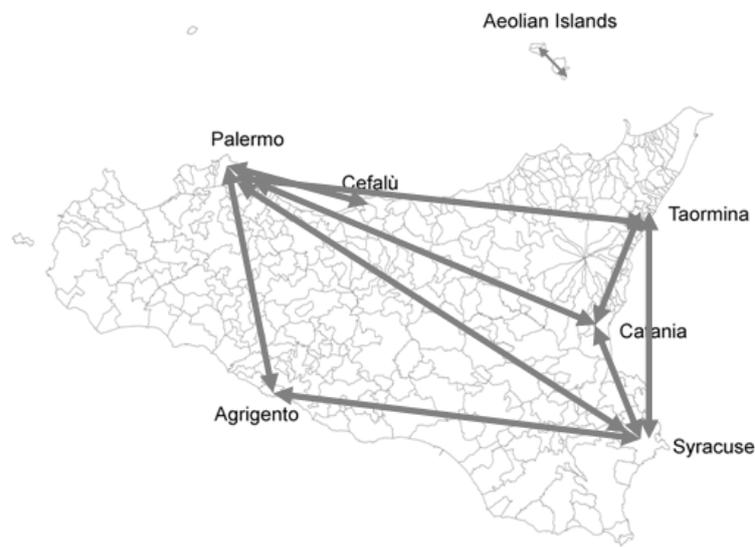


Figure 2: Some of the main tourists itineraries in Sicily

5 Policy implications and conclusions

Multi-destination trip behaviour, despite of being almost well investigated both under the theoretical perspective, and in relation to the main factors affecting tourists mobility, it is still lacking of empirical applications, in relation to different geographical contexts (international, national, regional, and sub-regional). Before discussing some of the main implications of tourists mobility under the marketing and management point of view, a first important issue to highlight 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, even if this bias is also difficult to quantify. The aim of the empirical survey above described was to provide a first measure of this bias under the quantitative point of view. However, the correction of official

statistics is only the first step. In the analysis of tourism mobility (inter- and intra-destinations) multi-destination trip behaviours need to be taken into account, within appropriate theoretical models, since many of the issues related to the analysis of tourism demand and of its segmentation, could not ignore the number and the types of destinations visited during a single trip by tourists. For tour operators, for example, the strategy of packaging destinations is not new, but a deeper knowledge of the factors affecting multi-destination choice could help to provide tour packages which adequately take into account for the different segments of tourism demand. Multi-destination trips have also important consequences for destinations and public authorities. Tourism authorities such as a government might seek to introduce a new destination to attract more tourists. Tourists might also combine new destinations with existing ones. Therefore, the choice of which kind of destination to be developed must be made along with the consideration of destination combination. The choice then relies on the characteristics of the new destination, compared with 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 pre-requisite for the adequate implementation of destination marketing and management policies. Under a mesoeconomic and macroeconomic perspective, the characteristics of tourists mobility have strong implications also in transportation and logistic planning and management and, more generally, for the adequate provisioning of tourism services. With reference to Sicily, tourism seems to be strongly concentrated in few main destinations (such as Palermo, Cefalù, Taormina, Agrigento, Syracuse), which are the more frequent stops, and which seem to be independent from tourists motivations and from the type of holiday undertaken by tourists. However, there are many secondary destinations, the analysis of which could help in a process of regionalization of Sicily according to a demand-oriented approach. Finally, by comparing the information on the number of destinations visited, and the number of presences in un-official establishments with official accommodation statistics, it will be possible to obtain a more reliable picture of tourism phenomenon in the Region.

By concluding, the empirical study described in the present work allowed us to achieve a primary aim of quantification of two important phenomenon: multi-destination trips and un-observed tourism. However, future researches could be improved under different aspects: methodological, and empirical. From the methodological perspective, it is important to improve the sampling design to make it more suitable for the observation of tourism phenomenon, and for the implementation of 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 multi-destination trip is still a challenging issue. From an empirical perspective, same-day travellers still represent a less explored

phenomenon, even if it is as much important for tourism policies. Whereas, tourism activities made by residents (in Sicily) would certainly have different characteristics (also in terms of mobility and in terms of un-observed tourism), the analysis of which requires appropriate sampling design, techniques, and tools which need to be adequately planned.

References

- Baxter, M., and Ewing, G. (1981). Models of recreational trip distribution. *Regional Studies*, 15(5): 327–344.
- Chavas, J. P., Stoll, J., and Sellar, C. (1989). On the commodity value of travel time in recreational activities. *Applied Economics*, 21: 711–722.
- Cohen, E. (1972). Toward a sociology of international tourism. *Social Research*, 39(1): 164–182.
- Council of the European Union (1995). Council Directive 95/57/EC of 23 November 1995 on the collection of statistical information in the field of tourism. *Official Journal L 291*, pages 32–39.
- Crompton, J. L. (1979). Motivations for Pleasure Vacation. *Annals of Tourism Research*, 6: 408–424.
- DeCantis, S., Gonano, G., Scalone, F., and Vaccina, F. (2010). Il disegno campionario e il piano di rilevazione nell'indagine sui turisti incoming in partenza dalla Sicilia e dalla Sardegna: il campionamento spazio-temporale per popolazioni hard to reach. In A. M. Parroco, and F. Vaccina (Eds.), *Mobilità ed altri comportamenti dei turisti: studi e ricerche a confronto*, pages 21–46. McGraw-Hill, Milano.
- Dietvorst, A. G. (1995). Tourist behavior and the importance of space-time analysis. In G. J. Ashworth, and A. G. Dietvorst (Eds.), *Tourism and Spatial Transformations: Implications for Policy and Planning*, pages 163–181. Wallingford: CAB International.
- EuropeanParliament (2011). Regulation (EU) No 692/2011 of the European Parliament and of the Council of 6 July 2011 concerning European statistics on tourism and repealing Council Directive 95/57/EC. *Official Journal of the European Union*, L192(54): 17–32.
- Fennell, D. (1996). A tourist space-time budget in the Shetland Island. *Annals of Tourism Research*, 23(4): 811–829.

- Hwang, Y. T., and Fesenmaier, D. R. (2003). Multidestination pleasure trip patterns: Empirical evidence from the American Travel Survey. *Journal of Travel Research*, 42: 166–171.
- Kakinami, L., and Conner, K. (2010). Sampling strategies for addiction research. In P. G. Miller, J. Strang, and P. M. Miller (Eds.), *Addiction Research Methods*. Blackwell.
- Kalsbeek, W. D. (2003). Sampling minority groups in health surveys. *Statistics in Medicine*, 22: 1527–1549.
- Kalton, G. (1991). Sampling flows of mobile human populations. *Survey Methodology*, 17: 183–194.
- Kalton, G. (1993). Sampling considerations in research on HIV risk and illness. In D. G. Ostrow, and R. C. Kessler (Eds.), *Methodological issues in AIDS behavioral research*, pages 53–74. Plenum Press, New York.
- Kalton, G. (2009). Methods for oversampling rare subpopulations in social surveys. *Survey Methodology*, 35(2): 125–141.
- Kalton, G., and Anderson, D. W. (1986). Sampling rare populations. *Journal of the Royal Statistical Society, Series A*, 149(1): 65–82.
- Karon, J. M. (2005). The analysis of time-location sampling study data. *Proceedings of the Survey Research Methods Section, ASA*,. URL <http://www.amstat.org/sections/SRMS/proceedings/y2005/Files/JSM2005-000306.pdf>.
- Lau, G., and McKercher, B. (2007). Understanding tourist movement patterns in a destination: A GIS approach. *Tourism and Hospitality Research*, 7(1): 39–49.
- Leiper, N. (1989). Main destination ratios. Analyses of Tourist Flows. *Annals of Tourism Research*, 16: 530–541.
- Letho, X. Y., O’Leary, J. T., and Morrison, A. M. (2004). The effect of prior experience on vacation behavior. *Annals of Tourism Research*, 31(4): 801–818.
- Lew, A. A., and McKercher, B. (2002). Trip destinations, gateways and itineraries: The example of Hong Kong. *Tourism Management*, 23(6): 609–621.
- Lickorish, L. J. (1997). Travel statistics – the slow move forward. *Tourism Management*, 18(8): 491–497.
- Lue, C. C., Crompton, J. L., and Fesenmaier, D. R. (1993). Conceptualization of multi-destination pleasure trips. *Annals of Tourism Research*, 20: 289–301.

- Magnani, R., Sabin, K., Saidel, T., and Heckathorn, D. (2005). Review of sampling hard-to-reach and hidden populations for HIV surveillance. *AIDS*, 19(Suppl 2): S67–S72.
- McKean, J., Johnson, D., and Welsh, R. (1995). Valuing time in travel cost demand analysis: An empirical investigation. *Land Economics*, 71(1): 96–105.
- Mecatti, F. (2004). Center Sampling: A Strategy for Surveying Difficult-to-sample Populations. *Proceedings of statistics Canada Symposium 2004, Innovative Methods for surveying Difficult-To-Reach Populations*. URL <http://www.statcan.gc.ca/pub/11-522-x/2004001/8740-eng.pdf>.
- Mings, R. C., and McHugh, K. E. (1992). The spatial configuration of travel to Yellowstone National Park. *Journal of Travel Research*, 30: 38–46.
- Muhib, F. B., Lin, L. S., Stueve, A., Miller, L. R., Ford, W. L., Johnson, W. D., et al. (2001). A venue-based method for sampling hard-to-reach populations. *Public Health Rep*, 116(Suppl 1): 216–222.
- Oppermann, M. (1993). First-time and repeat visitors to New Zealand. *Tourism Management*, 18(3): 177–181.
- Oppermann, M. (1995). A Model of Travel Itineraries. *Journal of Travel Research*, 33: 57–61.
- Parroco, A. M., and Vaccina, F. (2005a). Referring to space and time when using territorial data: the case of touristic arrivals. *Proceedings of the International Statistical Institute Conference, 5–12 April, Sydney*.
- Parroco, A. M., and Vaccina, F. (Eds.) (2005b). *Isole Eolie. Quanto turismo?!* Collana di Studi Statistici per il Turismo, vol.3, Cleup, Padova.
- Pearce, D. (1995). *Tourism today. A geographical analysis*. Longman, Harlow. 2nd ed.
- Pearce, D. G., and Elliot, J. M. C. (1983). The Trip Index. *Journal of Travel Research*, 22(1): 6–9.
- Stewart, S. I., and Vogt, C. A. (1997). Multi-destination travel trip pattern. *Annals of Tourism Research*, 24(2).
- Sudman, S., Sirken, M. G., and Cowan, C. D. (1988). Sampling Rare and Elusive Population. *Science*, 240: 991–996.

- Tomaselli, V., and Vaccina, F. (Eds.) (2006). *Turismo a Cefalù: dimensioni statistiche ed effetti socio-economici*. Collana di Studi Statistici per il Turismo, vol.4, Cleup, Padova.
- Tussyadiah, I. P., Kono, T., and Morisugi, H. (2006). A model of multideestination travel: implications for marketing strategies. *Journal of Travel Research*, 44: 407–417.
- Vaccina, F., Parroco, A. M., Cantis, S. D., and Ferrante, M. (2011). Un-observed tourism: approaches and case studies in Sicily. *Proceedings of the TTRA Europe 2011 and AFM conference "Creativity and innovation in tourism", 11-13 April, Technopole d'Archamps*.
- Walsh, R., Sanders, L., and McKean, J. (1990). The consumptive value of travel time. *Journal of Travel Research*, Summer: 17–24.
- Wang, D. (2004). Tourist behaviour and repeat visitation to Hong Kong. *Tourism Geographies*, 6(1): 99–118.
- Wu, C. L., and Carson, D. (2008). Spatial and temporal tourist dispersal analysis in multiple destination travel. *Journal of Travel Research*, 46: 311–317.

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