Volume LXVI N. 2
Aprile-Giugno 2012

Rivista Italiana di Economia Demografia e Statistica

2

SIEDS
SOCIETÀ ITALIANA DI ECONOMIA DEMOGRAFIA E STATISTICA

Organo della Società italiana di Economia Demografia e Statistica

Poste Italiane S.p.A.
Spedizione in abbonamento postale -70% DCB Roma

SIEDS
SOCIETÀ ITALIANA
DI ECONOMIA DEMOGRAFIA E STATISTICA

SEGRETERIA GENERALE:
Via delle Cave di Pietralata, 13 – 00157 ROMA
TEL. e FAX 06-43589008 E-mail: sieds@tin.it; rivista.sieds@gmail.com

ORGANO DELLA SOCIETÀ:
RIVISTA ITALIANA DI ECONOMIA DEMOGRAFIA E STATISTICA

FONDAZIONE CASSA DI RISPARMIO DI ASCOLI PICENO

Volume pubblicato con il contributo della Fondazione Cassa di Risparmio di Ascoli Piceno e dell'Istituto Nazionale di Statistica

Istat

VOLUME FUORI COMMERCIO – DISTRIBUITO GRATUITAMENTE AI SOCI

VOLUME LXVI – N. 2 APRILE-GIUGNO 2012

RIVISTA ITALIANA DI ECONOMIA DEMOGRAFIA E STATISTICA

Direzione, Redazione e Amministrazione
Via delle Cave di Pietralata, 13
00157 ROMA
Telefono eFax 06-43589008
E-mail: sieds@tin.it; rivista.sieds@gmail.com

INDICE

IN THIS ISSUE

This issue contains the invited papers of the XLIX Scientific Meeting of the Italian Society of Economics, Demography and Statistics held in San Benedetto del Tronto on 24-26th May, 2012. The meeting, entitled "Mobility and development: the role of tourism", was organized jointly with the key availability and partnership of the "Fondazione Cassa di Risparmio di Ascoli Piceno" and the commitment of the Polytechnic University of Marche, Faculty of Economics "Giorgio Fuà" and in particular the Department of Economics.

The meeting was opened by Professor Giovanni Maria Giorgi who underlines the connection of the topics of the meeting with the particular characteristics of the people from Marche.

The issue first begins with a paper by Paolo De Nardis and Luca Alteri that focuses on the lack in the Italian school of a theoretical model of integration of the migrants.

Stefania Girone illustrates the issue regards the new assets of urbanization in the Mediterranean basin between the Eu and the Arab world.

The paper presented by Sveva Avveduto presents some insights and data on the scenario of mobility of the highly skilled migration. The main aspects discussed concern the brain drain and brain gain questions.

Elvio Mattioli and Giuseppe Ricciardo Lamonica show the results of an analysis of the impact of the tourism sector on the economies of ten European countries using the Input-Output tables available from Eurostat.

Maria Rosaria Carli illustrates the main expected results of an innovative system of management of municipal territories as an integrated whole.

The proposal of Paolo Dell'Olmo shows how the evolution of optimization techniques could support decision making at policy level.

Romeo Danielis, Lucia Rotaris and Eva Valeri discuss the possibility of introducing carsharing service in a tourist area.

The work by Edoardo Marcucci, Amanda Stathopoulos and Romeo Danielis shows a case of introduction of urban freight policies and tourism applied in the Limited Traffic Zone of Rome.

The main goal of the paper written by Jérôme Massiani and Giovanni Santoro is to underline the relevance of the concept of capacity for the management of a tourist destination using the experience of tourism management in Venice.

The aim of the work by Cristina Mottironi, Magda Antonioli Corigliano is to describe how local network and cooperation increase the attractiveness and competitiveness of local tourism destinations.

Tiziana Cuccia presents a case of study "The Baroque Cities In Val Di Noto (Sicily)" in order to answer to the question: is it worth being inscribed in the World Heritage List?

The aim of the work by Cristina Mottironi, Magda Antonioli Corigliano is to describe how local network and cooperation increase the attractiveness and competitiveness of local tourism destinations.

Vincenzo Asero, Rosario D'Agata and Venera Tomaselli, present a study in order to analyze the tourism demand in Sicilian Tourist Districts.

The aim of the work by Giuseppe Notarstefano and Serena Volo is to propose a "territorial" approach to measuring the impact of tourism.

Marco Gallegati illustrates a tourist satisfaction analysis that takes into account the tourist viewpoint of the specific different attributes or characteristics and of the destination as a whole.

Claudio Ceccarelli
RIEDS Editor

INTRODUCTION TO THE XLIX SCIENTIFIC MEETING OF THE ITALIAN SOCIETY OF ECONOMY, DEMOGRAPHY AND STATISTICS

Giovanni Maria Giorgi
SIEDS President

Despite the severe economic difficulties that afflict our country we have been able, also this time, to organize our 49th Scientific Meeting with the key availability and partnership of the "Fondazione Cassa di Risparmio di Ascoli Piceno" and the commitment of the Polytechnic University of Marche, Faculty of Economics "Giorgio Fuà" and in particular the Department of Economics and its chairman Francesco Chelli.

In the 70 years since its foundation (29 June 1939) our Society has also faced the worst times of what we are experiencing and, despite everything, our association has always managed to overcome the difficulties encountered from time to time.

Today, as in the worst of times earlier, in a country where the resources devoted to scientific research and education are slim, we must react with all our energy.

It is not a coincidence if we celebrate our 49th Congress here, in this Region to which I am proud to belong by birth and ancestry - where no one is overwhelmed by adversity, where no one waits that the "manna" falls from the sky or that the so-called "Italian big star" gives him/her a hand, but he/she rolls up sleeves and works.

This is the land that starting from the family business has come to an international economic success and I speak not only of the footwear and/or of the furniture industries.

Do not forget that this land has been provided by the Nature of a wonderful environment that goes from the sea to the mountains, from the Adriatic sea to the Sibillini. And then here we are to debate on tourism, another valuable resource of these places. Tourism with a capital T, that is a sustainable tourism - with the natural, social and artistic environment - and its links with the mobility and the development of the territory .

Since the so-called "word of mouth" is a great marketing tool because the information coming from the experience of consumers is often perceived as "more reliable" inasmuch "neutral", I am sure that participants to our congress, who have come here to discuss of various aspects of tourism, will spread an advertising

message more than positive on San Benedetto del Tronto and the pleasant surrounding areas.

Finally, to keep faith with a *modus operandi* quite common in this part of Italy, that is "less talk and more work", I declare the 49th SIEDS Scientific Meeting open.

San Benedetto del Tronto, 24th May 2012

THE CONFINES OF IDENTITY: THE "SECOND GENERATIONS"[1]

Paolo De Nardis, Luca Alteri

1. Multiculturalism and Beyond...

In the last several years we have noticed a proliferation of research with particular attention placed on second generation immigrants, or the so called G2's. These works even allude to patterns of a sociological nature on the immigrants whom we prefer to define as migrants (not in honor of being politically correct, but to honor the exact etymology). The desire to get on and ride this media wave is evident based on what has happened in France, Germany, and England where the second generations have been at the forefront of upheaval. It remains therefore, in reality, an ulterior hypothesis: that the attention focused on the problem have an "exorcizing" effect to the tune of "I'll take care of the second generations to prevent riots from happening in Italy as they happened in France and London".

Among the many publications – I had been talking about – I would like to highlight a work that was published in 2012 for Bonanno Publishing Press, for a series - entitled "Oltre la linea" (Beyond the Line) - that I co-direct with two colleagues. The book, edited by Simonetta Bisi, deals with the integration of migrants' children within the Roman school system: nevertheless, its validity surpasses any geographical dimension. It is not entitled The City of Others. Techniques of Scholastic (dis) Integration, for no reason. The study constitutes the need to reflect on models of migrant integration, on the work of institutions such as the school system and the way that "foreigners" are received into civil society.

The results of this kind of work are presented in the following words: "Multiculturalism has failed". Coming to a similar conclusion following the ethnic based riots that occurred several times in London during the last ten years would only constitute a limited and superficial study. The thesis that "Multiculturalism has failed", more for its theory than for its practicality, has instead conferred preeminent importance on religious identity rather than to an everyday identity, and

[1] Although this essay was conceived jointly, Paolo De Nardis wrote paragraph 1, while Luca Alteri wrote paragraphs 2. The essay was translated by Glenda Marcozzi.

has furthermore transformed the single national community into the epicenter of the migrants social life. Other identities, other affiliations, other "spiritual memberships" compared to a specific religious identity have been drastically downsized. At the same time, the aggregation centers apart from those of the community (such as lay, institutional or even self organized, not based on confession however) have been debased. In English multiculturalism, the immigrants were Arab, Hindu, Sikh, or else Christian, the same being true for their respective offspring. Such a *reductio ad religionem* – in as much as being inspired by the noble principle of permitting the migrants to remain true to their own beliefs - has resulted in limiting aspirations in the lives of the new English citizens. Why limit oneself to one's own religious community or the rituals of one's own religion? Why feel only Arab? Isn't an Arab (or a Hindu, a Christian, an animist...) also a worker, an employee, a passionate fan of cricket, of Manchester United? One who appreciates jazz music? Perhaps even a vegetarian, a socialist, a feminist? "The world" – concluded Amartya Sen (2005) in a pointed analysis of the limits of multiculturalism – "isn't a federation of memberships to an ethnic religion, neither is, one hopes, Great Britain." Such a judgment, which was written while London was beginning to reflect on abandoning its multicultural model, gains even more value if it is compared to the second generations in Italy.

The problem is absolutely complex: a simple linear analysis is not even feasible here; rather, a multi- dimensional approach is necessary which allows the diverse problems to converge on a common topic. The question of second generations presents itself like concentric circles wherein the child of immigrant parents is at the center. These same parents have bartered for integration in Italy's system by accepting arduous, repetitive, humble jobs that are socially looked down upon. However, doing this they gained a salary, created a space and a role within the society. Their children have broken away from their parents and refuse this so called "bartering" considering it a symbol of sub alternative integration, and consequently, a humiliating condition. These children, having grown up alongside their peers who have different life styles and models of consumption, being parked in front of a television, subjected to advertising and the messages of western society, have completely broken away from what their parents' experience was. At the same time, however, they also live in a context that is continual and that must not be under evaluated: they ask for independence and emancipation from their parents, even though having need of support and closeness. They are fluctuating between opportunities to climb the social ladder and the risk of losing themselves in anonymity. They are searching for a place to find themselves yet shy away from the responsibilities that this brings. They are in effect, just like their Italian counterparts, seeking reference points, beliefs, and self determined spirituality.

Charles Glenn (2004 p.179) wrote well when he said: "Teachers must be ready to recognize that their immigrant students (despite their external differences) may have much more in common with their Italian classmates than both groups have with the adults they are surrounded by".

If it is true that the second generations of "non Italians" are different from the first generations (given that it would be too felonious to list the problems and the possible solutions), it is also true that the "seconds" are inevitably tied to the degree of integration and to the standard of life that the first generations have (with great difficulty) succeeded in reaching. If it is true that a fourteen year old with Moroccan, Bengali, or Colombian parents have different problems (in addition to, more serious, at times unresolvable) in contrast to a fourteen year old born to Italian parents, it is also true that the first fourteen year old inevitably lives in close contact to the second, interacts with him or her (even a conflict is a form of interaction), produces and receives stimuli, suggestions, and conditioning.

It is for this motive that the G2 is a strategic individual who totally represents the contradictions of the global society: this young person is the traffic light at the intersection, the road sign at the fork in the road... living that moment of uncertainty just before choosing among multiple answers... as dots suspended between two propositions.

The integration experience of the first generations passes through that of the second generations (when the satisfactory insertion of ones' own children turns out to be a gratifying, determining factor for a parent of a foreign origin.), but passes through even the youth themselves in general – irrespective of the citizenship requested and granted or not granted– in a society that often stereotypes them as novelties, frills, or non sustainable luxuries.

Faced with a situation of such importance – maybe because of its obviousness – many sociological analyses tend to consider the second generations as monads or elements left to themselves, disengaged and isolated from the social context they belong to; at the most, they enclosed in a family environment (the family of origin and the national community with its strict rules) that is described as behind the times, old fashioned, anti-modern, and extremists from a confessional point of view. Perceiving it in this way - which is too limited - causes the suspicion to surface that a political motive is underway (with the objective of justifying pressing political matters in dealing with migration) – and leaves out the interplay of three variables.

The first - of a judicial nature – regards the dimension of the citizen at large and highlights the unique Italian situation: the G2's that are born or brought to Europe at a young age either acquire or are able to request citizenship from the country that has allowed them in; whereas, Italian norms require that this concession be subordinated to reaching the age of adulthood and to a decision made at the

discretion of the Italian administration. Marco Demarie and Stefano Molina (2004, p. XXII) justly write that: "Naturalization is an undoubtedly delicate subject that requires reflection and caution, it is of the utmost necessity that the imagined pathways leading to citizenship are in the prospective where logic of jus soli wins out over *jus sanguinis*. This is a thought that must be an intrinsic part of the construction of European citizenship".

This comment has not only a judicial value but a symbolic one as well: if the State becomes, in the eyes of the migrant of the second generation, only an institution that punishes, it will never be recognized as authoritative reference point and deserving of that certain combination of faith and respect inherent in the concept of Institution.

The second variable concerns the labor environment: the first generation of migrants had found interstices of incomes by doing the jobs that the Italians found less than enticing (even though right wing Italians continue to negate that "there are no jobs that the Italians don't want to do"), but the G2s have witnessed the range of possibilities narrow down (due, even in part, to the chronic economic crisis). Given that the G2s tend to refuse to perpetuate the quantity and the quality of work done by their parents, such a situation produces a statistic framework that is not advertised much but that is already most alarming: in the European countries with the oldest migration, high levels of unemployment are recorded for the youth of foreign descent.

The third - and last - variable to analyze is specifically an economic aspect framed in an holistic approach in the relation between second generations and society. Integrating the youth of foreign origins into the society cannot take attention away from the transformations of the societies and from the economic cycle into which these G2s participate. Being marginalized, or rather, falling through the cracks of society, is not only motivated by identity and ethnicity but economics as well. Various empirical analyses have demonstrated how the material conditions of daily life influence whether the G2s are central or marginalized social settings. A comparison of Third Millennium immigration to the Italian immigration in the 1950's is valid here: degrading conditions inevitably favor deviant behavior, uncomfortableness, exclusion and – in a scholastic environment - dropout.

In the very light of these aforementioned variables, it is technically wrong to forget how multiculturalism produced optimum results for a considerable number of years. To quote Amartya Sen once again (2005, p. 8): "The most significant contribution perhaps, whose importance is not sufficiently recognized, comes from the full and immediate right to vote for all British citizens of the Commonwealth which constitutes the biggest part of non European immigration. This conquest has been reinforced by dealing in a non discriminatory way in Health, in Education, and in Civil protection: all this has contributed to integrating rather than dividing".

2. The Multi Ethnic School: A Misunderstood Condition

One other, perhaps less tangible, result deserves to be recognized objectively: multiculturalism has the merit of drafting a theory, of proceeding without making mechanical attempts, or worse yet, inopportune improvisations. On closer inspection, this is what characterizes the Italian school today: improvisation. Among the countless problems it is improvisation that comes to the forefront, both on the legislative front and in the daily management of the institutes. More precisely, the teaching staff has been forced to succumb to improvisation, having been abandoned and left to their own resources, always having less resources available to them while being obliged to raise funds like risky Non Governmental Organizations instead of being professionals who should busy themselves above all with creating an environment of balance and harmony between the students, the teachers, and the administrative, technical, and auxiliary personnel.

In the chaos of official announcements and meaningless norms, the teachers live their lives in perennial trenches, resigned to the need of adding to their obligatory work load: fantasy, the ability to improvise and to bear it all. Those who deal with intra-culture within the teaching staff work with an extremely high degree of difficulty, from the moment they have to implement the so called *legislative vacuum* in a sector that, being innovative, requires, on the contrary, the imposing presence of a legislator.

In the last few years (and in various countries) criticism about multiculturalism has appeared to be an exercise closer to political propaganda instead of an analysis of public politics. "The English model has failed" - was being said with a tone of triumph. But what about the French model? The United States model? The German model? The Italian model (if there has, in effect, been one)? The neighborhoods on the outskirts of the English towns in flames did not re-echo the tumult of neither the French revolts nor the ethnic conflicts in German cities or the struggles in the Italian Chinatown? Confronted with mass migration, every theoretical model (and each practical application consequently) has proven to be short lived. Nevertheless, to single out the only answer in the anachronistic closure of "the Fortress Europe" is an even more improbable than simplistic activity. If one looks closer, the history of the politics in each European country concerning migration has demonstrated pros and cons often modified based on the characteristics of the single models adopted:

"Research data tells us that France, with its assimilazionistic type of politics, has made positive headway in the fields of education and culture; however, it shows a deficient in work force integration. Germany presents discreet occupational results; however , it has not been capable of integration neither on a legal, nor an identity level. Although it had appreciable difficulty, the English

model has produced good results in the formative system, but still has ethnic based inequality in the work force: while, socially, it reproduces structures of minorities" (Demarie and Molina 2004, p.XXII)

Three conclusions are deduced from this brief list: 1) Italy does not appear because politicians have never committed to constructing a theoretical model of integration of the migrant; 2) The easiness or the difficulty of the integration process depends on the economic juncture, and its capacity to widen or narrow the threshold of acceptance for the *foreigner* by the middle class citizen, and then, by consequence, the politician; 3) Scholastic instruction is a variable that interacts with every model of national integration and with every age group, even when it is not expressly cited in the analysis of national models.

Even the phenomenon of the second generations does not escape, therefore, from the importance of scholastic instruction. At the core of this last aspect, Italy started out from a great vantage point given that it found itself having to confront the influx of people at its borders after having been a country of emigration for decades. That means that, on one side, if willing, one can understand what a migrant who was leaving a familiar place for a foreign country felt, and, on the other, to be able to depend, beyond that, on the examples of the confining States whom have all had more experience in the tradition of flows of migration.

As we know, neither one of these advantages were used to their fullest. The stereotypical image of the *good ole Italian*, being ready to welcome, ready to smile, and having the strength of the Latin spirit ("Mediterranean") which is naturally inclined to being courteous and friendly, was shattered due to countless episodes of xenophobia (whether manifested or not), and to the evidence of absolutely strict legislative measures concerning matters of migration.

Upon further examination, even the question of immigration in the school has not been handled with the abundance of attention that it deserves; in the best of cases, it has been reiterated that the centrality of the school is an ideal meeting place for migrants and the society which greets them. As praise worthy a thought of this nature is, it needs to be analyzed deeper: since the school is the institution authorized to instill the culture of the country since it is "head of the house", it risks becoming a physical place that emphasizes even more the distance between the culture the migrant has belonged to and the culture where he or she has come to. The analytical framework at times is disheartening: even commentators who are universally known to be "progressives" confront the subject with evident superficiality. Regarding this, there are two opposite attitudes: the first characterizes those who – honoring some sort of *realpolitik* applied to school politics – tend to confirm (at times radicalize) the status quo based on the assumption that the change will constitute a jump in the dark.

Charles Glenn (2004, p.171ss) for example: avoiding alarming the academic community on the scarce scholastic performance of the students with foreign backgrounds, the author reminds us that it was not necessarily a symptom of bad integration. It simply meant, he confirmed, that the students were not suited to reach higher degrees of instruction but that they would integrate all the same into society, dedicating themselves hopefully to manual labor! Citing his own words, he says "In reality, an option like the choice of a professional path, that could justly be seen as a problem of a descendant of professional or managerial classes could be a wise and realistic decision for an immigrant boy. Even in the computer science agencies there is need of craftsmen of various types, and often the immigrant children - lacking the linguistic skills necessary to achieve academic success – become craftsmen and small entrepreneurs; their children will be the ones to attend the university".

Others, on the other hand, glorify the figure of the *foreigner* "regardless", as if induced to be infatuated with the marginalized and deviant who live, in fact, on the "outskirts" which permits him/her to observe social contexts objectively, escaping from common sense and from feeling a sense of community and being subjected to ideological or environmental conditioning.

"The foreigner finds himself observing and acting from a particular position, he watches the world from the margins and can react with a sense of liberty in regards to the norms of the group of which he has partaken" (Colombo 1999, p. 41)

The foreigner, therefore, is not only the benchmark for democratic quality in a target society (more functional in regards to economic-political indicators), but can potentially contribute to the social progress of the above-mentioned context, and introducing elements of novelty and heterogeneity otherwise unattainable. The foreigner is the observer and the actor of the democratic performance; thus, the bringer of innovation and richness to environments that are accustomed to reproducing themselves automatically.

An attitude like this, however, hides a dark thought that is less cheerful and optimistic: hard analogies, in fact, can be seen in the image of the "good native" (Ibidem), or better, he who presents a situation that is "missing" and about which he does not complain (nor try to free himself from), but from which derives advantages. The foreigner, seen from this perspective, constitutes a kind of return to the "original pure man", not being contaminated by the legacy of civilization and being absent from cultural super structures.

Is it really like this? Responding to this question is not the objective of this current essay - let it be sufficient, however, to say that the idea of the migrant worker as the "pleasant and blessed outsider" is shared by only a small minority of people (the more culturally elite) and disregarded by the grand majority of the population who receive daily messages (from the media, from political propaganda

and from institutions) that are diametrically opposite and serve to associate the *Other* with chaos, insecurity, risks, and even impending danger.

In as much as has been demonstrated above, even the best intentions are at times invalidated from the start with superficiality and incompleteness, so much so as to trust in the goodness of sentiments rather than scientific studies and researches.

"While in modern Western times, the beginning of the collective demands were substantially oriented towards obtaining rights of inclusion founded on recognition of equality and universal rights; today, the collective demands of inclusion are becoming more and more frequent founded on a positive value reserved for diversity and specificity" (Colombo 1999, p.149)

Ten years ago Enzo Colombo had already understood an essential point which is applicable, in a certain way, to all of the minorities who request recognition in today's society. Asking if the migrant is less different in regards to his or her social and cultural context is pointless: the migrant *is* different. The point is to study the way the various social relations of the migrants' social network are built beginning with his or her very diversity. In other words, "the foreigner exists and is different, the problem is how to take the migrant in and how to explain the concrete forms of social rapports demonstrated when it comes to dealing with the difference itself" (Colombo 1999, p.57)

The essence of this work has been to prove this point by focusing on education with an invitation, despite everything, to use a minimum of optimism in confronting a subject such as this. In fact, in analyzing the documentation concerning this subject, one notes how many cases of missed integration exist, without, on the other hand, any follow up reflections as to why. The motivations are often detected as "external" to the scholastic reality in itself: a child with foreign origins did not integrate because he or she was poor, deprived of cultural stimuli in the family, anguished by a conflicting identity crisis, oppressed by religion, lacking faith.... Or else, he or she did not integrate because the family did not want the child to do so and did not work toward the goal of integration. At the most, the child did not integrate because of racism in the environment the child is in.

The school is an example of the social crisis we find ourselves living in. Answers that are so incomplete get justified because the background is missing, which we will recapitulate in these last few words:

a) The Italian school is in crisis, government funding is lacking, it is not recognized by other social institutes, it has no type of authority and importance, it is considered more of a cost than an opportunity.

b) A major part of the political systems just speak of scholastic integration of the foreign student as a priority (with the exception of, perhaps, the more conservative side). Nevertheless, one gets the impression that Italian politicians are contented with a multi-cultural model more than an inter-cultural model. They favor, that is, a "partial integration" in which the mechanisms of the education system orients foreign students towards professional schools, or else limits them to a basic education, like a precursor before being marginalized in a future job.
c) Schools do not escape from the current rules of communications, for criticisms and problems are always newsworthy.

With this work we wanted to give a signal of a counter trend to highlight even the positive results achieved, at times, in silence, and at times, fighting with situations objectively difficult.

We want to remind and emphasize that "a school for everyone" is still possible.

References

BAUMAN Z. 2001. *Voglia di comunità.* Roma – Bari: Laterza.

BETTIN LATTES G. 1995. *La società degli europei.* Bologna: Monduzzi.

BISI S. 2012. *La città degli Altri. Tecniche di (dis)integrazione scolastica.* Acireale – Roma: Bonanno.

COLOMBO E. 1999. *Rappresentazioni dell'Altro. Lo straniero nella riflessione sociale occidentale.* Milano: Edizioni Angelo Guerini e Associati SpA.

CURI U. 2010, *Straniero.* Milano: Raffaello Cortina Editore.

DEMARIE M., MOLINA S. 2004. Le seconde generazioni. Spunti per un dibattito italiano. In AMBROSINI M., MOLINA S. (Eds.) *Seconde generazioni. Un'introduzione al futuro dell'immigrazione in Italia*. Torino: Edizioni Fondazione Giovanni Agnelli.

DE NARDIS P. 2007. Giovani allo specchio: il modello occidentale tra America ed Europa. *Rivista di Studi Politici.* Vol. 2, pp.79-96.

GLENN C. 2004. I figli degli immigrati a scuola: lezioni per l'Italia dalle esperienze di altri Paesi. In AMBROSINI M., MOLINA S. (Eds.), *Seconde generazioni. Un'introduzione al futuro dell'immigrazione in Italia*. Torino: Edizioni Fondazione Giovanni Agnelli.

SEN A. 2005. Libertà e Ragione, il solo Passaporto. *Corriere della Sera*, 1st december.

SUMMARY

The confines of identity: the "second generations"

The essay concerns with the debate on multiculturalism and the national models of integration. By the help of a multi-dimensional approach, it studies the case of the so-called "Second Generations" within the Italian context: their standard of life, the relations with the first generations, the crises of identity, the cultural struggle, the risk of isolation. The field of analysis is represented by the Italian school and its lack of a theoretical model of integration of the migrant: scholastic instruction is a variable interacting with multiculturalism models and defining the chances of integration of the G2s.

Paolo DE NARDIS, Sapienza, University of Rome, paolo.denardis@uniroma1.it.
Luca ALTERI, Sapienza, University of Rome.

OLD AND NEW ASSETS IN THE ISSUE OF URBANIZATION: THE MEDITERRANEAN BASIN BETWEEN THE EU AND THE ARAB WORLD

Stefania Girone

1. Introduction

During the 20th century and the first decade of the 21st century the populations of the Mediterranean Basin, whose spatial distribution will be thoroughly described in the following paragraph, were – to a lesser or greater extent – theatres of important transformation processes. Among various (demographic) development dynamics, the phenomena of urbanization and/or counter-urbanization[1] have assumed, in some sense, a key role.

The urbanization process of the industrially developed countries of the Mediterranean area has been completed with different modalities in comparison to what has, instead, occurred in less developed countries. In the 19th century, the emergence and affirmation of industrial city within the industrialization process has, undoubtedly, guided the urbanization development: large masses chose to transfer from rural to urban, favouring the growth of big urban centers as well as of medium and small sized centers. Hence, the spread of the urbanization process throughout the North Mediterranean Coast resulted, without any doubt, related to the industrialization, while on the South Coast it was linked to the tertiary sector progress provoking a pathological expansion of predominately parasitic centers. (Di Comite, Moretti, 2006; Federici, 1980).

Urbanization can be studied from two different points of view: as a transition and confrontation from rural to urban[2] (process indicated as "*inurbamento*") or as a

[1]The sign of differential population growth processes of large urban centers is linked mainly to the sign of (net) migration flows of such centers. Generally, when – thanks to the attractive force of these centers – migration inflows exceed systematically the outflows we are dealing with urbanization (or "*urbanesimo*"), to which subsequently is opposed a reversed phenomenon, denoted by many different terminology, once the attractive force of such centers vanishes their migration balances become almost systematically negative.

[2]Whenever comparing the urban and the rural (or, non urban) population of any country, it is expected to encounter the following:

a) in developing countries, relevant differences between the two of them because the urban population shows much evolved demographic behavior, an element of attractiveness for less developed populations;

concentration of population in large and/or small urban agglomerates (Di Comite, Moretti, 1994).

In this matter, many definitions of "urban" have been given in different countries of the Mediterranean region making it, therefore, difficult to draw a clear distinction between the urban population and the rural population (or, rather, a non urban).

The most of them are quantitative definitions, i.e. based on a demographic dimension of the area: considering the entire rural population as non urban (Pace, 2005).

Putting off for another occasion a thorough study of the urbanization phenomenon, firstly we will analyze the evolution of the urban population and urbanization rates of different areas as well as countries that form the Mediterranean Basin considered in its broad sense, after which we will focus on different dominance capabilities that some cities exert more that others and, hence, on a different collocation by dimensional classes of the most dominant cities of only 25 countries of the Mediterranean Basin understood in the narrow sense of the term.

2. The Mediterranean Basin and its spatial diversities

Within its borders, the Mediterranean has always been articulating its space, divided yet interconnected, in a balance between unity and diversity.

"The Mediterranean imposes itself. Nowhere else, for a similar extension the unity of spaces, yet so different, is perceived with such an intensity" (Kaiser B., 1996).

Currently, many descriptions, more or less shared, have been given to trace the territorial borders of the Mediterranean depending on a point of view (demo-economic, political-historical, geographical, cultural and environmental) assumed for different study requirements.

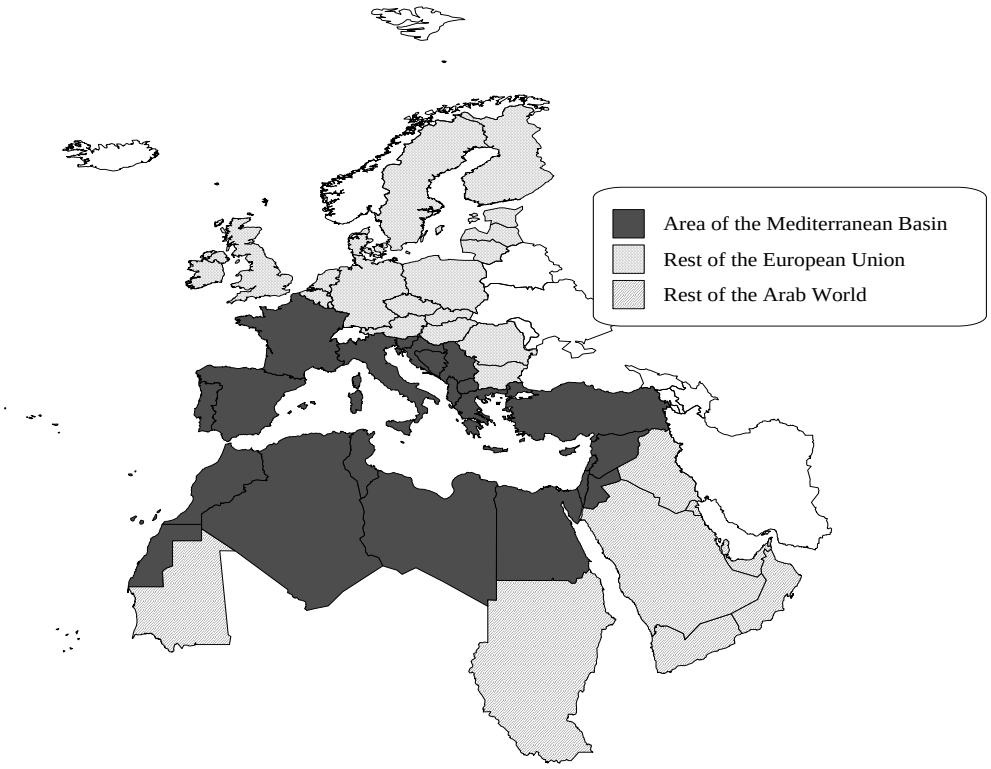
Thus, putting aside its many existing and possible territorial settings, in this occasion we will, firstly, adopt a broader framework including 53 countries divided in three macro areas – the Mediterranean Basin in narrow sense, the rest of the EU and the rest of the Arab World[3] – (Figure 1), then we will use a more restricted vision, that of a Mediterranean Basin in narrow sense embracing an area of 25

b) In developed countries, irrelevant gaps and, in some cases, true phenomena of counter-urbanization, i.e. the spatial mobility from the cities to the countryside.

[3]The so considered area comprises the extra-Mediterranean countries of the EU and the most of the Arab countries (the Maghreb ones as well as the Machrek ones) which, in a certain sense border with the Mediterranean.

countries, suitable for the kind of analysis that will be carried out in the second part of the work. -

Figure 1 – *Territorial diversities of the Mediterranean Basin*



Over the last decades, within this vast area of reference we have witnessed the formation of some mega-urban agglomerations as Istanbul and Cairo, on one hand, and a stagnation and/or contraction of a demographic dimension of large cities of the Mediterranean Europe[4], on another. So, currently, in the Mediterranean Basin

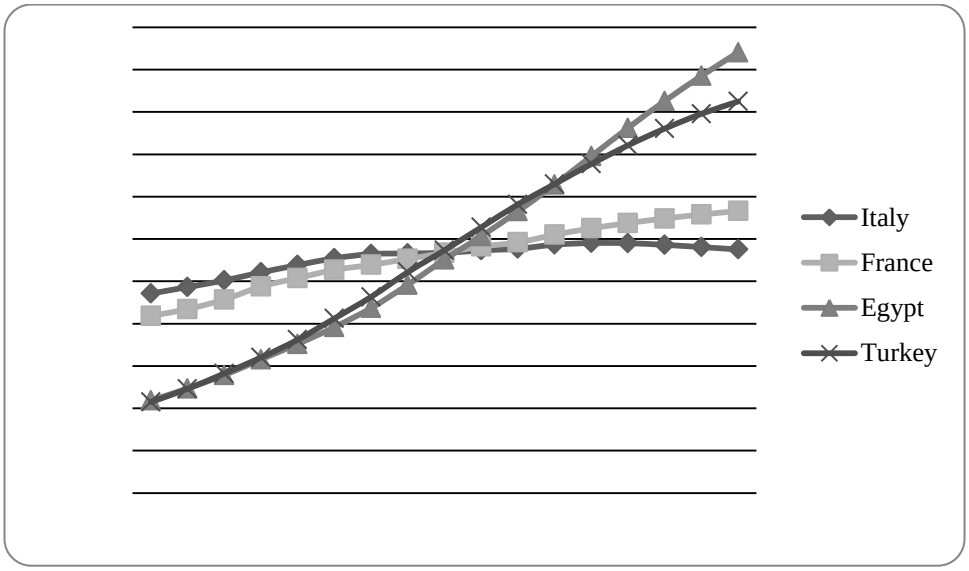
[4]Looking at the demographic evolution (from 1950 to 2030) of four countries with the highest amount of population (Italy and France, on one hand, and Turkey and Egypt, on another) it is important to point out an event that occurred during the Nineties: the «baton pass». As a matter of fact, until the late Eighties, Italy and France were the countries of major demographic dimension – ranking first and second respectively –, between 1990 and 1995 the «ranking of the biggest four» underwent radical transformations (Figure 1a).

coexist the urbanization processes, which occur manly in the Asian and African zones of the reference area, with the counter-urbanization processes (or otherwise called "urban deconcentration" or "territorial urbanization spread) common to the Mediterranean and non Mediterranean countries of the European Union (Di Comite, Bonerba, Girone, 2008).

3. Urbanization processes over the 20 years of transformations

With an aim of tracing the evolution scenario in the issue of urbanization, that clearly illustrates the existing differences between the three areas of the Mediterranean Basin counting 53 countries, the urbanization rate has been used[5].

Figure 1a – *Demographic dimension of France and Italy, Egypt and Turkey, 1950-2030.*



In 1990, Turkey became the first country of major demographic dimensions (on contrary to Egypt, which remained the fourth) while in 1995 the first two positions got occupied by Egypt and Turkey. Among them, from 2010 Egypt should become the «first» one and all that without compromising, at least up to now, the role of Italy and France as an immigration countries and that of Egypt and European Turkey as an emigration countries (Di Comite, Bonerba, Girone, 2008).

[5]Urbanization rate is calculated as a ratio of the considered urban population and the total population from which it derives. This ratio is expressed as a percentage: therefore, the complement of 100 constitutes, by difference, the rurality rate.

The Figure 2 shows the amount of urban population – considered as the population living in areas classified as urban by criteria applied by each country - over two decades, along with the urbanization rates respectively for three macro-areas forming the Mediterranean Basin in broad sense.

The analysis by broad areas shows how in only 20 years, from 1990 until 2010, the urban population has grown at a faster pace in the Mediterranean Basin in narrow sense, passing from 240,9 million to 324,9 million, less relevant in the rest of the Arab World, going from 41,2 million to 80,1 million, and fairly sustained in the rest of the EU where from 215,1 million it had barely reached 227,2 units.

Hence, by observing the urbanization rates for the same time period it is obvious that the most significant growth was one of the Rest of the Arab World, where the percentage of the urban population (in comparison to total population) increased by nearly 8 points, passing from 50,5 per cent in 1990 to 57,9 per cent in 2010, than it was in the Mediterranean Basin in narrow sense, where it passed from 60,2 per cent in 1990 to 64,7 per cent in 2010, recording an increase of just over 4 points, and in the Rest of the EU, where the increase was only of 2 points or so, going from 73,1 per cent to 74,9 per cent in 1990 and 2010 respectively (Figure 2.1, 2.2).

Looking, more specifically, at different countries that compose each macro-area (Table 1 in Appendix) it is clear that during the whole reference period (1990-2010) the EU countries have the highest rates even though, as it has already been showed, the growth pattern was more symptomatic for the countries of the Arab World (including Turkey), and – albeit to a lesser extent – for those of the Mediterranean Basin in a narrow sense[6].

In any case, it can be affirmed, without any doubts, that in the 2010 almost every country of the Mediterranean Basin[7] – in its broad meaning – the percentage of the urban population exceeded, in some cases way over, 50 per cent of the total population.

[6]In terms of urbanization rates, Belgium, with 97,4 per cent, is the EU country with the highest value, followed by the United Kingdom's 90,1 per cent; Kuwait, with 98,4 per cent, and Qatar, with 95,8 per cent, are the countries with the highest levels in the Arab area; Malta, with 94,7 per cent, and Israel, with 91,7 per cent, are the countries of the Mediterranean Basin in narrow sense with the highest values.

[7]Except Egypt (42,8 per cent), Yemen (31,8 per cent), Mauritania (41,4 per cent) and Sudan (45,2 per cent).

Figure 2.1 – *Urban population (in a.v.) by macro-areas of the Mediterranean Basin, 1990-2010*

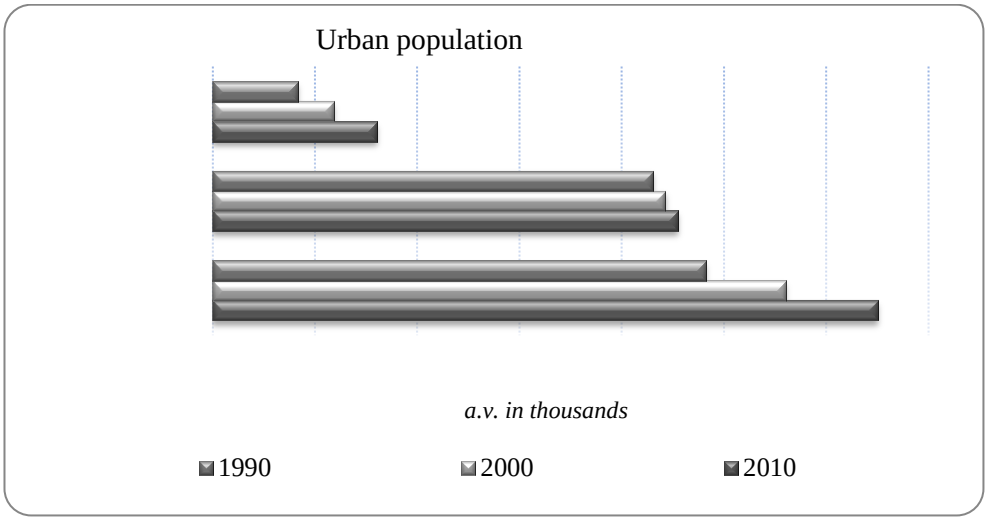


Figure 2.2 – *Urbanization rate (in per cent) by macro-areas of the Mediterranean Basin, 1990-2010*

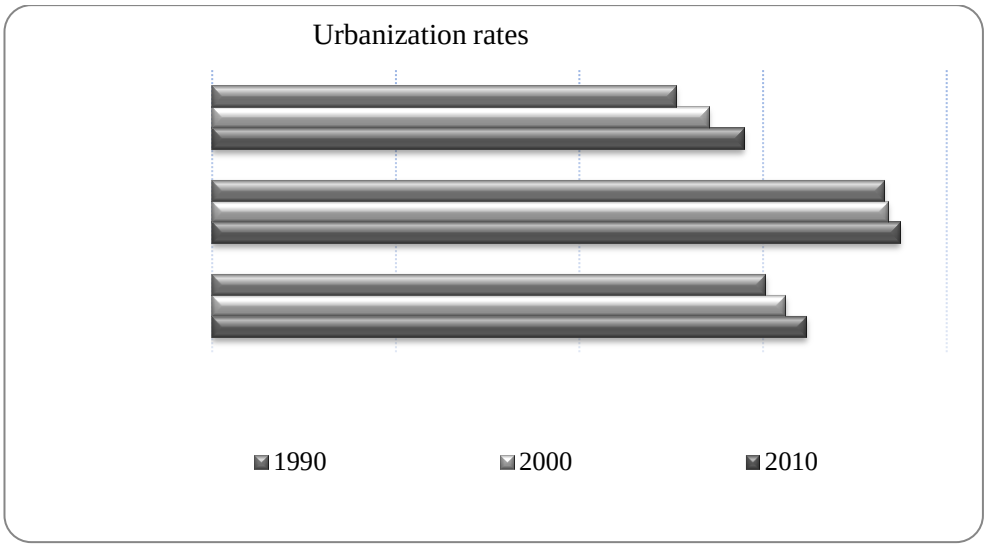


Table 1 – *Urban agglomerates of the Mediterranean Basin in narrow sense. Demographic weight and hierarchical order, 1950-2020*

Urban agglomerates	Demographic weight (*in thousands*)						Hierarchical order					
	1950	1970	1990	2000	2010	2020*	1950	1970	1990	2000	2010	2020*
Paris	6.522	8.350	9.330	9.692	9.958	10.031	1	1	1	2	3	3
Cairo	2.494	5.585	9.061	10.534	12.503	14.451	2	2	2	1	1	1
Rome	1.884	3.135	3.450	3.385	3.333	3.330	3	5	6	7	9	12
Milan	1.883	3.017	3.063	2.985	2.940	2.938	4	6	8	10	13	16
Barcelona	1.809	3.482	4.101	4.560	5.057	5.182	5	4	5	5	5	6
Madrid	1.700	3.521	4.414	5.045	5.764	5.934	6	3	4	4	4	4
Naples	1.498	2.000	2.208	2.232	2.253	2.254	7	8	12	14	18	18
Lisbon	1.304	1.817	2.537	2.672	2.890	3.058	8	10	11	13	14	15
Alexandria	1.037	1.987	3.064	3.600	4.421	5.210	9	9	7	6	6	5
Istanbul	967	2.772	6.552	8.744	10.530	11.695	10	7	3	3	2	2
Casablanca	625	1.505	2.682	3.043	3.267	3.716	11	11	9	9	10	9
Alger	516	1.254	1.908	2.754	3.574	4.235	12	13	14	11	8	8
Tel Aviv-Jaffa	418	1.029	2.026	2.752	3.256	3.600	13	14	13	12	11	11
Damascus	367	914	1.691	2.044	2.675	3.293	14	16	16	17	16	13
Beirut	322	923	1.293	1.487	1.941	2.119	15	15	19	20	19	19
Aleppo	319	721	1.554	2.222	2.968	3.649	16	18	17	15	12	10
Ankara	281	1.341	2.561	3.179	3.908	4.403	17	12	10	8	7	7
Izmir	224	876	1.741	2.216	2.724	3.085	18	17	15	16	15	14
Rabat	145	494	1.174	1.507	1.793	2.083	19	19	20	19	20	20
Tripoli	106	398	1.500	1.877	2.322	2.713	20	20	18	18	17	17

Notes:**Estimates*
Source: *Own elaboration on UN data (Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2006 Revision and World Urbanization Prospects: The 2007 Revision, http://esa.un.org/unup).*

If we limit, now, only to observe the 25 proper Mediterranean countries (of which 13 belonging to the North Coast and 12 to the South one) we could carefully examine the different aspects and features of the urbanization with the help of the Table 1 enlisting the top 20 urban agglomerates[8] of most significant demographic dimensions in 2010, on the basis of their demographic weight and hierarchical order from 1950 until 2010 and prospectively to 2020.

[8]Urban agglomerate includes, generally, the population de facto contained within the perimeter of a contiguous and inhabited at urban density rates territory regardless of administrative boundaries. Thus, the agglomeration is an urban area that emerges around a city of greater importance than others: the dependency is not only a demographic one, but on services as well. Around one agglomeration, a metropolitan area can emerge including also the peripheral area not strictly linked to the urban one, but related to it for some aspects like trade or a commuters percentage.

At the beginning of the considered period – excluding Cairo which already occupied the second position in 1950 – the North Coast metropolis (with Paris at the top) were one to occupy the first places of the ranking.

Over the sixty years, large South Coast metropolis climbed up the ranking: as a matter of fact, in 2010 Paris lost 2 positions in favor of Cairo which earned the first position and Istanbul which passed from the tenth place occupied in 1950 and is, currently, a follow up of the Egyptian capital, ranking as the second Mediterranean city with the largest demographic dimension.

In the following years, the Arab urban centers – in particular Alexandria, Ankara and Alger which should conquer the fifth, seventh and eight position respectively in 2020 – will be assuming a more and more significant demographic weight within the Mediterranean area (Table 1).

4. Emergence of large urban agglomerates: a study through the dominance index

"The history of the Mediterranean is a history of cities, and for Mediterranean populations the city is and has always been a *magnet*, an almost irresistible appeal, at the point that its urban tradition is like no other in the world" (Leontidou, 1990).

After the urbanization rates analysis, we retained interesting and useful to define the kind of urban agglomerations in which the Mediterranean populations have been living during the two decades of reference. To do so, a demographic size has been considered distinguishing urban settlements by their dimensions in:

a) *megalopolis*, whose population exceeds 10 million;
b) *metropolis*, with population between 5 and 10 million;
c) *large urban agglomerations*, with population between 1 and 5 million;
d) *medium cities*, with population between 500.000 and 1 million;
e) *small cities*, with population less than 500.000.

To analyze, more in specific, the composition of different urban agglomerates in each country, we have computed a table (Table 2 in Appendix), taking as a reference 25 countries of Mediterranean Basin in narrow sense, by which it is possible to estimate which part of the national population is concentrated in capital cities and which one in other – sometimes more other times less – dominant cities[9]

[9]In some countries, the population is conveyed in one sole city – that stands out as "dominant city" and which in most cases corresponds to the capital city – and in other countries in two or more cities. Often, in countries of small dimension the population is concentrated in the capital, while in large dimensioned countries the population tends to flows in several cities: if, on one hand, it is true that capitals are usually the dominant cities, on other hand, the dominant cities are not always capitals (Pace, 2005)

other than capitals and, in last instance, in urban settlements of 5 different dimensional classes (Table 3 in Appendix).

With a reference to the first of the two mentioned aspects, there are two instruments by which it is possible to measure the degree of dominance of a city and/or an urban center:

Dominance Indexes

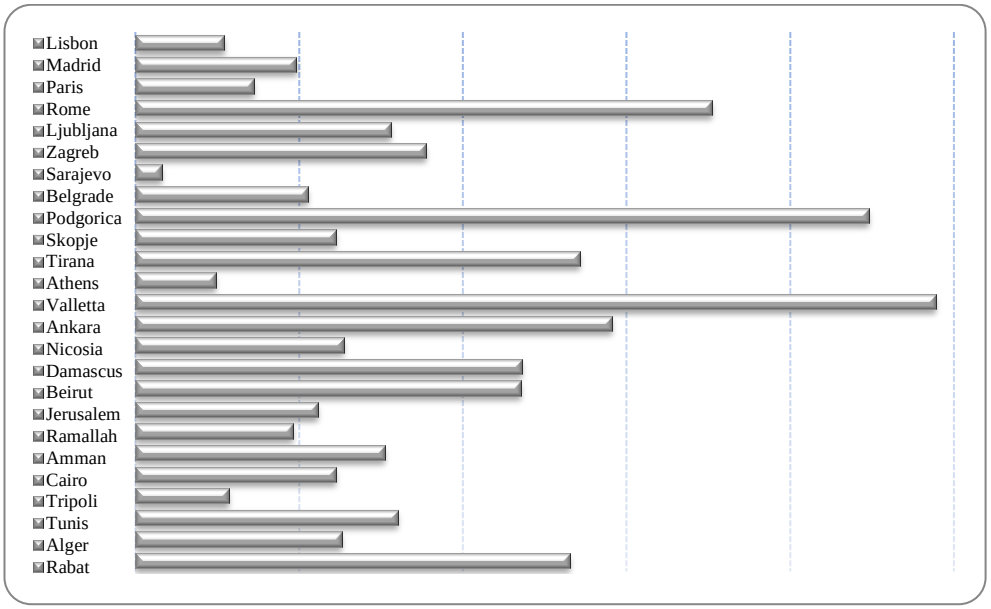
$$Id_1 = \frac{P_{au}}{P_n} * 100 \quad (1)$$

$$Id_2 = \frac{P_{au}}{P_{ur}} * 100 \quad (2)$$

The first one is calculated by dividing the total population present in the urban agglomerate (P_{au}) of the country under consideration with the total national population (P_n), the second as a ratio of the same P_{au} of the reference country and the national urban population (P_{ur}): both indexes are expressed as percentages.

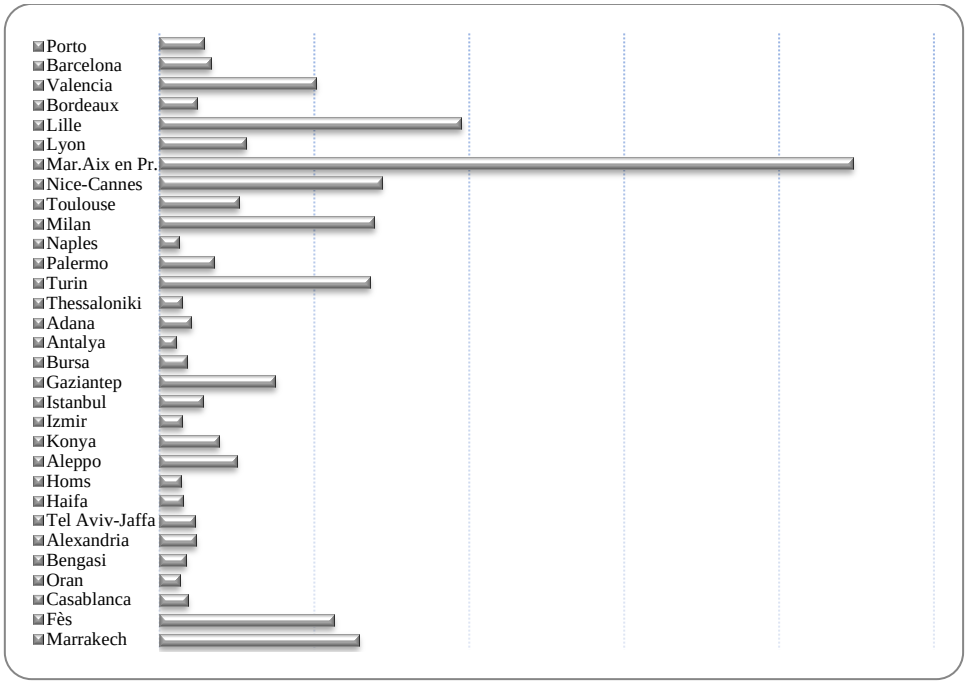
For space reasons, it has been decided to use only the first one out of two indexes – reserving for another occasion the use of both of them – which allowed us to affirm that, in 2010, among Mediterranean capitals, the Maltese one shows the highest level of Id_1 (Figure 3): in fact 48,9 per cent of national population pours into Valetta; not so far away is the Lebanese capital (Beirut) where 44,8 per cent of country population is concentrated. Among countries with lower levels of dominance index there are Palestine with Ramallah (Id_1=1,6 per cent) and, among those properly European, Italy with Rome (Id_1=5,7 per cent).

Figure 3 – *Dominance Index (Id_1) of Capital cities in the Mediterranean Basin in narrow sense, 2010*



Looking at the amount of population of other important cities of the proper European area which equally – or almost – as the capital cities feature important demographic dimensions, it has been possible to determine that in 2010 (Figure 4): in Portugal the city of Porto harbors 1,3 million of inhabitants with an Id_1 equal to 12,9 per cent; in Spain, Barcelona and Valencia stand out counting together a population of 5,8 million and, amongst the two of them, Barcelona has a major Id_1 (equal to 11,2 per cent) almost as high as the capital of Madrid (Id_1=12,6 per cent); in France, Bordeaux, Lille, Lyon, Marseille-Aix en Provence, Nice-Cannes, Toulouse distinguish themselves with a total population of 6,5 million and an Id_1 distant, in six French cities, from the Paris one (Id_1=16,0 per cent); in Italy, Milan, Naples, Palermo and Turin stand out with a global population of 7,7 million and between the four cities Milan, with an Id_1=5,0 per cent, approaches the one of Rome (Id_1=5,7 per cent).

Figure 4 – *Dominance Index (Id_1) of other dominant cities of the Mediterranean Basin in narrow sense, 2010*



If we move to the South of the Mediterranean, we find Turkey where Adana, Antalya, Bursa, Gaziantep, Istanbul (the largest cities in terms of demographic dimension), Izmir and Konya, with a total population of 19,1 million, appear to be the most populous cities together with Ankara which on its own harbors 3,7 million of inhabitants. In Turkey the city of Istanbul has an Id_1=13,6 per cent, significantly higher than one of the capital (Id_1=4,9 per cent); in Syria where Aleppo and Homs have in total 4,0 million inhabitants: between two cities Aleppo, which presents an Id_1=13,9 per cent, exceeds – albeit slightly – the capital Damascus (Id_1=12,2 per cent); Israel with Haifa and Tel Aviv-Jaffa that has a population of 4,2 million and present dominance indexes, in correspondence of two cities, (Haifa with Id_1=14,3 per cent and Tel Aviv-Jaffa with Id_1=44,8 per cent) in both cases higher than one of the capital Jerusalem (Id_1=10,5 per cent); Egypt where Alexandria has 4,4 million of citizens with a dominance index (Id_1=5,6 per cent) lower than one of the capital Cairo (Id_1=15,6 per cent); Libya with Bengasi receives a population of 1,2 million, with an Id_1=19,5 per cent in comparison to 35,2 per cent of Tripoli; Algeria with Oran is a home to 852 thousand of individuals, with an Id_1=2,4 per cent against 9,8

per cent of Alger; and finally Morocco where Casablanca, Fes and Marrakech together have a population of 5,2 million, with a much more significant dominance index for Casablanca (Id_1=10,1 per cent) then for the capital Rabat (Id_1=5,4 per cent).

This index allows us to identify three models to which the Mediterranean countries under consideration relate to (Figure 1 in Appendix):

1. the first model comprises countries with a single dominant city (Slovenia: Ljubljana; Croatia: Zagreb; Bosnia and Herzegovina: Sarajevo; Serbia: Belgrade; Montenegro: Podgorica; Macedonia: Skopje; Albania: Tirana; Malta: Valletta; Cyprus: Nicosia; Lebanon: Beirut; Palestine: Ramallah; Jordan: Amman; Tunisia: Tunis);
2. the second one includes countries of more than one dominant city, with one more than others (Portugal: Lisbon; France: Paris; Greece: Athens; Turkey: Istanbul; Israel: Tel Aviv-Jaffa; Egypt: Cairo; Libya: Tripoli; Algeria: Alger; Morocco: Casablanca);
3. the third one comprehends countries with more cities of similar dominance (Spain: Madrid and Barcelona; Italy: Rome and Milan; Syria: Damascus and Aleppo).

By simplifying the classification we come to 2 schemes out of three:

I. The one including countries where the entire national community moves, mainly, around one large center, not always represented by a capital city (a monocentric model);
II. The one comprising the countries whose national community tends to move around two or more centers, some of medium others of large dimensions (a policentric model).

The large part of the considered countries belong to the monocentric model, while, on contrary, in a policentric one we can find only Spain, Italy and Syria..

Proceeding and ending with an analysis by dimensional classes (> 10 million, 5-10 million, 1-5 million, 500.000 - 1 million, < 500.000), carried out with the latest available UN data, of 25 considered countries of the Mediterranean Basin in the narrow sense, at the current state we can observe the following (Table 3 in Appendix):

A. only 2 obtained the status of "megalopolis" (with more than 10 million of individuals), that is Turkey with Istanbul which has a population of 10,5 million and Egypt with Cairo presenting a population of 12,5 million;
B. while the "metropolis" class (5-10 million) includes Spain with Madrid and Barcelona with a total of 10,8 million and France with Paris and it's 9,9 million;

C. with a reference to the class from 1 to 5 million some 14 countries present at least one "urban agglomeration", in particular Turkey and Italy with 5 and 4 urban agglomerations respectively stand out as countries mostly provided of this kind of class;
D. in the adjacent class (500.000-1 million) the countries with at least one "medium city" result to be 13, out of which Italy with 12 medium cities (for a total population of 7,7 million) is a country with the highest number of medium cities according to its reference class;
E. in the class of "small cities" (less than 500.000) are, obviously, included all the considered countries, neither one excluded.

The current dimensional collocation, in not so far future, will tend to modify: urban agglomerates – some small and others of large dimensions – will, in fact, tend to became more numerous and their population will tend to grow occupying more and more the urban space. Therefore, the Mediterranean will not cease to urbanize itself (Véron, 2006).

5. Conclusions

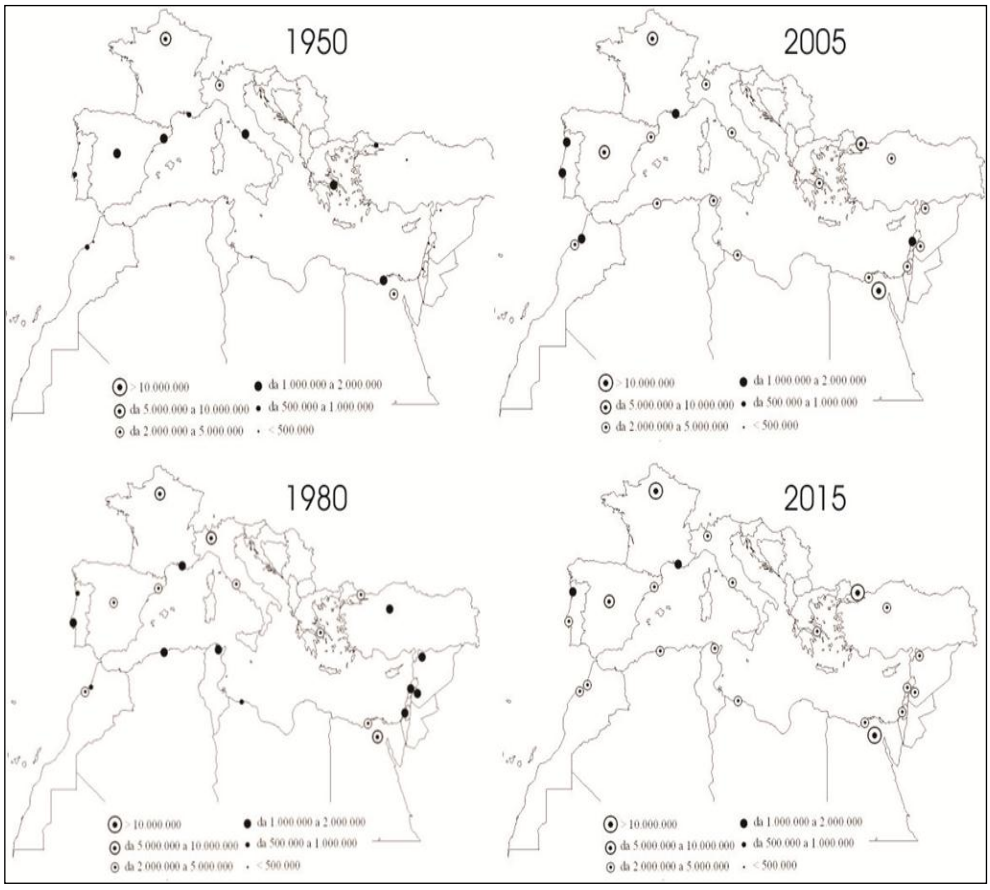
As a conclusion of this work we wanted to describe briefly, as a prosecution– and, thus in a certain sense as a completion – the analysis carried out in the last part of the previous paragraph, the evolution over the sixty years (1950-2015) of urban agglomerates divided according to several dimensional classes.

However, contrary to the dimensional subdivision adopted in the paragraph 4, it has been retained as useful, in virtue of the great number of included countries, to fraction the C class (1-5 million) in two parts: the first one with the scaling from 1 to 2 million, the second one from 2 to 5 million. In this way, there are six dimensional classes instead of five previously used.

Figure 6 shows that, from the Fifties up to the Eighties of the last century, the population grown significantly in the urban centers of the European area of the Mediterranean, contrary to urban centers of the Afro-Asian coast – which for more than sixty years appeared to be (with an exception of the Egyptian capital) few and of scarce demographic dimensions – increased systematically and gradually, changing its demo-economic and socio-politic assets in the meantime.

This trend is being confirmed today, and will in the imminent future: while a remarkable population growth is being observed for large agglomerates on the African and Asian Coast, the urban areas of the North coast are experimenting a limited and, in some cases, absent growth.

Figure 6 – *The evolution of big urban agglomerates of the Mediterranean Basin 1950-2015*



Source: *Di Comite, Bonerba, Girone, 2009*

These different conducts between the Mediterranean areas are to be searched in different modalities and times by which the processes of demographic transition occurred (Salvini, 1990): in fact, the urbanization can accelerate transitional courses, since the changes, generally, are faster in urban zones (Di Comite, Bonerba, Girone 2008).

Appendix

Table 1 – *Urban population (in a.v.) and Urbanization rates (in per cent) of the Mediterranean Basin, 1990-2010*

	Country	Urban population (in thousands up to 1st July)			Urbanization rates		
		1990	2000	2010	1990	2000	2010
Area of the Mediterranean Basin	Portugal	4.784	5.564	6.510	47,9	54,4	60,7
	Spain	29.275	30.680	34.912	75,4	76,3	77,4
	France	42.016	44.838	48.616	74,1	75,8	77,8
	Italy	37.847	38.782	40.354	66,7	67,2	68,4
	Slovenia	971	1.007	959	50,4	50,8	48
	Croatia	2.441	2.505	2.618	54	55,6	57,8
	Bosnia and Herzegovina	1.691	1.637	1.916	39,2	43,2	48,6
	Serbia	4.822	5.179	5.199	50,3	51,6	52,8
	Montenegro	282	392	357	48	58,5	59,5
	Macedonia	1.103	1.264	1.386	57,8	62,9	67,9
	Albania	1.198	1.286	1.556	36,4	41,7	48
	Greece	5.979	6.556	6.888	58,8	59,7	61,4
	Malta	325	359	389	90,4	92,4	94,7
	Europe	*132.734*	*140.049*	*151.660*	*66,7*	*68,4*	*70,4*
	Turkey	33.949	44.126	54.119	59,2	64,7	69,6
	Cyprus	454	540	620	66,8	68,6	70,3
	Syria	6.224	8.524	11.754	48,9	51,6	54,9
	Lebanon	2.472	3.244	3.688	83,1	86	87,2
	Israel	4.079	5.563	6.670	90,4	91,4	91,7
	Palestine	1.462	2.251	3.177	67,9	71,5	72,1
	Jordan	2.350	3.755	5.067	72,2	78,3	78,5
	Asia	*50.990*	*68.003*	*85.095*	61	65,9	69,5
	Egypt	23.972	28.364	34.041	43,5	42,6	42,8
	Libya	3.304	4.082	5.086	75,7	76,4	77,9
	Tunisia	4.762	6.066	7.175	57,9	63,4	67,3
	Algeria	13.168	18.246	23.555	52,1	59,8	66,5
	Marocco	12.005	15.375	18.374	48,4	53,3	56,7
	Africa	*57.211*	*72.133*	*88.231*	*48,6*	*51,2*	*53,6*
	Total area	*240.935*	*280.185*	*324.986*	*60,2*	*62,4*	*64,7*

Table 1 *(continue) – Urban population (in a.v.) and Urbanization rates (in per cent) of the Mediterranean Basin, 1990-2010*

	Country	Urban population (in thousands up to 1st July)			Urbanization rates		
		1990	2000	2010	1990	2000	2010
Rest of the European Union	Austria	5.083	5.337	5.703	65,8	65,8	67,6
	Belgium	9.573	9.899	10.252	96,4	97,1	97,4
	Bulgaria	5.854	5.510	5.356	66,4	68,9	71,7
	Denmark	4.361	4.540	4.772	84,8	85,1	87,2
	Eire	2.000	2.250	2.804	56,9	59,1	61,9
	Estonia	1.114	951	918	71,1	69,4	69,5
	Finland	3.063	3.164	3.402	61,4	61,1	63,9
	Germany	58.080	60.141	60.826	73,1	73,1	73,8
	Latvia	1.844	1.619	1.529	69,3	68,1	68,2
	Lithuania	2.499	2.346	2.240	67,6	67	67,2
	Luxemburg	309	366	397	80,9	83,8	82,2
	Netherland	10.269	12.229	13.674	68,7	76,8	82,9
	Poland	23.351	23.719	23.177	61,3	61,7	61,2
	United Kingdom	50.765	52.600	55.451	88,7	89,4	90,1
	Czech Republic	7.750	7.562	7.483	75,2	74	73,5
	Romania	12.350	11.842	11.556	53,2	53,5	54,6
	Slovakia	2.969	3.031	3.064	56,5	56,3	56,8
	Sweden	7.112	7.451	7.826	83,1	84	84,7
	Hungary	6.824	6.596	6.790	65,8	64,6	68,3
	Total area	*215.170*	*221.153*	*227.220*	*73,1*	*73,6*	*74,9*
Rest of the Arab World	Saudi Arabia	12.449	16.614	21.681	76,6	79,8	82,1
	Bahrain	434	574	702	88,1	88,4	88,6
	United Arab Emirates	1.476	2.527	3.693	79,1	77,8	78
	Iraq	12.906	16.993	20.375	69,7	67,8	66,4
	Kuwait	2.100	2.188	3.001	98	98,2	98,4
	Oman	1.218	1.719	1.984	66,1	71,6	71,7
	Qatar	431	586	848	92,2	94,9	95,8
	Yemen	2.577	4.776	7.784	20,9	26,3	31,8
	Asia	*33.591*	*45.977*	*60.068*	*62,3*	*62,8*	*64,0*
	Mauritania	772	1.026	1.393	39,7	40	41,4
	Sudan	6.903	12.034	18.646	26,6	36,1	45,2
	Africa	*7.675*	*13.060*	*20.039*	*27,5*	*36,4*	*44,9*
	Total area	*215.170*	*221.153*	*227.220*	*73,1*	*73,6*	*74,9*
Global Total		*497.371*	*560.375*	*632.313*	*64,1*	*65,3*	*67,0*

Source*: own elaboration of UN data (Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2006 Revision and World Urbanization Prospects: The 2007 Revision, http://esa.un.org/unup).*

Table 2 – *Dominance indexes of capitals and other dominant cities of the 25 countries of the Mediterranean Basin considered in narrow sense*

	Country	Capital	Id_1	Other dominant cities	Id_1
Area of the Mediterranean Basin	Portugal	Lisbon	26,5	Porto	12,9
	Spain	Madrid	12,6	Barcelona	11,2
				Valencia	1,8
	France	Paris	16,0	Bordeaux	1,3
				Lille	1,7
				Lyon	2,3
				Mar. Aix en Pr.	2,3
				Nice-Cannes	1,5
				Toulouse	1,4
	Italy	Rome	5,7	Milan	5,0
				Naples	3,8
				Palermo	1,5
				Turin	2,8
	Slovenia	Ljubljana	12,2		
	Croatia	Zagreb	15,2		
	Bosnia and Herzegovina	Sarajevo	9,6		
	Serbia	Belgrade	11,1		
	Montenegro	Podgorica	23,5		
	Macedonia	Skopje	23,6		
	Albania	Tirana	12,7		
	Greece	Athens	29,1	Thessaloniki	7,5
	Malta	Valletta	48,9		
	Turkey	Ankara	4,9	Adana	1,8
				Antalya	1,1
				Bursa	2,0
				Gaziantep	1,4
				Istanbul	13,6
				Izmir	3,5
				Konya	1,3
	Cyprus	Nicosia	27,1		
	Syria	Damascus	12,2	Aleppo	13,9
				Homs	5,1
	Lebanon	Beirut	44,8		
	Israel	Jerusalem	10,5	Haifa	14,3
				Tel Aviv-Jaffa	44,8
	Palestine	Ramallah	1,6		
	Jordan	Amman	17,7		
	Egypt	Cairo	15,6	Alexandria	5,6
	Libya	Tripoli	35,2	Bengasi	19,5
	Tunisia	Tunis	7,2		
	Algeria	Alger	9,8	Oran	2,4
	Morocco	Rabat	5,4	Casablanca	10,1
				Fes	3,3
				Marrakech	2,9

Source*: See Table 2 in Appendix*

Table 3 – *Population amount (in a.v.) by capital/city and analysis of dimensional classed of the Mediterranean Basin in narrow sense, 2010*

Country	Capital (population in thousands)		Population of other dominant cities (in thousands)		Megalopolis (> 10 million)		Metropolis (5-10 million)		Urban agglomer. (1-5 million)		Medium cities (500.000-1 milione)		Small cities < 500.000
	Name	a.v.	Name	a.v.	N. megal.	a.v.	N. metrop.	a.v.	N. ur. ag.	a.v.	N. cities medium	a.v.	a.v.
Portugal	Lisbon	2.812	Porto	1.380					2	4.270			2.241
Spain	Madrid	5.567	Barcelona Valencia	5.057 816			2	10.821			4	2.753	21.338
France	Paris	9.904	Bordeaux Lille Lyon Mar. Aix en Pr. Nice-Cannes Toulouse	817 1.059 1.443 1.418 941 863			1	9.958	3	3.921	6	4.320	30.418
Italy	Rome	3.339	Milan Naples Palermo Turin	2.940 2.253 865 1.647					4	10.171	12	7.717	22.466
Slovenia	Ljubljana	244											959
Croatia	Zagreb	690									1	691	1.926
Bosnia-Her.	Sarajevo	376											1.916
Serbia	Belgrade	1.099							1	1.096			4.103
Montenegro	Podgorica	142											357
Macedonia	Skopje	480											1.386
Albania	Tirana	406											1.556
Greece	Athens	3.242	Thessaloniki	837					1	3.256	1	837	2.794
Malta	Valletta	199											389
Turkey	Ankara	3.716	Adana Antalya Bursa Gaziantep Istanbul Izmir Konya	1.362 839 1.589 1.109 10.530 2.724 978	1	10.530			5	10.692	6	4.378	28.519
Cyprus	Nicosia	233											620
Syria	Damascus	2.466	Aleppo Homs	2.968 1.095					3	6.738	2	1.125	3.892
Lebanon	Beirut	1.846							1	1.941			1.747
Israel	Jerusalem	736	Haifa Tel Aviv-Jaffa	1.043 3.256					2	4.298	2	774	1.597
Palestine	Ramallah	67									1	571	2.606
Jordan	Amman	1.060							1	1.106			3.962
Egypt	Cairo	11.893	Alexandria	4.421	1	12.503			1	4.421	2	1.174	15.943
Libya	Tripoli	2.189	Bengasi	1.271					2	3.593			1.492
Tunisia	Tunis	745									1	768	6.407
Algeria	Alger	3.354	Oran	852					1	3.574	2	1.408	18.573
Morocco	Rabat	1.705	Casablanca Fes Marrakech	3.267 1.060 923					3	6.120	4	3.083	9.172

Source: *See Table 2 in Appendix*

References

DEMATTEIS G. 1986. Urbanization and counter-urbanization in Italy. *Ekistics*, pp. 316-317;

DI COMITE L., MORETTI E. 1992. *Demografia e flussi migratori nel Bacino mediterraneo.* Rome: Nis.

DI COMITE L., MORETTI E. 1999. *Geopolitica del Mediterraneo.* Rome: Carocci.

DI COMITE L., MORETTI E. 2004. Il processo di urbanizzazione nei paesi del Bacino mediterraneo: Nord e Sud a confronto. In LOBRANO G. (Ed), *Autonomia, regioni, città. Passato e futuro del Mediterraneo*, No. 8, Sassari/Cagliari: Isprom/Quaderni mediterranei.

DI COMITE L., BONERBA P., GIRONE S. 2008. La popolazione. Dall'urbanizzazione alla contrurbanizzazione. In MALANIMA P. (Ed), *Rapporto sulle economie del Mediterraneo - Edizione 2008*, ISSM-CNR of Naples, Bologna: Il Mulino.

FEDERICI N., 1979. *Istituzioni di demografia*. Roma: Elia.

GEYER H. S., 1993. A theoretical foundation for the concept of differential urbanization. *International Regional Science Review*, No. 15.

KAISER B. 1996. Il Mediterraneo. Geografia della Frattura. EDM-E*nciclopedia del Mediterraneo*, No. 4;

LEONTIDOU L. 1990. *The Mediterranean city in transition: social change and urban development*, Cambridge: Cambridge University Press.

ONU, *World Population Prospects*, 2006 Revision. *World Urbanization Prospects*, 2007 Revision, http://esa.un.org/unup;

PACE G. 2003. Popolazione ed urbanizzazione nei paesi mediterranei. *Civiltà del Mediterraneo*, No. 3;

PACE G. 2005. La popolazione. In Malanima P. (Ed), *Rapporto sulle economie del Mediterraneo - Edizione 2005*, ISSM-CNR of Naples, Bologna: Il Mulino.

ROGERS A. 1982. Source of urban population growth and urbanization, 1995-2000: a demographic accounting. *Economic Development and Cultural Change*, No. 3.

SALVINI S. 1990. La demografia delle Rive Sud e Est. In LIVI BACCI M., MARTUZZI VERONESI F. (Eds), *Le risorse umane del Mediterraneo*, Bologna: Il Mulino.

TABUTIN D., 2000. *La ville et l'urbanisation dans les théories du changement démographique*. Louvain-la-Neuve: Université Catholique de Louvain.

VÉRON J., 2006. *L'urbanisation du monde*. Paris: La Découverte;

VITALI O. 1992. *Cambiamenti demografici e urbanizzazione*. Napoli: ESI.

SUMMARY

Old and new assets in the issue of urbanization: the Mediterranean Basin between the EU and the Arab World

Each time we want to discuss or write about internal migration, a special attention should be paid to the spatial movement of the population – and its residence transfers between different administrative areas – within the borders of the same country. Common, and strictly related, phenomena of internal migration are those properly indicated as urbanization (or rural depopulation as well, i.e. the population transfer from suburbs and countryside to the cities, which can be quantified as a percentage of population living in the urban area) and counter-urbanization (or urban deconcentration as well).

Taking the Mediterranean Basin – understood in a broad sense – as a reference area and computing, firstly, the amount of the urban population and, subsequently, the respective urbanization rates it is possible to affirm that nowadays, within its borders, coexist urbanization processes, which appear mainly in the Asian and African area of the Mediterranean, with counter-urbanization processes common to Mediterranean and non Mediterranean countries of the European Union.

Moreover, among the countries forming the Mediterranean Basin – considered in the narrow sense of the term – the use of the dominance index (given as a ratio between the urban agglomerate's present population and national population) – allowed us to assess different attractive capabilities which some cities exert more than others.

The work is completed with the analysis of the collocation heterogeneity by dimensional classes of the most dominant cities of only 25 strictly Mediterranean countries.

Stefania GIRONE, University of Catania, stefaniagirone@libero.it

HIGH SKILLED MIGRATION: STILL A BRAIN DRAIN PROBLEM?

Sveva Avveduto

Introduction

The path of international migration has a long history that reaches its highest peak in the late nineteenth and early twentieth century when millions of people moved from their countries of origin to another one to find a job and a future for them and their families. Most of these migrations were, for decades, relevant only for the poorest workers and the lower levels of society. The elite side of migration being significant only for a very little minority (Brandi, 2001). Migration, in terms of intellectual mobility, has a relatively short history in 'mass' terms, and particularly for the highly skilled, as researchers, that have often been relatively mobile workers as this has always been considered an essential characteristic of their work. Skilled migrant workers are today mainly medical doctors and personnel, information technology specialists, students, entrepreneurs and, of course, researchers.

Ever since exchanging ideas, experiences, has been the nurturing ground in culture and science but the debate on pros and cons of scientists mobility has enlarged when realizing that mobility often became brain drain and the direction of flows have been one way: from the most feeble to the stronger countries only. Is it still the case? Are we still allowed to refer to brain drain or is more appropriate to refer to brain circulation?

1. Background

Nations are increasingly viewing technology transfer as a people-oriented phenomenon and fearing that they might be losing their competitive edge in what seem like a global competition for certain skills. At present and even more in future, the competition for highly skilled workers is believed to be fierce. Traditionally, flows of talented people between countries tended to go from the

south to the north. In some cases the geographical mobility map is now reversed. Particularly South East Asia and parts of Eastern Europe are catching up technologically, and moved quickly towards knowledge-based economies. Thus, highly skilled scientists and engineers might stop flowing out from these countries. A likely scenario is that movement of brain drain and brain gain will be going in all directions: north-north, north-south, south-north and south-south. This might threaten those countries (like the US) that heavily depend on foreign talents.

Immigration, particularly of the highly skilled people, became an inseparable segment of national technology policies. This has been reflected in the immigration policies of major industrialised economies such as France, Germany, and the US. In France, a so-called 'Scientific visa' was introduced in 1998 as a fast track procedure to allow scientists from non-EU countries to get permission for work. Likewise, in Germany the government has issued a US style 'Green Card' for IT professionals from third countries. Australia, Canada and the US have a long tradition of selective immigration policies targeting highly skilled professionals.

Far from all countries and regions can benefit from a growing international circulation of highly skilled labour: While for instance UK participates very actively in the international mobility of professionals by sending and receiving talents, Russia and some Eastern Europe countries mostly have suffered from severe brain drain. In the latter case, the outflow of professionals became a serious threat to their economic and social recovery, but this phenomenon is difficult to influence through immigration policy alone. Other factors can have significant impact on the attractiveness of a country: taxation, schemes for sending students abroad, labour relations and quality of work, communication infrastructures, schemes for business expansion abroad, labour market supply and demand signals. These factors vary between countries. Professions and various groups of highly skilled persons are driven by different push and pull factors. As people are lured and pushed by different motivations and circumstances, the issue of migration and international mobility of highly skilled personnel becomes quite complex.

Across the OECD, there is growing demand for a better understanding of the scale, direction and drivers of the international mobility of scientific and technical talent. An increasing number of countries are implementing policy measures to attract foreign researchers and to facilitate their access to the labour market. However, competition for skilled researchers is increasing, and policy makers need to be concerned with measures both to attract researchers and to retain them. There has been an increase in return flows to some countries, especially to non-Member countries such as China and India who are actively courting expatriate researchers. In addition, some OECD countries have developed policy measures to promote the temporary outward flow of students and researchers to enhance international mobility and 'brain circulation'.

The effort to boost research and innovation has been growing steadily in the last 20 years: in 1985 3% of the total EU budget was devoted to research and innovation, and it reached in 2008 almost 11%, of course with very significative differences among contries. The importance of the EU funds for R&D and innovation is witnessed by the fact that EU Research Framework Programme represents nearly 25% of all project-based funding in Europe, and that in most EU-12 Member States,, Structural Funds directed to Research, Technological Development and Innovation represent more than 60% of the national R&D budget.

In building the European framework for innovation mobility has frequently been addressd as an essential feature in many terms. "Far greater mobility is needed at three levels: Human resources need a step change in mobility across boundaries; Financial mobility requires an effective venture capital sector and new financial instruments for the knowledge-based economy; Mobility in organisation and knowledge means cutting across established structures to allow new linkages to be made through the instruments of European technology platforms and clusters"[1].

The five targets have been set for the European Union in 2020, these are in a nutshell:

- **Employment** 75% of the 20-64 year-olds to be employed;
- **R&D** 3% of the EU's GDP to be invested in R&D;
- **Climate change / energy** greenhouse gas emissions 20% (or even 30%, if the conditions are right) lower than 1990 20% of energy from renewables 20% increase in energy efficiency;
- **Education** Reducing school drop-out rates below 10% at least 40% of 30-34–year-olds completing third level education;
- **Poverty / social exclusion** at least 20 million fewer people in or at risk of poverty and social exclusion.

Within the European objectives of Horizon 2020 we can find the "necessity of increasing European attractiveness for talents and investments by strengthening its capacity to produce excellence in cutting-edge research infrastructures, investing in young talents and promoting awareness of the social and economic value of research, science and culture in contemporary society".

[1] Aho Report *Creating an Innovative Europe* 2006, http://europa.eu.int/invest-in-research/.

The EU and OECD have been tackling the question since the late nineties either by organizing study projects and groups, conferences, and issuing formal declarations[2]

2. Mobility issues

What kind of mobility and how much mobility? Let's start from the first question.

Many kinds. Geographical: national, international, inter-regional; between different kind of jobs or different typologies (short/long term part time etc. contracts); among different sectors and levels; from education to work and back, to cite the most common ones. Moreover the different kinds of mobility are often intertwined: a change in position may imply a change of country or of sector and so on. All these kinds of mobility may be associated to a proper mobility experience or to what has been called either brain drain or brain waste or brain gain or brain circulation. A mobile highly skilled worker can gain a better and profitable position in another country or institution and this individual gain may become an institutional or national loss. (Regets, 2007).

Mobility is a typical double faced question: positive and negative aspects can be found in a phenomenon that could apparently be considered as neutral.

An excess, but sometimes also a physiological amount of mobility if not correctly oriented and exploited can cause as many problems as its absence.

Mobility of scientists and engineers has been discussed for a long time in western countries, and in the negative form of brain drain has been experienced by many of them, especially considering the attractiveness of the USA, as far as scientific opportunities are concerned, since the first decades of last century.

At the level of an individual, an institution and a Country the benefices deriving from the experience of cooperating, studying and working in a different environment with foreign partners are certain and obvious and the fruitful and positive potentialities of such an experience are evident to anyone. The risks can be found essentially in missing the opportunity to develop fully the positive spill over of this experience or that the mobility experience looses its temporary nature and becomes a permanent escape.

[2] Just to mention a few: the EU *The Career and Mobility of the researcher Conference 2010*, held in Brussels from 9-10 November; the OECD, Committee for Scientific and Technological Policy (CSTP) & Steering and Funding of Research Institutions (SFRI) *Workshop the International Mobility of Researchers*, Paris, 28 March 2007 The European Commission funded projects MORE, closed, and MORE2, ongoing, (Mobility and career paths Of Researchers in Europe).

Measuring mobility is an hard exercise. It has to deal with some preliminary questions that can delimit the area to analyze:

How big is international mobility of people involved? What is the profile of migrating HRST (diploma, experience, occupation, age)? What share of migrating skilled workers return back home? What is the length of their stay abroad? What is the purpose of migrating: studying, working?

What are the causes of international migration (in the recipient and sending countries)? What is its economic impact on the recipient country (gain in knowledge) and the sending country (loss of educated people vs. acquisition of foreign technology from those returning back)?

Which policy measures can help reach a win/win situation, where international migration contributes to an efficient allocation of resources world wide and to the international diffusion of technology?

How can the mass exodus of the best brains, if any, be stopped? And in the other way round how can the EU attract and retain the best researchers? Is still a question of drain or we can refer to brain circulation?

2.1. Factors influencing international mobility

The main factors are linked to the working conditions in the country of destination compared to those of the country of origin concerning particularly salary and pay levels, qualification required, career prospects (is mobility a plus when coming back to the country of origin or does the long period spent abroad prevent from obtaining careers advances and benefits?).

Legislative regulation concerning immigration rules in the host country and general migration policy of the country of origin that can facilitate or hinder the mobility choice, are major issues too. But a relevant number of concurring factors are at stake:

- Family ties;
- Cost of living;
- Cultural circumstances;
- Supply and demand of professors-researchers in the country of destination;
- Mobility schemes;
- Salaries and pay scale level;
- Language requirements;
- Qualification needed
- Shortage or surplus of researchers-professors;
- Policies of the hosting nation;

Countries with poor working conditions are of course not attractive but also countries with good working-studying conditions may become not attractive due to other questions such as the elevate cost of living, the difficulties in settling (finding a proper housing conditions, etc).

If the experience abroad is not fully recognized home the incentive to move is obviously much less regarded as a good option by the individual and the accreditation system goes exactly in the direction of giving to mobile students an incentive to move as they experience that their progress and attainment made abroad are fully recognized home .

Pull factors may be identified in the offer available in the countries in terms of funding to attract foreign students, PhDs, Post Docs and researchers by offering grants and scholarships that multiply the number of positions that attract them from all over the world. As for the push factors we have to include direct government or institution policies of sending countries that stimulate the demand.

2.2. Possible effects of international mobility: positive and negative consequence

A number of different effects and consequences may be envisaged:

- On science and technology
- On Higher education systems
- On Human capital and Labour markets
- At individual level

As for the possible positive effects on science and technology and higher education systems (Regets 2007) on sending Countries, should be mentioned the opening of knowledge flows and collaboration with other countries and the increased ties to foreign research institutions. Specifically for the higher education system the return of natives with foreign education and in general of high skilled human capital may prove, directly or indirectly, of benefit. The return of a mobile student or researcher means for the originating country acquiring the new knowledge and experience gained, knowledge and experience brought back to the institute upon his/her return.

The returnees may in fact either bring or built with their study experience gathered (acquired) abroad, valuable entrepreneurship or management skills and give the home country, for instance, a better insight on export opportunities for technology or on access to global networks.

Likewise, benefits of the activities of a post doc abroad can have positive spillovers for the country of origin. For example when using foreign facilities not

available in the country of origin to further that country's R&D agenda (i.e. big science facilities).

The receiving Countries also may benefit from hosting higher education students and researchers or highly skilled professionals including of course university professors. This may also turn into an increased R&D and economic activity due to availability of additional high skilled workers that favors entrepreneurship especially in high growth areas. Receiving countries as well benefit from stronger knowledge flows and collaboration with sending countries. Diversity and creativity are certainly further promoted by the melting pot of intellectual mix brought by the inflow of people with different backgrounds.

A number of possible negative effects on science and technology and higher education systems can as well be referred both to sending and to receiving countries, that as for the positive ones may affect nations, institutions and individuals. As for the sending Countries the most studied effect is the one, related to human capital and well known as "Brain Drain". The departure of many highly qualified and high skilled people may turn into the loosing of part of the national capacity to generate high level activities that turns into a weaker intellectual and productive capacity due to the absence of high level students and high skilled workers. If using the same example of a post doc working abroad made to point out some positive effects, we recognize that the same experience may turn into a negative effect for the country of origin if out of his-her studies a concrete output comes, i.e. in terms of patents, this may provide instant benefit to the host country with little or no like benefits to the originating country.

A direct loss can be envisaged also in pure economic terms: having spent a lot of money, often if not always public, the investment made in tertiary education turns into a benefit for another nation and in a perceived waste of national public resources that give poor returns from public investment.

Higher education systems of receiving Countries may also suffer from the situation as native students may feel discouraged of enrolling in higher education, especially in certain fields that are crowded of foreign applicants that may prove more qualified to get the positions opened in those courses.

2.3. Push and pull factors

As the research carried out for the European Commission (Avveduto, Hansen 2003) points out there are common positive evaluation of the mobility experience at individual level which prevail because of the high level of work environment and of the research experience mainly linked to the scientific level of hosting institution and then on the quality of research carried out, to the available resources for R&D and of the availability of scientific equipment.

The negative evaluation of the experience is commonly due to obstacles linked to bureaucracies' red tape, difficulties in obtaining work permits and residence visa . For people coming from some higher revenue level countries some concerns were linked to the low salary levels as compared to country of origin.

Post docs and young researchers lamented also the fear of being loosing opportunities home while abroad, of leaving them to people who preferred staying in the home institution even if at a lower level, but just for being there could catch more opportunities.

The push and pull factors appear clearly in the following outline: scientific reasons overcome all the other ones.

Table 1 – *Push and Pull factors.*

Factors of mobility	Strong factor	Medium factor	Not a factor
To be involved in another research milieu	55%	31%	15%
Specialize in sector not at home	29%	29%	42%
Study and scientific opportunities	46%	39%	15%
Availability of scientific equipment	37%	38%	25%
Forefront of the research sector	24%	51%	25%

Source: *CNR-MERIT Survey for EC on Brain Drain and mobile high skilled.*

3. Some figures and data

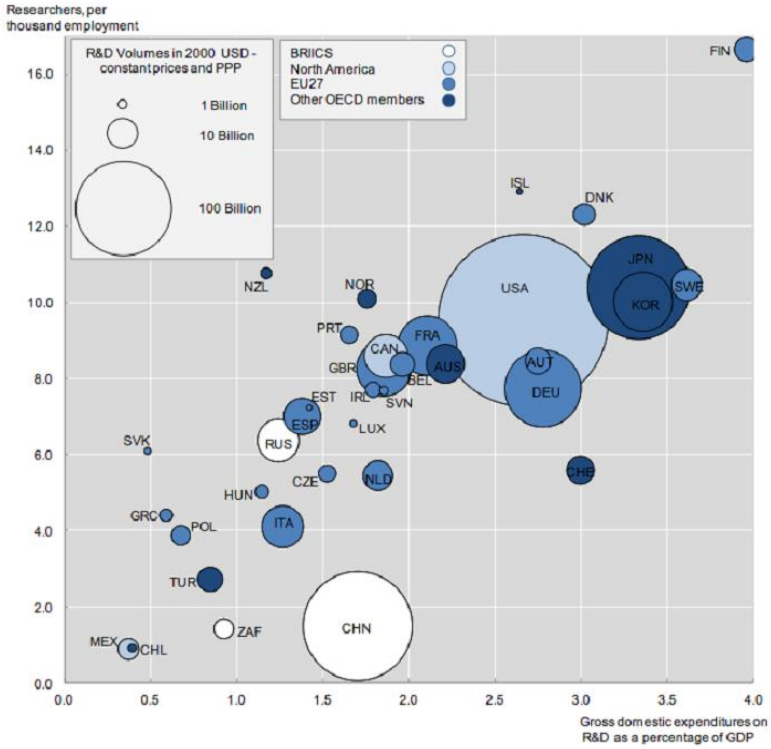
The following paragraphs present some backgrounf figures and data onR&D and on mobility issues.

3.1. Researchers and expenditures for research and development

In OECD Countries, the levels of expenditures and people working in research and development (R&D) is very scattered among nations. The research expenditures volumes today, as expressed in 2000 US dollars in constant prices and in purchase parity power (PPP), is depicted in figure 1, as well as the number of researchers per thousand employees . As the figure shows the expenditures on R&D as a percentage on gross domestic product (GDP) are very different irrespectively of the size of the Country. The recommended level of 3%, benchmarked by the European Commission as the optimal level to be reached by Member countries, is already exceeded by a little but very highly technologically relevant country as Finland, and very far away by our country that either by

expenditures and by number of researchers per thousand employment s behind almost all EU countries let alone countries with big technological and innovative systems such as US, Japan or Korea (Figure 1).

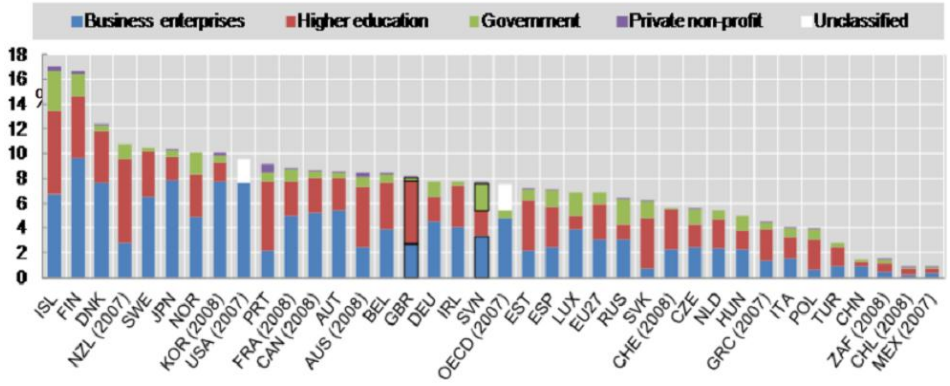
Figure 1 – *Researchers and expenditures on R&D.*



Source: *OECD.*

The performing sectors vary substantially across countries (Figure B). Many different systems are strongly polarized and either centered on academic or industrial research as primarily employers of researchers, in others the balance between the two, changes very much. In Japan or Korea, for instance, most of the R&D personnel are employed in business sector while in New Zealand or Australia the higher education sector is the most important one as a research performer. The Italian case is almost divided fifty fifty between the two sectors with a relatively important government sector that traditionally has been a good founder of public research also via public research Institutions such as CNR. The Italian situation is more similar to the EU 27 average one than to the OECD one.

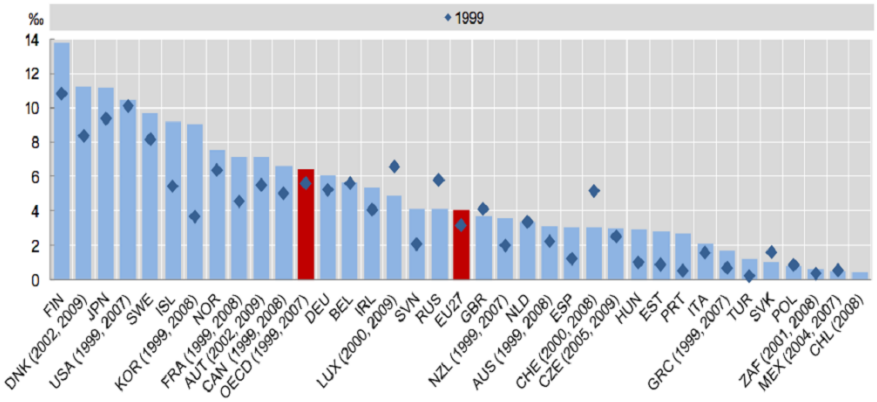
Figure 2 – *Researchers by R&D performing sectors, 2009. Per thousand employment, FTEs.*



Source: *OECD.*

If we focalize on the changes occurred in ten years on the business enterprise sector as main employer of R&D research personnel, we can follow the difficulties or the success stories 'even if at a very highly aggregate level of a nation (Figure 3).

Figure 3 – *Business Researchers 1999 and 2009. Per thousand employment in industry.*



Source: OECD, Main Science and Technology Indicators Database, June 2011.

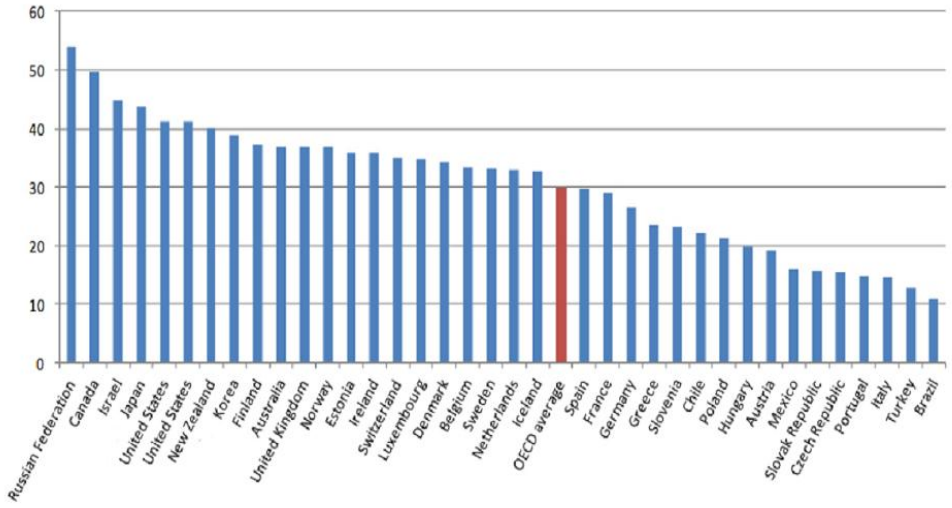
Some countries have experienced a highly level boost in business enterprise sector and a parallel upsurge in R&D employment, Finland, Iceland, but most of all Korea and countries of new highly industrialization such as Hungary and Estonia,

more than doubled the industrial researchers. Others maintain the same levels, and Italy is among these, but in the average both EU27 and OECD member countries, experience a growth, even if rather moderate.

3.2. Qualifications

Before focalizing upon mobility of the highly skilled, it is useful to start from the very roots of highly qualified work force: the tertiary qualified and the PhD holders.

Figure 4 – *HRST Tertiary qualified. Tertiary educated individuals, as percentage of population, 25-64 year olds.*



Source: *Education at a Glance, 2011*

We are referring to the Human resources for science and technology (HRST) following the Canberra Manual indications[3]. Tertiary educated individuals as a

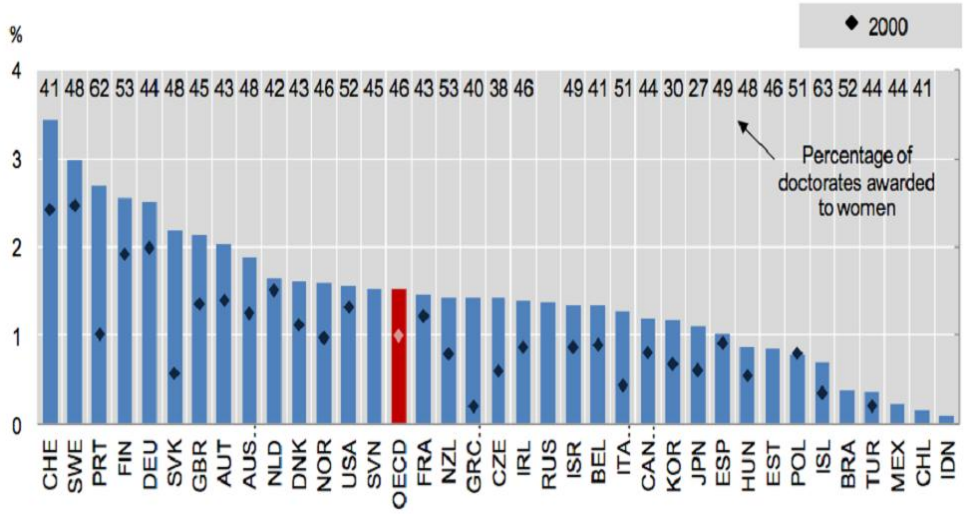
3 The Canberra Manual (OECD, 1995) definition is based on both notions of educational attainment and of occupation and further developed in reference to both international standard classifications of education and occupations, ISCED and ISCO. The Canberra Manual defines HRST as people who fulfil either one or the other of the following conditions:
- They have successfully completed education at the tertiary level in an S&T field of study.
- They are not formally qualified as above, but are employed in an S&T occupation where the above qualifications are normally required.
The Manual on human resources in science and technology attempts to identify the particular group of persons who can contribute most to the knowledge-based society.

percentage of population in working age (over 25 as we refer to higher education) reach in the Oecd on average some 30% and this potential is much higher in Nordic Countries. Italy unfortunately holds one of the last positions just above Turkey and Brazil (Figure 4).

To refine our analysis we should now refer to the highest level of study: the PhD level. Supranational bodies such as EU and Oecd have extensively worked on policy studies since the nineties (Blume, 1995, Avveduto, 1995), and have been collecting and producing data and figures on graduate studies and doctorate levels. At present OECD in cooperation with Eurostat and Unesco has set up an extensive network on Careers of Doctorate Holders to study and track careers of all PhD holders all across member countries, addressing several topics, including mobility patterns.

Figure 5 shows the evolution of the graduation rates at doctorate levels in a ten years time span: from 2000 to 2009. All countries have experienced a growth often very significant.

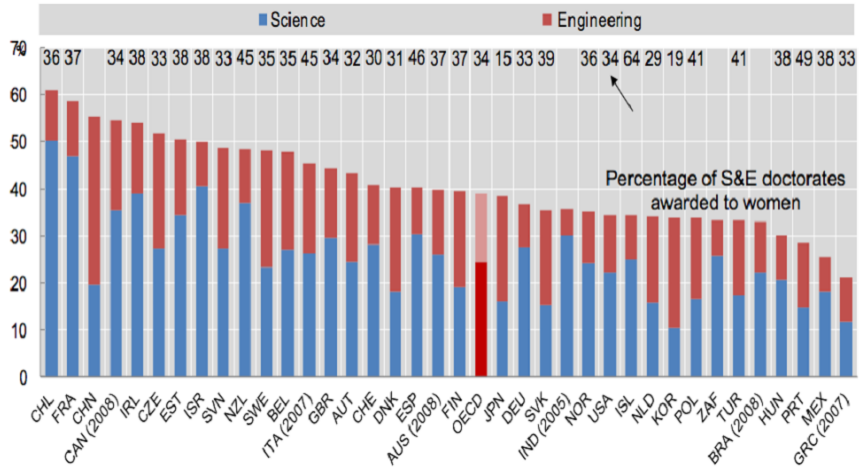
Figure 5 – *New doctorate graduates graduation rates at doctorate level 2000-2009. As a percentage of population in reference age cohort.*



Source: *OECD (2011), Education at a Glance 2011: OECD Indicators, and OECD (2009), Education at a Glance 2009. OECD Indicators Publishing, Paris.*

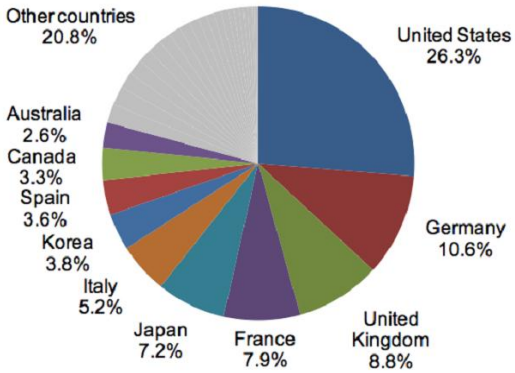
If we refer only to the science and engineering fields (Fig F), we notice that the new doctorate graduates (in 2009 or the latest available data), as a percentage of all new degrees awarded are well above 40% in many countries, while the presence of female PhDs in these fields is still rather low.

Figure 6 – **S***coreboard 2011, new doctorate graduates. Science and engineering (NSE) graduates at doctorate level, 2009.*
As percentage of all new degrees awarded at doctorate level.



Source*: OECD, Education Database September 2011; and OECD, calculations based on national sources, May 2011.*

Figure 7 – N*ew doctorate graduates where do they graduate? S&E graduates at doctorate level, by country of graduation, 2009.*
As a percentage of total OECD new science and engineering degrees at doctorate level.



Source: *OECD, Education Database, 2011; and OECD calculations based on Nordic Institute for Studies in Innovation, Research and Education (NUFU), 2011.*

The geographical distribution of graduates (Figure 7) shows how over 60% of all newly graduates are concentrated in five countries (US, Germany, UK France

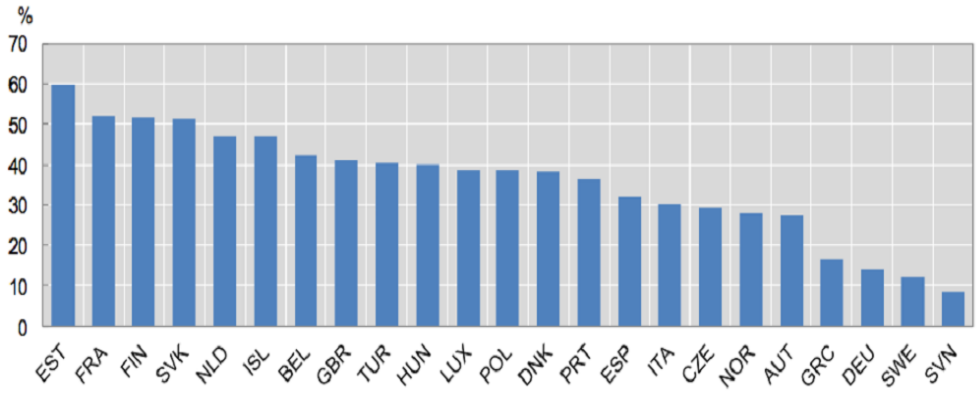
and Japan) and by adding the following five ones (Italy, Korea, Spain, Canada, Australia) we reach the 76% of the Oecd total.

3.3. Mobility Issues

If we refer to the entire population of the European Union we acknowledge that 2% of all citizen in working age, live and work in a country different from the one they were born in. This percentage reaches 3% for the highly skilled, 7% of PhDs and 12% of Post Docs.

Although it is not easy to cross geographical mobility figures with data on job to job mobility, it is very likely that the two often match. Figure H shows the job to job mobility of HRST (25 to 64 years) in two given years (2000 and 2010). Calculations have been made by OECD on ad hoc tabulation of Eurostat Labour Force Survey. Except from very few exceptions mobility has grown in all countries and substantially in Northern ones (excluding Norway).

Figure 8 – *HRST Mobility. Inter-sector mobility of HRST[4], 25-to-64-year-olds, 2010. As a percentage of HRST changing jobs.*



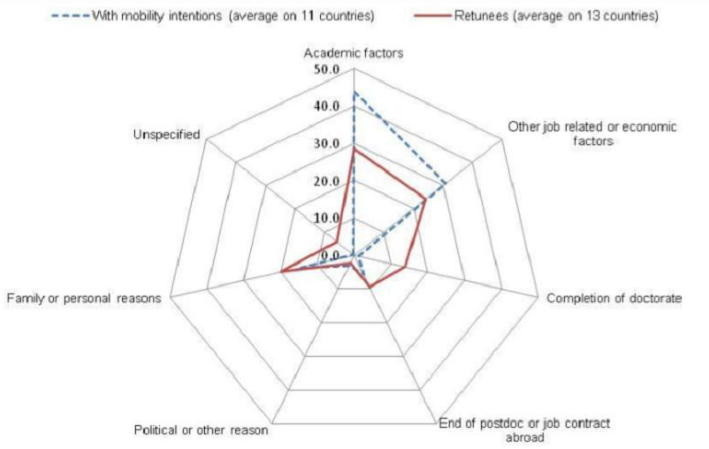
Source: *OECD, based on ad hoc tabulations of European Labour Force Surveys, Eurostat, May 2011.*

The above mentioned survey on CDH allows us to focus also on qualitative information. Following the results we can confirm also those of the CNR-Merit

[4] Inter-sector mobility reflects the flow of employed HRST whose economic activity at the NACE two-digit level differs from that of the previous years as a percentage of employed HRST who changed employers over the one year period. The rates are calculated for those employed both in the present and previous years and whose economic activity and HRST status could be identified.

survey on highly skilled mobility: the most important reasons are all linked to the academic factors (Figure 9).

Figure 8 – *International mobility-reasons Reasons cited by national citizens with a doctorate for going abroad or returning to the home country, percent, 2009*.



Source: *OECD, Based on OECD/UNESCO Institute for Statistics/Eurostat data collection on CDH 2010*.

4. Conclusions

The following statement is taken from the preparatory work done for the OECD main activity on HRST5 that took place from the late nineties. When addressing the mobility issues these were the main question raised.

How mobile are the human resources in science and technology? Mobility of highly skilled and scientific personnel is seen as important for the diffusion of knowledge and transfer of technologies. It is necessary to make the distinction between job-to-job mobility on the national territory and international mobility. Policy measures have been implemented lately to promote co-operation between industry and public R&D laboratories. National authorities also implement policies aimed at encouraging the mobility of their scientific personnel. In many cases, these policies aim at attracting foreign researchers or retain their own unless they take place in the context of a formal exchange program. Many questions are raised

[5] Policy needs for HRST-type data: is the Canberra manual a valid conceptual framework? DSTI/EAS/STP/NESTI(2002)10 Mimeo.

around the issue of "brain drain". Several European countries have expressed concerns about the migration of their best scientists abroad, especially to the US. A recent report commissioned by the British government states that *"some evidence for this is found, although, in fact, more scientists and engineers locate to the UK than leave the UK"* [Gareth Roberts Report, 2002]. This suggests a pattern of "brain circulation" rather than of "brain drain". The challenge is therefore to implement conditions aimed at attracting both national and foreign students and scientists through the development of "centres of excellence" for example.

Although these words are some ten years old, they may sound still very up to date. Even though much has been done, many of the issued identified by Oecd are still more than valid.

References

AHO Report Creating an Innovative Europe 2006. http://europa.eu.int/invest-in-research/.

ASPEN INSTITUTE ITALIA 2012. Braindrain, brain exchange e brain circulation, Il caso italiano nel contest globale. www.aspeninstitute.it/...04/.../Brain%20Drain.pdf.

AVVEDUTO S. 1995. Research Training: Italy, In: OECD, Research Training its Present and Future, Oecd, Paris.

AVVEDUTO S.; HANSEN. W. 2003. *Brain drain – Emigration flows for qualified scientists.* European Commission Project. Executive Summary and Conclusions. MERIT-CNR, October. ftp://ftp.cordis.lu/pub/indicators/docs/merit_exsum.pdf.

AVVEDUTO S., BRANDI M.C., TODISCO E. 2004. Le migrazioni qualificate tra mobilità e brain drain. In*: Studi Emigrazione*, XXXI, n. 156, dicembre.

AVVEDUTO S. 2010. Mobility of PhD Students ad Scientists. In: PENELOPE PETERSON, EVA BAKER, BARRY MCGAW (Eds.). *International Encyclopedia of Education*, Vol 4, Elsevier, Oxford, pp.286-293.

AVVEDUTO S. 2001. International Mobility of PhDs, In: OECD *Innovative People, Mobility of skilled personnel in national innovation systems*, Paris.

BRANDI M.C. 2001. Evoluzione degli studi sulle skilled migration: brain drain e mobilità. *Studi Emigrazione*, XXXVIII, No.141, pp.75-93.

BRANDI M.C., CERBARA L. 2005. European Researchers Mobility: the Italian case, In:Unesco, *Career Paths and Mobility of Researchers in Europe*. Cuvillier Verlag, Gottingen, pp. 98-107.

BRANDI M.C. 2008. Emigrazione di élite: neolaureati e ricercatori italiani all'estero. In: Fondazione Migrantes, "*Rapporto Italiani nel Mondo 2008*", Edizioni IDOS, Roma.

BRANDI M.C., SEGNANA 2008. Lavorare all'estero: fuga o investimento? In: *X Rapporto sulla condizione occupazionale dei laureati*, a cura del Consorzio Interuniversitario ALMALAUREA, Bologna: Il Mulino, pp. 205-224.

BRANDI M.C., AVVEDUTO S., CERBARA L. 2011. *The reasons of scientists mobility: results from the comparison of outgoing and ingoing fluxes of researchers in Italy* International Conference on "Human Capital and Employment in the European and Mediterranean Area". Bologna, 10-11 March 2011.

BARRY R. 2005. Chiswick High Skilled Immigration in the International Arena September 2005 IZA, Bonn, *Discussion Paper* N. 1782.

BLUME, STUART 1995. *Research training: present and future*. OECD, Paris. pp. 226.

DIRECTORATE-GENERAL FOR RESEARCH EUROPEAN RESEARCH AREA MOBILITY OF RESEARCHERS BETWEEN ACADEMIA AND INDUSTRY 2006. *12 Practical Recommendations*, EUR 22573 http://ec.europa.eu/euraxess/.../research.../mobility_of_researchers_light.pdf.

DIRECTORATE-GENERAL FOR INTERNAL POLICIES, CROSS BORDER MOBILITY OF YOUNG RESEARCHERS 2009. http://www.europarl.europa.eu/document/.../20110629ATT22912EN.pdf.

EU 2010 Conclusions of the EU/Belgian Presidency conference "Career and mobility of the researcher". November 2010. http://www.researcherscareer2010.be

EU 2010. More study on the mobility patterns and career paths of EU researchers. Final report: http://ec.europa.eu/euraxess/pdf/research_policies/MORE_final_ report_ final_version.pdf.

EU 2011. Innovation Union Scoreboard, http://ec.europa.eu/enterprise/policies/ innovation/facts-figures-analysis/innovation-scoreboard/index_en.htm.

LERU 2010. Reports on research careers: Doctoral degrees beyond 2010: Training talented researchers for society. March 2010. http://www.leru.org/files/ publications/ LERU_Doctoral_degrees_beyond_2010.pdf.

OECD 1995. *Manual on the Measurement of Human Resources Devoted to S&T*, "Canberra Manual", Eurostat/OECD.

OECD 2000. *Mobilizing Human Resources for Innovation, Science, Technology, Industry.* Paris.

OECD 2002. *International Mobility of the Highly Skilled*. Paris.

REGETS M. C. 2007. *Research issues in the international migration of highly skilled workers: A perspective with data from the United States*. Working Paper SRS 07-203. Arlington, VA: Division of Science Resources Statistics, National Science Foundation.

UNESCO 1997. *ISCED 1997, International Standard Classification of Education*.

SUMMARY

High skilled migration: still a brain drain problem?

The paper presents some insights and data on the scenario of mobility of the highly skilled. The main aspects discussed concern the brain drain and brain gain questions. Facing the demand for a better understanding of dimensions and drivers of the international mobility of S&T talent, the paper revises some data and figures on Oecd Countries. The main indicators concern some background figures and data on R&D and on mobility issues both quantitative and qualitative on the stock and on the in going and out going human resources for science and technology. The main question facing countries and institutions is finding the right balance to attract foreign researchers in the domestic labour market and to implement a positive circulation of talents.

Sveva AVVEDUTO, CNR, Istituto di Ricerche sulla Popolazione e le Politiche Sociali, sveva.avveduto@irpps.cnr.it

DEGREE OF INTEGRATION AND ACTIVATION POWER OF TOURISM IN THE EUROPEAN COUNTRIES' ECONOMIES: AN INPUT-OUTPUT ANALYSIS

Elvio Mattioli e Giuseppe Ricciardo Lamonica

1. Introduction

In the economic systems of many countries tourism is a sector which plays a particularly important role and represents an undeniable resource thanks to its contribution to the production of services.

Despite the considerable importance in the production of services and intangible assets, it is very difficult to quantify its economic contribution since, unlike other economic sectors, tourism is not officially registered as an economic branch of homogeneous production.

Indeed tourism does not produce a specific good that is easy to identify, but it is rather a combination of heterogeneous items from different sectors (hotels, restaurants, transport, commerce, etc..), which, globally considered, provide a set of goods and services generally called "tourism product".

Considered its heterogeneity and diversification, tourism is therefore an area of difficult investigation.

While taking into account these limits, the goal of this paper is to analyze the role and the position occupied by this sector in the economic systems of ten European Union countries.

To achieve this goal, the survey uses the interdependence sectorial tables (Input-Output tables) which, as is well known, depict information on flows of goods and services between branches and represent important tools for analyzing the economic structure of a country.

The data used are taken from the SUT (Supply and Use Tables), which are integral part of national accounting in the new European System of Accounts (ESA), as they permit greater consistency and efficiency in creating estimates, thereby improving their statistical quality.

Using the Supply and Use Tables at basic prices as our starting point, it is possible to build, through the use of statistical data on the structure of the inputs and through appropriate assumptions about productive technology, symmetric Input-Output tables by converting the "branch to product" information from the SUT into "product to product" or "branch to branch" matrices (Eurostat, 2008).

We should point out that the classification used for the 59 branches of economic activity is the Nace Rev. 1.1, and the products classification is the CPA (Classification of Products by Activity) and that the two classifications are totally comparable.

To assess the degree of integration and the activation power of different economic branches various tools can be used (Hewings e Martines 1995, Dietzenbacher 1992, Cella 1984, Beyers 1976, Brayan, Jones, Munday 2005, Clements 1990, Schultz 1977, Sonis, Guilhoto, Hewings 1982, Chenery and Watanabe 1958). In this paper we use the following two indexes, which were originally proposed by Rasmussen (1956), and currently widely used for key branch identification and consequently the most used in analyses of integration degree and activation power (Midmore, Munday, Roberts 2006, Edquist 2005, Clements 1990, Guccione 1986):

- Backward linkage (power of dispersion) of the j-th branch:

$$\beta_j = \frac{\frac{1}{n} l_{\bullet j}}{\frac{1}{n^2} \sum_{j=1}^{n} l_{\bullet j}} \qquad j=1,\ldots,n \tag{1}$$

- Forward linkage (sensitivity of dispersion) of the i-th branch:

$$\varphi_i = \frac{\frac{1}{n} l_{i\bullet}}{\frac{1}{n^2} \sum_{i=1}^{n} l_{i\bullet}} \qquad i=1,\ldots,n \tag{2}$$

Referring to the literature for the details, let x_{ij} be the flow of goods from the i-th to the j-th sector, and let x_j be the total production of the j-th sector. As is well known, $a_{ij}=x_{ij}/x_j$, that is named "technical coefficient" or "direct production coefficient", counts how many units of production of the i-th branch are required by the j-th branch in order to obtain a monetary unit of production. Moreover, if **A** is the matrix whose generic elements are the technical coefficients, then the matrix $\mathbf{L} = (\mathbf{I}-\mathbf{A})^{-1}$ is the one commonly named the Leontief inverse.

We bear in mind that the generic l_{ij} element of **L** matrix measures the total requirement, both direct and indirect, of goods and services (henceforth "total requirements") produced by the i-th branch which are necessary in order to satisfy one unit of final uses of the j-th industry.

The column-sum of the **L** matrix measures the total requirements needed by the j-th branch in order to produce one unit of final uses of its production:

$$l_{\bullet j} = \sum_{i=1}^{n} l_{ij} \tag{3}$$

while the row-sum of the **L** matrix measures the total production requirements of the i-th branch needed to off-set a unitary increase in final uses of each product:

$$l_{i\bullet} = \sum_{j=1}^{n} l_{ij} \tag{4}$$

Dividing the (3) and (4) by the total number of branches (n), we obtain the mean requirement of the j-th branch ($l_{\bullet j}/n$) and the mean requirement supplied by the i-th branch ($l_{i\bullet}/n$) respectively .

For purposes of comparison, these two mean are normalized. In particular, they are compared with the general mean of all the elements in matrix **L**.

Indexes (1) and (2) above are obtained in the same manner; the first one, known as backward linkage (or power of dispersion), measures the degree of activation: the more the index is greater than 1, the more the branch in question represents a key branch in the economy of the country considered, because it requires from the other branches a production level greater than the overall average. By contrast, the more the index falls below 1, the less important the branch considered is.

The second index, which is known as forward linkage (or sensitivity of dispersion), measures the level at which the output of one branch is used as an input for the remaining productive branches.

Also in this case, the more the index is greater than 1, the more important the corresponding branch is, as it sell its production to the others branches at a level which exceeds the general average. By contrast, the lower the index falls below 1, the less important the branch considered is.

These two indices allow to determine how an individual branch is integrated into the structure of the economy and how important it is.

The paper is structured as follows. The next section carries out a descriptive analysis of the two indexes in order to illustrate their shared and specific characteristics, as well as their evolution over time.

The third and fourth sections focus on the tourism sector considering respectively the direct and global impact on the economies of the European countries. The final section draws the conclusions.

2. Analysis of the activation indices

Before focusing on the role played by the tourism sector in the set considered, we should analyze the statistical characteristics of the complex backward and forward indexes.

In conducting the analysis, we used the symmetric "product by product" tables available for the member states of the European Union as our basis (Eurostat, 2011). In order to improve the comparability of the results, we have decided to consider only ten countries (Austria, Belgium, Denmark, Finland, France, Germany, Italy, Netherlands, Spain, and Sweden) for which symmetric tables are available for the years 1995, 2000 and 2005.

For three of these countries (Denmark, Netherlands and Finland) only the "branch to branch" symmetric tables have been constructed, but this should not have caused significant distortion of the results shown below.

In order to have some indication in this regard, we calculated the forward and backward indexes for the Italian tables of 2005, which are available both in the product by product and the industry by industry configuration. The mean square deviation between the indexes, based on the two configurations, was 0.08 for the forward indexes, and 0.02 for the backward indexes, amounts which are negligible when compared with the values assumed by these indexes.

Recalling that in this context the standard deviation coincides with the coefficient of variation, since all the indexes have a unitary mean, Table 1 shows that the two indicators have a low variability in the group of countries concerned, and that the forward index is more variable than the backward index.

Table 1 – *Standard deviation of the backward e forward indices*

Countries	backward			forward		
	1995	2000	2005	1995	2000	2005
Austria	0.41	0.27	0.14	0.62	0.51	0.49
Belgium	0.59	0.93	0.15	0.70	0.84	0.65
Denmark	0.28	0.15	0.16	0.46	0.42	0.45
Finland	0.16	0.18	0.17	0.40	0.40	0.40
France	0.18	0.20	0.16	0.52	0.63	0.64
Germany	0.42	0.17	0.17	0.64	0.52	0.54
Italy	0.18	0.18	0.18	0.44	0.48	0.50
Netherlands	0.26	0.15	0.15	0.42	0.44	0.51
Spain	0.41	0.17	0.18	0.62	0.45	0.48
Sweden	0.16	0.19	0.18	0.47	0.50	0.50

If we analyse the symmetry and kurtosis indexes (data not exposed but available from the authors), it is clear that forward linkage always has a positive symmetry and kurtosis; on the one hand, it shows that its distribution is asymmetric to the right, and therefore shows values higher than the mean with greater frequency than those that are lower than the mean, while, on the other hand, one notes the presence of certain values rather distant from the mean.

Also the backward index shows a positive kurtosis but generally highlights an asymmetry to the left.

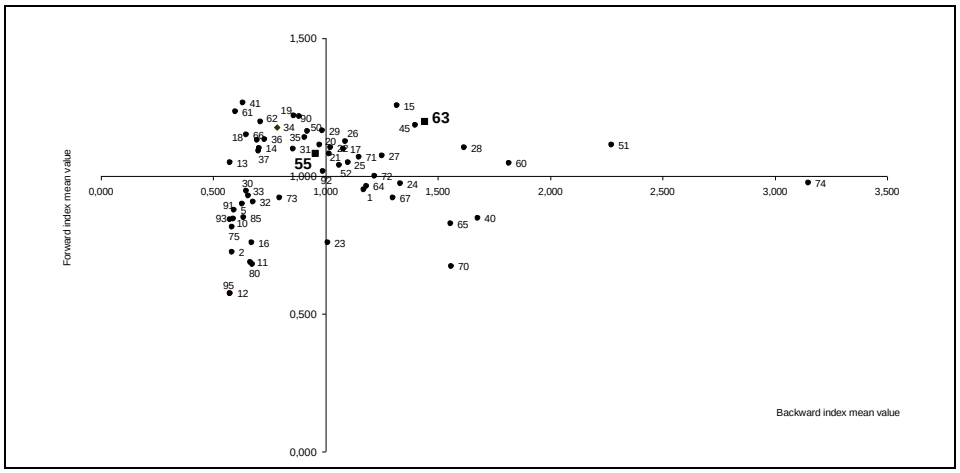
However from the analysis it emerges unequivocally that the two indicators are not normally distributed.

The joint consideration of the two activation indices allows to identify the following classification of the economics branches:

- $\beta_i<1$ and $\varphi_i<1$: "Islands or independent branches", they acquire and sell out productions less than the mean;
- $\beta_i\geq1$ and $\varphi_i<1$: "Drivers branches", they acquire production from the other branches above the mean but transfer their production below the mean;
- $\beta_j<1$ and $\varphi_i\geq1$: "Strategic branches", branches with output oriented towards the economic system;
- $\beta_j \geq1$ and $\varphi_i\geq1$: "Key branches", acquire and transfer production above the mean.

Considering the low variability observed (Table 1), the following Figure 1 shows as an example the mean values of the activation indices for the 59 branches of the Italian economy.

Figure 1 – *Positioning of the economic activity branches in Italy*



3. Direct relation analysis of the tourism

As was previously noted the tourism sector is not officially recorded as economic branch of homogeneous production. Therefore, in the following analysis, we focuses particularly on its two components that is "Hotel and restaurant services" (cod. 55) and "Supporting and auxiliary transport services; travel agency services" (cod. 63) branches.

We are aware of the limitations that this choice involves both for the heterogeneity of the two branches in respect to the entity we want to measure, and because the tourism is not limited to the production of these two branches.

However, it is a difficult task due to aggregation problems that we hope to overcome in the future when more detailed data will be available.

In any case, we believe that the analysis of economic interdependence of the tourism sector held here will highlight several interesting aspects.

The role played by the two branches considered in EU countries is shown in the tables below. From Table 2 we see that Spain (5.16%), Austria (2.96%) and Italy (2.90%) are the countries where the output of the "Hotels and restaurants" branch has the greater impact on the total production.

On the contrary, Belgium (1.33%), Denmark (1.33%), Sweden (1.35%) and Netherlands (1.36%) are countries for which the incidence is more contained.

Table 2 – *Percentage of the output on the total production of the country*

	Hotels and restaurants				Supp. and aux. transport serv., travel agency services			
Countries	1995	2000	2005	mean	1995	2000	2005	mean
Austria	3.12	2.88	2.88	2.96	1.24	1.25	1.42	1.20
Belgium	1.33	1.36	1.31	1.33	1.88	1.91	2.65	2.15
Denmark	1.45	1.34	1.21	1.33	1.02	1.10	1.18	1.10
Finland	1.54	1.32	1.43	1.43	1.71	1.93	2.09	1.91
France	1.96	1.98	2.04	1.99	1.11	1.34	1.36	1.27
Germany	1.52	1.45	1.29	1.42	1.38	1.56	1.65	1.53
Italy	2.70	3.03	2.98	2.90	1.43	1.67	1.64	1.58
Netherlands	1.44	1.38	1.25	1.36	1.08	1.04	1.11	1.08
Spain	5.74	5.00	4.74	5.16	1.16	1.77	1.76	1.57
Sweden	1.42	1.33	1.31	1.35	1.72	2.83	2.85	2.46

A situation diametrically opposite is observed for the branch "Supporting and auxiliary transport services, travel agency services". In this case, Sweden (2.46%),

Belgium (2.15%) and Finland (1.91%) are the countries with a higher incidence of the output on the available resources.

Table 3 – *Percentage of production destined to the other branches*

	Hotels and restaurants				Supp. and aux. transport serv., travel agency services			
Countries	1995	2000	2005	mean	1995	2000	2005	mean
Austria	12.26	11.57	6.51	10.11	25.07	24.17	37.22	28.82
Belgium	15.60	28.32	16.64	20.18	49.47	32.41	31.60	37.83
Denmark	29.95	31.89	29.60	30.48	57.01	58.09	51.66	55.58
Finland	20.81	31.12	33.38	28.44	37.58	44.35	40.99	40.97
France	23.22	23.51	24.75	23.83	59.99	57.41	57.21	58.20
Germany	13.36	7.88	2.25	7.83	30.09	56.73	58.04	48.29
Italy	17.59	21.68	19.74	19.67	46.64	55.99	66.46	56.36
Netherlands	26.74	27.39	28.87	27.66	20.19	20.89	23.22	21.43
Spain	8.10	6.94	6.15	7.06	65.60	57.88	54.54	59.34
Sweden	45.05	33.05	32.73	36.94	45.28	48.75	48.93	47.65

Table 4 – *Percentage of production destined for final use*

	Hotels and restaurants				Supp. and aux. transport serv., travel agency services			
Countries	1995	2000	2005	mean	1995	2000	2005	mean
Austria	87.48	87.71	92.75	89.31	73.68	74.25	52.53	66.82
Belgium	79.29	69.34	82.95	77.19	42.94	56.25	54.08	51.09
Denmark	69.89	65.09	68.16	67.71	42.45	41.22	47.48	43.72
Finland	78.37	68.37	65.94	70.89	61.69	36.60	39.02	45.77
France	74.40	73.65	72.68	73.58	20.16	21.98	22.37	21.50
Germany	86.49	91.77	97.68	91.98	26.03	21.90	19.99	22.64
Italy	81.77	77.33	79.28	79.46	45.52	34.46	33.33	37.77
Netherlands	71.31	71.36	69.94	70.87	74.07	74.88	72.95	73.97
Spain	91.74	92.98	93.79	92.83	29.64	27.16	31.54	29.45
Sweden	54.38	66.63	66.88	62.63	51.60	45.64	45.50	47.58

Considering the input-output tables from the output allocation (in sense of the rows) it is very clear (Tables 3 and 4) that at least 70% of the output of the "Hotels and restaurants" branch is intended for final use. Spain and Germany are the countries with the highest mean percentage in the period analyzed.

Except for the tables of the Netherlands (73.97%) and Austria (66.82%) the "Supporting and auxiliary transport services, travel agency services" output is largely intended to the remaining economic branches or for reuse in the same branch.

Also from the input viewpoint (along the columns) the interdependence tables depict a situation quite clear. Table 5 shows that the production of the "Hotels and restaurants" depends at least for 33% by other branches.

Table 5 – *Percentage of input from other branches on the production*

	Hotels and restaurants				Supp. and aux. transport serv., travel agency services			
Countries	1995	2000	2005	mean	1995	2000	2005	mean
Austria	36.87	33.91	30.67	33.82	35.61	33.18	35.74	34.84
Belgium	45.04	47.40	48.23	46.89	45.69	44.21	28.53	39.48
Denmark	35.11	38.42	37.70	37.07	35.43	24.82	27.46	29.24
Finland	50.23	45.59	45.91	47.24	32.20	27.37	28.60	29.39
France	39.59	39.17	40.52	39.76	25.61	26.04	24.57	25.41
Germany	51.52	42.39	37.69	43.87	21.93	38.09	32.59	30.87
Italy	45.54	46.12	46.95	46.20	50.13	50.89	33.23	44.75
Netherlands	36.62	36.40	35.94	36.32	38.34	40.63	37.08	38.68
Spain	39.07	38.18	38.66	38.63	33.90	38.07	37.56	36.51
Sweden	43.14	42.38	42.66	42.72	37.22	44.83	41.92	41.33

Austria (33.82%) and the Netherlands (36.32%) are the countries with the lowest dependency and Finland (47.24%), Belgium (46.89%) and Italy (46.20%) are those with the highest dependence.

An overall view shows that on average the 41.43% of the production is attributable to the remaining economy branches.

Considering "Supporting and auxiliary transport services, travel agency services" branch, it is possible to notice a reduced dependence from the other economic branches which on average, over the period considered, is about 35%.

Denmark and Finland with 29% are the countries with the lowest dependency while, on the contrary, Sweden (41.33%) and Italy (44.75%) are those with the highest incidence.

Table 6 shows that added value of "Hotels and restaurants" account 48% of production.

As usual, the highest values are recorded for the I-O tables of Austria (59.9%) and Spain (57.97%) while the lowest are recorded for Finland (38.51%) and Belgium (38.85%) tables.

Instead, the impact of the added value relating the "Supporting and auxiliary transport services, travel agency services" branch is on average 41%, thus it is lower than that of the other branch considered.

The extreme situations are recorded for the tables of Denmark (52%) and Austria and Sweden with a percentage around 34%.

Table 6 – *Percentage of the added value on total production*

	Hotels and restaurants				Supp. and aux. transport serv., travel agency services			
Countries	1995	2000	2005	mean	1995	2000	2005	mean
Austria	58.10	59.66	61.97	59.91	34.55	35.87	32.70	34.38
Belgium	42.12	38.93	38.50	39.85	24.56	20.09	34.77	26.47
Denmark	51.76	42.13	43.67	45.85	53.51	56.39	46.19	52.03
Finland	37.14	36.76	41.65	38.51	57.07	44.60	40.60	47.42
France	50.38	49.47	49.45	49.77	46.43	47.14	47.81	47.13
Germany	39.95	46.70	52.35	46.33	31.49	33.99	39.43	34.97
Italy	49.02	48.60	47.67	48.43	37.32	35.50	61.34	44.72
Netherlands	49.29	49.64	50.81	49.91	47.29	44.33	46.46	46.03
Spain	56.63	58.70	58.52	57.95	53.32	37.00	36.13	42.15
Sweden	43.46	45.42	44.07	44.32	43.62	29.22	29.47	34.10

The two branches jointly considered (data not shown but available on request) have a weight about 3.7% of total resources.

This percentage rises to 4.16% for Austria, 4.49% for Italy and 6.72% for Spain, while decreases to 2.95% for Germany and 2.4% for Netherlands and Denmark.

In addition, not less than 16% (Austria) and not more than 44% (Sweden) of the production is absorbed by the other branches. On the other hand, more than half is intended to final consumption with mean percentage starting from 52.48% (Sweden) up to 82% (Austria).

The inputs depend on average by 38% from other branches productive, while the 45% is added value.

In particular, Italy (45.4%), Belgium (42%) and Sweden (42%) are the countries with the highest percentage of inputs coming from the other branches, while Denmark (34.4%) and France (34.2%) are those with the lowest percentage.

Finally, Spain (53.8%) and Austria (52.1%) are the nations with the highest added value. On the contrary, Belgium (31.9%) and Sweden (37.3%) are those with the lowest values.

Very briefly, in the set considered, the analysis shows quite clearly the presence of two distinct groups:

- The first one, constituted by Austria Spain and Netherlands, shows a high percentage of output destined for final consumption and an added value, with the exception of Netherlands, at least half of total production.
- The second one collects all the remaining countries and is characterized by a good percentage of output, however lower than that of the first group, destined to final consumption and an added value that generally does not exceed half of the total production.

4. Direct and indirect relation analysis of the tourism

The following tables report the mean values assumed in the three periods (1995, 2000, and 2005) by the indexes measuring global integration of the sales side (forward) and the purchases side (backward) of the branches pertaining to the tourism sector.

Table 7 – *Forward e backward indices for the "Hotels and restaurants" branch*

	farward index			backward index			Forward	Backward
Countries	1995	2000	2005	1995	2000	2005	mean	mean
Austria	0.996[c]	1.003[c]	0.811[b]	1.053[d]	1.016[c]	0.981[b]	0.937	1.016
Belgium	0.800[c]	0.937[c]	0.810[b]	1.127[d]	0.996[d]	1.168[d]	0.849	1.097
Denmark	1.019[c]	1.054[c]	0.968[c]	1.043[d]	1.137[d]	1.099[d]	1.014	1.093
Finland	0.853[c]	0.896[c]	0.942[c]	1.191[d]	1.168[d]	1.168[d]	0.897	1.176
France	0.902[b]	0.890[c]	0.921[c]	1.053[c]	1.004[c]	1.041[c]	0.904	1.033
Germany	0.720[b]	0.715[a]	0.654[a]	1.084[d]	1.057[c]	1.008[b]	0.696	1.050
Italy	0.889[b]	1.013[c]	0.968[c]	1.089[c]	1.077[c]	1.080[c]	0.956	1.082
Netherlands	0.990[c]	1.005[c]	0.952[c]	1.071[d]	1.069[c]	1.051[c]	0.982	1.063
Spain	0.934[c]	0.880[c]	0.822[b]	1.040[c]	1.009[c]	1.011[b]	0.879	1.020
Sweden	1.112[c]	0.945[c]	0.952[c]	1.127[d]	1.125[c]	1.131[d]	1.003	1.128

Legend: $a=value \leq Q_{0.25}$; $b=Q_{0.25} < value \leq Q_{0.5}$; $c=Q_{0.5} < value \leq Q_{0.75}$; $d=value \geq Q_{0.75}$

These have also been classified according to whether they exceed the mean quartiles ($Q_{0.25}$, $Q_{0.50}$, and $Q_{0.75}$). These too are calculated by taking the mean of the

forward and backward index values for the three years in all 59 productive branches.

Table 8 – *Forward e backward indices for the "Supporting and auxiliary transport services, travel agency services" branch*

	forward index			backward index			Forward	Backward
Countries	1995	2000	2005	1995	2000	2005	mean	mean
Austria	0.995[c]	0.969[c]	1.299[d]	1.016[c]	1.010[c]	1.123[c]	1.088	1.049
Belgium	1.554[d]	1.166[c]	1.505[d]	1.037[c]	1.847[d]	1.099[d]	1.408	1.328
Denmark	1.095[d]	1.010[c]	1.139[c]	0.928[b]	1.087[c]	0.942[b]	1.081	0.986
Finland	1.185[d]	1.647[d]	1.730[d]	0.978[b]	1.093[c]	1.141[d]	1.521	1.070
France	1.417[d]	1.519[d]	1.514[d]	1.034[c]	1.022[c]	1.036[c]	1.483	1.031
Germany	1.700[d]	1.375[d]	1.689[d]	1.263[d]	1.788[d]	1.201[d]	1.588	1.417
Italy	1.278[d]	1.520[d]	1.523[d]	1.192[d]	1.205[d]	1.195[d]	1.440	1.197
Netherlands	0.918[c]	0.910[c]	0.941[c]	1.095[d]	1.121[d]	1.067[c]	0.923	1.094
Spain	1.356[d]	0.953[c]	1.844[d]	1.124[d]	1.728[d]	1.112[d]	1.384	1.321
Sweden	1.445[d]	2.236[d]	2.188[d]	1.056[c]	1.192[c]	1.167[d]	1.957	1.138

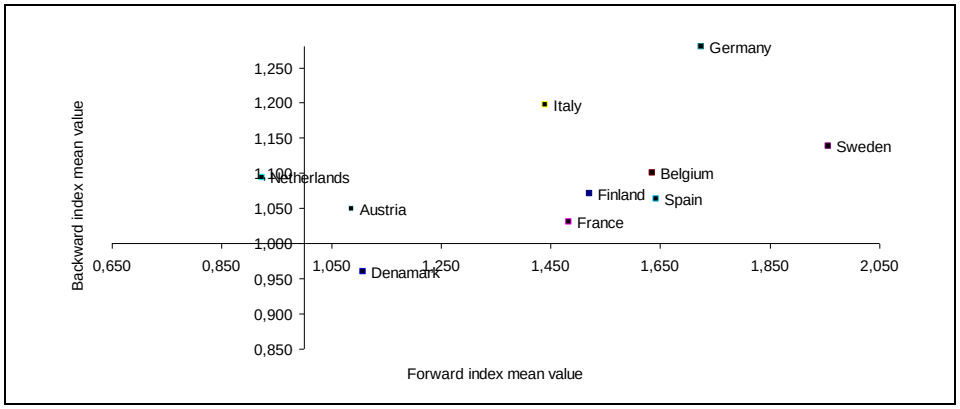
Legend: $a=value \leq Q_{0.25}$; $b=Q_{0.25} < value \leq Q_{0.5}$; $c=Q_{0.5} < value \leq Q_{0.75}$; $d=value \geq Q_{0.75}$

Looking at these two tables it is possible to highlight the following interesting regularities:

- With few exceptions the backward index of the two branches assumes values greater than unity and consequently identifies them as "key branches" of the system regarding the economic linkage from the purchases side;
- The backward index for the "Hotels and restaurants" branch generally takes values above the corresponding forward index. The opposite occurs for the "Supporting and auxiliary transport services, travel agency services" branch. Consequently, the latter shows a greater integration from the sales side, while the earlier from the purchase side;
- More intense is the activation power of the "Supporting and auxiliary transport services, travel agency services" regard to the "Hotels and restaurants" branch from both the purchases and the sales side;
- For "Hotels and restaurants" branch the two complex indices have fairly homogeneous values both in time and between the countries, although the forward index shows greater variability compared to the other. Much more variable is the forward versus the backward index in the

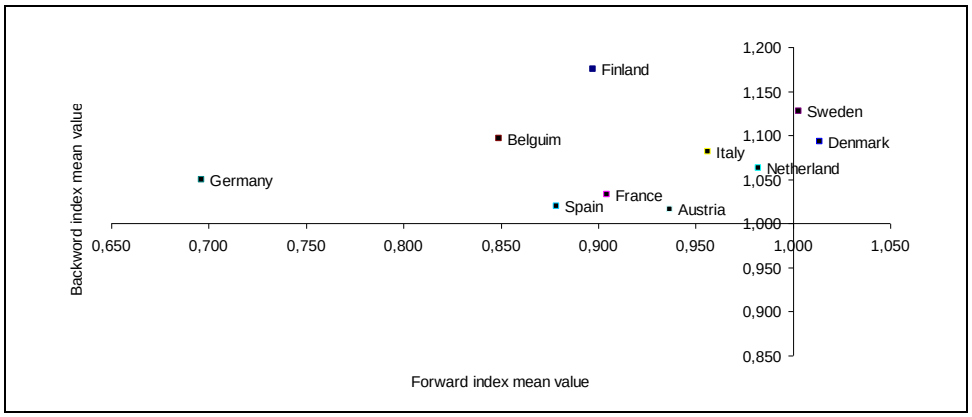
"Supporting and auxiliary transport activities; activities of travel agencies" branch.

Figure 2 – *Forward and backward indices mean value for the "Supporting and auxiliary transport activities, activities of travel agencies" branch*



In addition, with the exception of the 2005 year, the "Hotels and restaurants" backward index for the tables of the Austria, Spain and Germany takes values that are 50% higher than the median and the remaining values higher the third quartile. On the contrary the forward index assumes generally values between the median and the third quartile.

Figure 3 – *Forward and backward indices mean value for the "Hotels and restaurants" branch*



Except in rare situations the two complex indices take values above the median and in many situations beyond the third quartile in the "Supporting and auxiliary transport activities, activities of travel agencies" branch.

Synthetically, considering the mean values assumed in the three periods by the two indexes, as shown in Figure 2, in the economies of the considered countries, with the exception of Netherland and Sweden, the "Supporting and auxiliary transport activities, activities of travel agencies" branch is a "key sector".

Instead, "Hotels and restaurants", with the exception of Sweden and Denmark is a "driving branch" (Figure 3).

Finally, in Table 9 are reported the indexes that measure the global content (direct and indirect through the links with the rest of the economic system) of the added value per unit price of each of the two branches considered. We remind that the directed content is reported, as a percentage, in Table 6.

As for the other complex indices, the most surprising aspect is the great stability of these indices over the decade considered in each country.

Instead, more variable, even if quite small, is the comparison between countries.

To this regard, we can observe mean values higher for the "Hotels and restaurants" branch of Austria, Italy and France and those of Germany, France and Italy for "Supporting and auxiliary transport activities, activities of travel agencies" branch.

Table 9 – *Added value direct and indirect coefficient*

	Hotels and restaurants				Supp. and aux. transport serv., travel agency services			
Countries	1995	2000	2005	mean	1995	2000	2005	mean
Austria	0.908$^{(46)}$	0.877$^{(49)}$	0.866$^{(47)}$	0.884	0.649$^{(16)}$	0.629$^{(17)}$	0.674$^{(25)}$	0.651
Belgium	0.767$^{(36)}$	0.722$^{(37)}$	0.711$^{(37)}$	0.733	0.645$^{(26)}$	0.555$^{(21)}$	0.639$^{(29)}$	0.613
Denmark	0.812$^{(32)}$	0.749$^{(31)}$	0.737$^{(33)}$	0.766	0.822$^{(33)}$	0.743$^{(30)}$	0.662$^{(25)}$	0.742
Finland	0.798$^{(29)}$	0.738$^{(27)}$	0.788$^{(35)}$	0.775	0.837$^{(36)}$	0.796$^{(31)}$	0.764$^{(30)}$	0.799
France	0.862$^{(37)}$	0.843$^{(36)}$	0.855$^{(38)}$	0.853	0.855$^{(33)}$	0.866$^{(41)}$	0.859$^{(40)}$	0.860
Germany	0.851$^{(27)}$	0.833$^{(35)}$	0.841$^{(37)}$	0.842	0.912$^{(43)}$	0.840$^{(38)}$	0.854$^{(42)}$	0.869
Italy	0.872$^{(41)}$	0.871$^{(45)}$	0.860$^{(42)}$	0.868	0.857$^{(39)}$	0.852$^{(41)}$	0.845$^{(36)}$	0.851
Netherlands	0.786$^{(42)}$	0.780$^{(42)}$	0.788$^{(42)}$	0.785	0.814$^{(36)}$	0.776$^{(36)}$	0.764$^{(36)}$	0.785
Spain	0.904$^{(41)}$	0.890$^{(48)}$	0.650$^{(45)}$	0.815	0.853$^{(27)}$	0.771$^{(28)}$	0.533$^{(24)}$	0.719
Sweden	0.781$^{(42)}$	0.781$^{(42)}$	0.769$^{(42)}$	0.777	0.755$^{(36)}$	0.669$^{(36)}$	0.646$^{(36)}$	0.690

Legend: In bracket the rank (position) occupied in the general classification.

5. Conclusion

In this work we conducted an analysis of the linkage and the impact of tourism on the economies of ten European Union countries.
To this regard, we have utilized the Input-Output tables built with standard criteria and available from Eurostat. Since tourism sector is not officially registered as a branch, in our study we focused on its two characteristics components: "Hotels and restaurants" branch (cod. 55) and "Supporting and auxiliary transport activities, activities of travel agencies" branch (cod.63).
Undoubtedly, this choice has certain limits, which we hope to overcome in the future when opportunely disaggregated data will be available.
The role of these two branches has been studied both in a direct and global setting. The last one qualifies particularly this paper.
In the global setting the backward and the forward indices were used. The joint consideration of the two indices allows to identify the type of integration of these two branches more connected with tourism.
In particular, the analysis has revealed that, in almost all countries considered the "Supporting and auxiliary transport activities, activities of travel agencies" turns out to be a *key branch* with a production oriented mainly to the other productive branches, while the "Hotels and restaurants" turns out to be a *driving branch* with a production more oriented to the final use.

References

BEYERS W.B. 1976. Empirical identification of key sectors: some further evidence. *Environment and Planning A*, No.8, pp.231-236.

BEYNON M.J. MUNDAY M. 2008. Stochastic key sector analysis: an application to a regional input–output framework. *Annals of Regional Science*, No.42, pp.863–877.

BRYAN J., JONES C., MUNDAY M. 2005. Investigating the potential of key sectors using multisectoral qualitative analysis: a Welsh case study. Environment and Planning C, No.23, pp.633-656.

CELLA G. 1984. The input-output measurement of interindustry linkages. *Oxford Bulletin of Economics and statistics*, No.46, pp.73-84.

CHENERY H.B., WATANABE T. 1958. International Comparisons of the structure of production. *Econometica*, No.26, pp.487-521.

CLEMENTS B.J., 1990. On the Decomposition and Normalization of Interindustry Linkages. *Economic Letters*, No.33 (4), pp.337-340.

DIETZENBACHER E. 1992. The Measurement of Interindustry Linkages. Key Sectors in the Netherlands. *Economic Modelling*, No.9, pp.419-437.

DIETZENBACHER E. 2002. Interregional Multipliers: Looking Backward, Looking Forward. *Regional Studies*, No.36, pp.125-136.

EDQUIST H., 2005. The Swedish ICT miracle - myth or reality?. *Information Economics and Policy*, No.17, pp.275-301.

EUROSTAT 2008. Eurostat Manual of Supply, Use and Input-Output Tables. Luxemburg, website http://ec.europa.eu/eurostat.

GUCCIONE A. 1986. The Input-Output Measurement of Interindustry Linkages: A Comment. *Oxford Bulletin of Economics and Statistics*, No.48 (4), pp.373-377.

HAZARI B.R. 1970. Empirical Identification of Key Sectors in the Indian Economy. *Review of Economics and Statistics*, No.52, pp.301-305.

HEWINGS G. 1982. The empirical identification of key sectors in an economy: a regional perspective. *Developing Economies*, No.20(2), pp.173-195.

McGILVRAY J. 1977. Linkages, key-sectors and development strategy. In LEONTIEF W. (Ed.) *Structure, System and Economic Policy*, UK, Cambridge University Press, pp.49-56.

http://epp.eurostat.ec.europa.eu/portal/page/portal/esa95_supply_use_input_tables/data/workbooks.

MIDMORE P., MUNDAY M., ROBERTS A. 2006. Assessing industry linkages using regional input–output tables. *Regional Studies*, No.40, pp.329-343.

RASMUSSEN N., 1956. *Studies in Intersectoral Relation*. North Holland, Amsterdam.

SONIS M., GUILHOTO J.J., HEWINGS G.J., MARTINS E.B. 1995. Linkages, key sectors and structural change: some new perspectives. *Developing Economies*, No.33, pp.233-270.

SONIS M, HEWINGS G., GUO J. 2000. A new image of classical key sector analysis: minimum information decomposition of the Leontief inverse. *Economics System Research*, No.13(3), pp.401-423.

SCHULTZ S. 1977. Approaches to Identifying Key Sectors Empirically by Means of Input-output Analysis. *Journal of Development Studies*, No.14, pp.77-96.

SUMMARY

Degree of integration and activation power of tourism in the European countries' economies: an input-output analysis

In this paper an analysis of the impact of the tourism sector on the economies of ten european countries was conducted. To this regard the Input-Output tables available from Eurostat were used.

In particular we focused on its two characteristics components: "Supporting and auxiliary transport services; travel agency services" (code 63) and "Hotel and restaurant services" (code 55).

The analysis showed that the "Supporting and auxiliary transport services; travel agency services" is a key branch and its production is more destined to the others productive branches while the "Hotel and restaurant services" turns out to be a driving branch with a production mainly destined to the final use.

Elvio MATTIOLI, Full Professor, Marche Polytechnic University, e.mattioli@univpm.it.
Giuseppe Ricciardo LAMONICA, Researcher, Marche Polytechnic University, g.ricciardo@univpm.it.

NEW PROSPECTS FOR TOURISM: THE CASE OF THE SORRENTO PENINSULA

Maria Rosaria Carli

1. Introduction

Many studies on the tourism sector – as well as the guidelines of the regional government of Campania for the development of tourism – define the longest-standing tourist districts, such as the Sorrento peninsula, as "saturated": their supply exceeds the demand, they are showing signs of recession, and they are encountering difficulties in devising adequate actions to increase tourist accommodation capacity and tourist presence. However, the Sorrento peninsula is one of the most important local tourist systems in the Mediterranean region, and one that boasts some highly exclusive features. It is a coastal area of outstanding landscape value, with natural reserves, significant archaeological heritage, and a vast, well-organized and diversified accommodation system. New prospects for tourism in this district are hence called for.

Here I illustrate a program proposal I drew up for the municipalities of the Sorrento peninsula and the Island of Capri, to be joined in a partnership for the purpose. This program is meant to be carried out in the context of the "Cultural and Natural Attractors, and Tourism" Interregional Operative Program (the Italian acronym is POIn).[1]

In brief, the strategy of the POIn has three main aims: making the most of the potential of an area possessing natural, landscape, and art-historical attractions; avoiding the uncoordinated approaches that have so far characterized policies for the promotion and support of the tourist sector; revitalizing the sector by making up for structural gaps, bringing up the offer to a standard of excellence, and integrating cultural and natural resources into a system.

[1] Il POIn (FESR 2007-2013) concerns the "convergence" Regions of the Italian South. It pursues the strategy of promoting a limited number of interregional networks constituted by regional tourist nodes offering a homogeneous supply and having enough "critical mass" to attract the national and international tourist demand. The Campania Region decided to designate a single tourist node, the "Bay of Naples".

The process is the result of long and complex process of discussion and planning activated by a Protocol of Institutional Agreement and also carried on in the framework of an Economic and Social Partnership.

My proposal focuses on three main objectives:

- strengthening and officializing a local-level partnership based on the various bottom-up experiences made ever since the implementing of the late 1990s areal plans;
- concentrating on only a few actions at the inter-town level to avoid the shortcomings of these bottom-up experiences, and most notably their lack of strategic coordination;
- developing innovative local capabilities and tools to manage the area's material and immaterial heritage.[2]

The basic assumption of my proposal is that if a tourist area wishes to be economically competitive it should make the most of its points of excellence, such as historical religious buildings, typical food products and the knowledge and traditions that go into their making, and cultural sites of special art-historical relevance.

A tourist destination is not a mere geographical locality. It is also made up of a local community, economic dynamics enmeshed in political and social relations, and a natural and cultural heritage. Above all, it is made up of a range of tourist products and services offered by a large number of small owners and/or entrepreneurs. As such, a tourist destination is a complex system, and one which today must strive to develop organized and effective ways to attract tourist demand without losing its "genius loci", which is ultimately the main reason why tourists choose one destination rather than another.

The management of tourist destinations has traditionally been in the hands of public institutions, which have often restricted themselves to promotion and tourist information services. Today some Italian regional governments are striving to make local tourist systems more competitive, especially those with a longer history, which, in spite of their excellence, are threatened with gradual exclusion from international circuits as a result of poor management. A tourist destination needs centralized management. My destination management project addresses the overall potential of a destination and aims at involving all who are interested in developing it, including institutions, citizens, first-contact commercial operators, the personnel of tourist attractors, and tour agents. The form of management I propose, in the colled a Destination Management System (DMS). It could provide

[2] Immaterial heritage, according to the definition of Unesco, is heritage that is "tangible and intangible, inherited or transmitted from one generation to another, founded on history, geography, arts, traditions, rites, festivals, artifacts and knowledge," and as such "provides people a sense of identity and continuity."

an innovative contribution to the development of tourism in the Sorrento Peninsula. It is an organism or legal subject that works in close synergy with the local public administration, but must not necessarily have public legal status. It usually works at three levels, and hence requires complex work organization and the collaboration of different subjects based in the tourist destination:

Level 1 – observation and dynamic analysis of the tourist promotion and accommodation system.

Level 2 – management of elements that are intrinsic to the tourist offer.

Level 3 – commercialization of the tourist product.

2. Methodology

I have mainly used a qualitative methodology based on an analysis of the functional aspects of specific economic activities. I investigated demand and supply at several levels, using local and national institutional sources and statistic indicators. I examined statistics for the towns in the designated area to identify similarities in specific variables that are significant for tourist development. I began by collecting up-to-date statistical data on the local tourist system. Such data as a rule is not easily obtained, but I benefited from the collaboration of local tourist offices and the main trade associations in the sector. The operators of monitoring organizations were willing to provide this data not only because of their professional attitude, but also because they were directly involved in the project. I collected copies of local municipal plans for the development of infrastructures and services. In conformity with the POIn guidelines, I singled out the plans addressing the whole area of the peninsula and having objectives that I will be illustrating further on. I easily managed to strike a balance between institutional objectives and socioeconomic expectations, thanks of the shared will of all the subjects involved to put tourism at the center of development policies. Finally, the socioeconomic partnership table ensured the participation of local actors in an effort to activate and involve the whole local community.

3. The tourism supply

3.1. Accommodation infrastructure

The tourist supply of the Sorrento peninsula is still largely concentrated along the seaside, notwithstanding the wealth of art and cultural heritage in the area. In

the area under consideration there are a total of 168 accommodation structures with 16,592 beds.

Table 1 – *Accommodation capacity by type and town Year 2011*.

Towns	5 STAR AND 5 STAR EXTRA		4 STAR		3 STAR		2 STAR		1 STAR		Apartments		TOTAL	
	N	B	N	B	N	B	N	B	N	B	N	B	N	B
Massa Lubrense	0	0	11	1063	22	1129	0	0	1	21	1	76	35	2289
Meta	0	0	2	341	1	82	0	0	0	0	0	0	3	423
Piano di Sorrento	0	0	4	407	4	216	0	0	0	0	0	0	8	623
Sant'Agnello	2	314	10	1717	5	330	1	46	0	0	0	0	18	2407
Sorrento	3	546	33	5986	36	2533	3	106	5	121	2	92	82	9384
Vico Equense	2	121	4	371	8	585	7	367	0	0	1	22	22	1466

Source*: ISTAT.*

The overall quality of the tourist supply in the Sorrento peninsula is influenced by a clear prevalence of small hotels as opposed to comparatively few 4 and 5-star hotels. The quality/type index of accommodation (Table 2) clearly highlights this.

The index summarizes the characteristics of the various forms of accommodation available for tourists. It corresponds to the ratio of middle-high range facilities (five and four star) to middle-low ones (three to one star).

Table 2 – *Hotel quality rate.*

	Hotels	Beds
Massa Lubrense	0.5	0.9
Meta	2.0	4.2
Piano di Sorrento	1.0	1.9
Sant'Agnello	2.0	5.4
Sorrento	0.8	2.4
Vico Equense	0.4	0.5

The index shows that Meta and Sant'Agnello have a significant availability of upper-range hotel accommodation. Both towns also have a high availability of beds, especially Sant'Agnello, with its index of 5.4.

As to overall accommodation capability, calculated as the ratio between the number of available beds and the resident population, Sorrento stands ahead of the

other municipalities, with twice as high an index as Sant'Agnello's and with the other towns lagging even further behind (Table 3).

Table 3 – *Accommodation capability rate*.

	B	Resident population as of 31 December 2010	Index
Massa Lubrense	2289	13985	0.16
Meta	423	8041	0.05
Piano di Sorrento	623	13136	0.05
Sant'Agnello	2407	9079	0.27
Sorrento	9384	16589	0.57
Vico Equense	1466	20980	0.07

Source: *My adaptation of ISTAT data.*

As to the density of accommodation structures, calculated in beds per square km, Sorrento confirms its leadership, followed by Sant'Agnello, Meta, and Massa Lubrense (Table 4).

Table 4 – *Accommodation density*.

	B	Sq. km	Index
Massa Lubrense	2289	19.71	116
Meta	423	2.20	192
Piano di Sorrento	623	7.30	85
Sant'Agnello	2407	4.10	587
Sorrento	9384	9.93	945
Vico Equense	1466	29.30	50

As we shall see, tourism in the Sorrento peninsula is seasonal. This influences the degree, of use of facilities.

The utilization index of an accommodation facility expresses the probability that a bed will be occupied by a client during a given period. It is calculated as the ratio of the total number of nights spent by clients in a hotel to that hotel's total supply of beds.[3]

[3] The gross utilization index is calculated with respect to the full year, regardless of closing days. The net use index is calculated on the basis of actual opening days.

Table 5 – *Net utilization index for hotels in Sorrento for the 2000-2010 period.*

Year	Sorrento
2000	90.9
2001	83.7
2002	63.8
2003	61.9
2004	62.9
2005	68.5
2006	67.4
2007	59.5
2008	49.8
2009	45.8
2010	52.5

Source: *My adaptation of data of the Naples Provincial Tourist Office (Ente Provinciale per il Turismo di Napoli), 2010.*

As we can see, the use of beds in hotels has decreased over the years. This is largely due to an increase of extra hotels supply. The monthly-utilization index is provided by ISTAT only at the regional level. The data provided for the Campania region as a whole, however, are consistent enough with the trends observable in the Sorrento peninsula to be of relevance here.

Table 6 – *Gross and net indexes of hotel-utilization by month and region. Year 2010.*

Region	Months												Year
	January	Febraury	March	April	May	June	July	August	September	October	November	December	
Gross Use													
Campania	10,5	11,7	17,4	29,2	36,5	40,2	54,5	59,4	50,9	36,8	16,3	15,0	31,9
Italy	17,8	20,7	21,5	24,8	27,9	40,2	54,5	60,4	37,2	24,0	14,0	16,0	30,1
Net Use													
Campania	15,9	17,5	24,5	31,7	38,0	42,0	56,9	60,0	54,4	40,4	21,0	20,4	37,5
Italy	26,6	30,4	30,4	31,7	32,8	43,3	56,2	62,0	41,0	33,8	23,0	24,5	38,2

Source*: ISTAT*

The utilization index thus points to a need to increase hotel use. This could be achieved by improving tourist services, diversifying tourist products and, above all, by integrating into a system the attractors found in the individual towns of the Sorrento peninsula as a whole. Choice destinations like Sorrento – the southern

Italian town with the highest tourist performance – can serve as catalysts and favor this process.

4. Demand

4.1. Tourist arrivals and overnight stays

Overall hotel use considerably diminished in Sorrento from 1997 to 2010 (-19.5%). The drop was higher for Italian tourists, over 28%, versus about 17% for foreigners.

Table 7 – *Arrivals and stays at hotels and other accommodation facilities in the Sorrento peninsula, 2000-2011.*

	Italians		Foreigners		Total	
	Arrivals	Stays	Arrivals	Stays	Arrivals	Stays
Hotels						
Sorrento-S. Agnello tourist district						
2011	135,519	374,324	427,053	1,861,593	562,572	2,235,917
2010	154,210	441,795	389,818	1,696,750	544,028	2,138,545
Vico Equense tourist district						
2011	22,466	63,669	27,758	114,066	50,224	177,735
2010	21,745	67,573	28,574	103,983	50,319	171,556
Accommodation extra hotels						
Sorrento-S. Agnello tourist district						
2011	19,392	57,053	45,013	155,293	64,405	212,346
2010	18,216	56,533	42,451	145,143	60,667	201,676
Vico Equense tourist district						
2011	1,595	6,101	3.321	19.517	4,916	25,618
2010	914	5,345	2.669	14,932	3.583	20,277
TOTAL %						
Sorrento-S. Agnello tourist district						
2011	24.7	17,6	75.3	82,4	100	100
2010	28,5	21.3	71.5	78.7	100	100
Vico Equense tourist district						
2011	43.6	34.3	56.4	65.7	100	100
2010	42.0	38.0	58.0	62.0	100	100

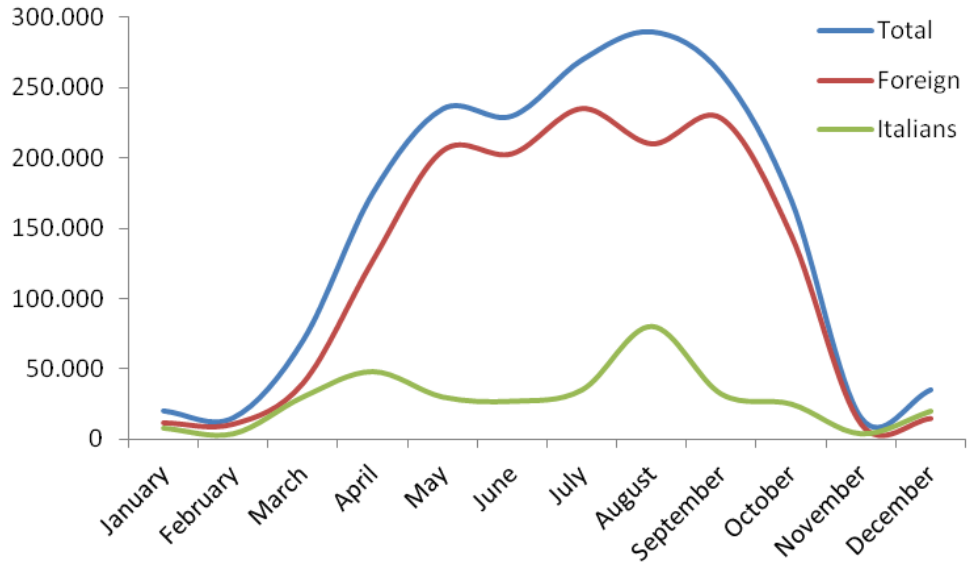
A first partial recovery was recorded in 2011, after a sharp drop in 2008-2009, which can certainly be ascribed to the Naples waste disposal crisis and its negative reflection even on the image of the exquisite Sorrento coast. So in the period under consideration the percentage of foreigners increased: 82.4% of the total in 2011 in the Sorrento-Sant'Agnello tourist district. As is well known, these foreign tourists are prevalently Anglo-Saxon, with the British coming first, followed by North

Americans. Tourism from Eastern European countries is on the rise. Foreign tourism has a strong influence on the accommodation supply. Foreigners make up about 85% of the clientele of 4 and 5-star hotels, and 76% of 3-star ones.

The data indicates an increase in the use of extra accommodation. This depends on a growth in demand, both among Italian and foreign tourists, for more "authentic" forms of accommodation, allowing self-catering in some cases, such as holiday farms, bed-and-breakfasts and apartments for rent. At the same time, the demand for low-cost tourism has increased, and the Internet has allowed even small and very small local businesses to cut out for themselves a share of the global tourist market, taking advantage of the well-established popularity of the destination.

The distribution of tourist presence over the year shows, in the case of Sorrento, an active period of over 7 months a year, from April to October. The fact that tourist stay remains stable in the area even in September and October indicates that climate is the factor here rather than beach tourism. As regards this aspect, foreign and Italian tourists display a very different behavior, as the latter continue to prefer the summer months.

Figure 1 – *Monthly presences in Sorrento hotels, 2010.*



Source: *My adaptation of data of the Naples Provincial Tourist Office (Ente Provinciale per il Turismo di Napoli), 2010.*

5. SWOT analysis

I think it will be useful at this point to go into a SWOT analysis,[4] and one that also takes account of some socio-economic aspects that I have not gone into here for the sake of brevity.

Table 8 – *SWOT analysis of the tourist sector*.

Strengths	Weaknesses
1. A well-established image at the national and especially the international level.	1 Geographical focus of the tourist demand in English-speaking countries (United Kingdom, United States).
2. Significant tourist flows.	2 Seasonality of the tourist supply, although to a lesser degree than other seaside areas.
3. Nearness to Pompeii, one of the best-known archaeological sites in the world.	3 Limited per capita average tourist expense, mainly due to the prevalence of organized tours.
4. Broad and diversified supply of accommodation.	4 Lack of services for some key targets – families, elites, affluent young people – and a perception of the area as "old-oriented".
5. Professionalism of tourist operators.	5 Lack of nighttime entertainment.
6. An exceptional environment with especially valuable features. Existence of a protected zone system.	6 Limited availability of sports facilities.
7. A good availability of artistic, cultural and archaeological heritage, and the enduring of a variety of traditions.	7 Weakness of local and network pleasure boating services, inadequacy of individual ports and of the local circuit.
8. Essentially rural character of the area, both as regards land use and the culture of the local population; high qualitative potential of local plant and animal food productions.	8 Difficulty of accessing certain visitor sites.
9. Quality of local wine-making and cuisine, thanks to the presence of world-class chefs and restaurants.	9 Inadequate management of landscape resources.
10. Typical productions directly or indirectly connected to tourism, such as pasta, cheese, *limoncello*, paper, carpentry, wood inlay, etc.	10 Co-occurrence and reciprocal interference of excursion tourism and "elite" tourism, especially on weekends and during the high season, threatening to undercut higher-value demand.
11. Experience in negotiated and integrated planning.	11 Excessive crowding in the high season.
	12 Congestion of roads and low quality of the local Circumvesuviana railway.
	13 Proliferation of bed and breakfasts, which benefit from tax exemptions and thus unfairly compete with traditional accommodation facilities.
	14 A lack of interest in sustainable and eco-compatible tourism; limited recourse to renewable energy sources.
	15 Scarce urban culture and scarce quality of urban planning and landscape policies, scarce urban and housing quality.
	12. Inadequacy of broad sectors of the public administration.
	13. The existence of a submerged economy.
	14. Lack of modern tourist governance systems and/or systematic monitoring of the tourism performance as regards key aspects such as economic impact, environmental sustainability, the needs of the demand, professional updating, etc.

[4] SWOT is the acronym of Strengths, Weaknesses, Opportunities and Threats.

Table 8 *(continue) – SWOT analysis of the tourist sector.*

Opportunities	Risks
1. The rise of new tourist-demand markets in the high-spending emerging economies (China, India, Brazil, etc.).	1 Competition leading to an increasing drop of prices.
	2 Growing deterioration of the natural and cultural historical heritage.
	3 Disaffection of the demand unless the product is innovated.
2. The existence in the area of a combination of resources – historical and archaeological, cultural, natural, etc. – which, if adequately developed, could contribute to a diversification and de-seasonalization of the demand, as well as the creation of high-added-value services.	4 The economic crisis of the countries where the local tourist demand traditionally originates from (Great Britain, United States).
	5 Lack of coordination of development policies and dispersion of available resources.
	6 Lack of attention for environmental quality involving risks to the local natural heritage.
	7 A trend to building replacement and deterioration of the urban fabric in the interior of the area.
3. The quality of the local food production sector, which could provide the basis for an increase in enogastronomic tourism.	8 Growing competition with other areas on the Mediterranean coast (notably the Baleares and French coast), especially in the low season, partly as a result of the growth of low-cost tourism.

Source: *Adapted from "PIT Penisola Sorrentino-Amalfitana".*

Table 9 – *The tourist services needed to draw new demand to the area under study, distinguished by target.*

Tourist product	Cluster			
	Retired high spenders	High-spending families	Elite	Young people
Beach tourism	Beach services with personalized assistance	Availability of baby-sitters and entertainment for kids	Quality entertainment. Cultural events (exhibitions etc.)	Nighttime entertainment. Sports
Cultural tourism	Cultural events (concerts, heater). Improved access to cultural sites	Entertainment and tour guides for children. Entertainment for teenagers traveling with the family	Quality cultural offer	Quality cultural offer
Pleasure boating	Network of dedicated services providing an easy connection with attractions on land	Network of dedicated services providing an easy connection with attractions on land	Network of dedicated services providing an easy connections with attractions on land	Network of dedicated services providing an easy connections with attractions on land
Nature tourism	Improved structures and services.	Personalized services (for example for families with young children or teenagers).	Exclusive and innovative facilities and services	Creating or improving a supply aimed exclusively at the cluster target (e.g., diving).
Thermal tourism	Improved facilities and services.	Additional services (e.g., entertainment for children).	Expanding the range of services of exclusive localities while keeping up their standards.	Developing the supply to make thermal tourism also attractive to younger people.

Having considered all of the above aspects, the only way to reverse the current trend and draw new demand is to cater to new demand segments than more the current ones by offering new tourist services (Table 9).

6. New prospects for tourism

Having considered the limits and the potentialities of the area, I drew up a program of prospective action which, in accordance with the POIn guidelines, intends to contribute to the development of the "Baia di Napoli" tourist node by making the most of the cultural, natural and landscape attractors in the area.

This program has three main objectives:

1. restoring and developing cultural, natural and tourist attractors in a systemic perspective;
2. expanding and improving existing mooring places in a systemic or "circuit" perspective, possibly involving a specialization of ports, and providing a variety of tourist services for pleasure boating (nature and cultural tourism, sports, cuisine, beaches…);
3. implementing a single shared Destination Management System (DMS) to rationalize and innovate the management of the tourist destination in question; this system, to be implemented in collaboration with the local town administrations, will provide the framework for strategies and actions aimed at building up the capacity of local institutions, managing the performance of the area and its tourist companies, marketing the area, and aggregating and promoting the area's tourist supply as a whole.

These objectives will be pursuable by means of:

- infrastructural actions, selected by the town governments themselves, favoring projects benefiting the whole district;
- the international promotion of a cluster of tourist products that are strongly symbolic of the area.

In the short term, the success of this strategy will be measurable on the basis of its ability to:

a. contribute to the diversification of reasons for visiting the area, through a transition from mere beach tourism—a sector in which the area is becoming less and less competitive—to a mix of climatic and cultural products aimed at new demand targets (cultural, nature and enogastronomic tourists, pleasure boaters, etc.);
b. promote an even more accentuated sustainable deseasonalization of tourist flows;
c. stimulate an increase of daily tourist expense.

The following results are expected:

- an **integrated system of cultural and historical attractors in the area** (at least one per town), to be achieved by means of a plan for land improvement harmonizing past traditions with present reality and future prospects;
- a **circuit of specialized and complementary moorings spots** (with Sorrento as the main hub) with infrastructure and services facilitating sustainable mobility towards and between attractors;
- an **innovative system of integrated management of the tourist destination** constituted by all the municipal territories of the area, seen and managed as a whole (Destination Management System); this system should be capable of drawing and integrating investments and entrepreneurial cooperation, also as a means to obtain public funding.

One of the main expected results of this project is an innovative system of management of the municipal territories of the area in question as an integrated whole. This organism would be mainly responsible for the management and marketing of the destination. It could be a half public and half private company. Its legal status may vary as needed. In any case, it should have two main functions: marketing and development.

The first function involves a series of strategic activities, such as image definition, branding, positioning, communication management and destination promotion, data collection, and acquiring technical and scientific equipment to increment tourist flows and customer satisfaction.

The second function consists of implementing the sustainable development of the area through actions such as: monitoring air, water and ground pollution; ensuring site accessibility; coordinating the various stakeholders and their interaction with other economic sectors; managing accommodation systems and tourist information, and liaising between them and the public and institutional system; studying the market; developing human resources; managing resources and research on scale economies (as regards personnel, purchases, research and innovation, spin offs, etc.); crisis management; monitoring and measuring the results and impacts of strategies and services on heritage attractiveness, business competitiveness, and the well-being of the resident population, as well as visitors and tourists.

The DMS would be filling a gap, that is, the inexistence of a coordinated and integrated tourist governance model in the Sorrento peninsula – actually a nationwide problem –. In Italy, governance functions are dispersed among several actors, both central and local, and this results in a superimposition or vagueness of roles and responsibilities. For the DMS to work, however, certain conditions need to be fulfilled. It needs to

- earn the recognition of local actors;
- be capable of managing cooperative/competitive relations between actors;

- remain an integral part of the local social fabric, and not be perceived as a foreign body;
- combine marketing with the strategic management of relations between actors based in the destination, with intuition, talent, creativity and a deep knowledge of the area;
- be able to anticipate and meet the needs and wishes of clients;
- achieve significant and demonstrable market results;
- offer services generating a high added value;
- be able to measure the effect of the adopted policies and actions.

The political will expressed by the municipal administrations of the Sorrento peninsula goes precisely in this direction. The tool I propose to achieve these objectives is a balanced scorecard applied to the tourist sector. I have already defined the measuring indexes for this scorecard.

The pilot project intends to:

- examine models and solutions adopted at the national and international level for an optimal management of tourist destinations with similar characteristics as the Sorrento Peninsula;
- set up an adequate DMS model for the socio-environmental and institutional situation of the Sorrento peninsula, and one that is consistent with the existing region-wide public plans;
- identify and activate the resources (human, logistic, technological, financial, etc.) needed to implement the model; identify the most adequate legal form for the DMS;
- trigger and coordinate capacity-building and local-resource performance management and marketing processes in local institutions;
- steer hiring and training processes towards professional profiles capable of meeting the needs of the DMS and the job descriptions requested by companies;
- promote and encourage the foundation of new tourist companies or spinoffs from existing ones;
- promote and encourage the collaboration of companies to adopt common quality standards for locally connoted products.

At the end of the experimental period, the functionalities of the DMS will be tested and its effects measured. The model will be engineered.

SUMMARY

New prospects for tourism: the case of the Sorrento peninsula

The basic assumption of my proposal is that if a tourist area wishes to be economically competitive it should make the most of its points of excellence, such as historical religious buildings, typical food products and the knowledge and traditions that go into their making, and cultural sites of special art-historical relevance.

My destination management project addresses the overall potential of a destination and aims at involving all who are interested in developing it, including institutions, citizens, first-contact commercial operators, the personnel of tourist attractors, and tour agents. The form of management I propose, which I call a Destination Management System (DMS), could provide an innovative contribution to the development of tourism in the Sorrento Peninsula.

One of the main expected results of this project is an innovative system of management of the municipal territories of the area in question as an integrated whole. This organism would be mainly responsible for the management and marketing of the destination.

The tool I propose to achieve these objectives is a balanced scorecard applied to the tourist sector.

Maria Rosaria CARLI, CNR Istituto di Studi sulle Società del Mediterraneo, mariarosaria.carli@issm.cnr.it

THE EVOLUTION OF OPTIMIZATION MODELS SUPPORTING MOBILITY POLICIES AND TERRITORY DEVELOPMENT

Paolo Dell'Olmo

1 Introduction

In this paper four major milestones in the development of optimization models are identified in the perspective of policy decision making for mobility and land development. These milestones definition is arbitrary and is motivated only with the purpose of helping the reader in following the contribution of mathematical programming techniques into the decision-making tools that have been, and still are, practically adopted in strategic and planning territory management. The milestones defined will be referred as: Linear Programming, Integer and Mixed Integer Programming, Integration of Optimization Models in Real-Time ICT Architectures, Optimization and Business Analytics.

We introduce the reader into the evolution of optimization models so that the contribution of the new outcomes in relation to applications in transportation and mobility appears more evident.

The paper is organized as follows. In section 2 the main characteristics of Linear Programming, which are at the base of any optimization model are recalled and the evolution seen from the application point of view is sketched. Section 3 underlines the difference between linear programming and integer programming and some example of integer optimization problems on graphs are given. In Section 4 the role of optimization model with respect to Information and Communication Technology development for transportation is briefly described. Finally, in Section 5 is presented an example of application of optimization for mobile services for tourism in metropolitan areas.

The reader should relay on the references for further investigations.

2 Linear Programming and the Management of Continuous Resources

Linear programming allows to model an optimization problems by means of continuous variables that may represent, in general, a continuous divisible resource as, for instance, the quantity of flow in an arc of a network or the portion of land

that should be cultivated with certain grain. In general, in Linear Programming, we want to find an assignment of the variables that maximize (or minimize) a given linear function representing, for instance, profits (or costs). Such assignments must obey to a number of constraints. Clearly, the flow in an arc cannot exceed the capacity of the arc or the sum of assigned portions of lands cannot be grater than the area of the region under study.

See the model below reported for illustrative purposes, where the decision variable x_i represents the quantity of a (continuously divisible) kind of good i to be produced, and coefficients a_{ij} the quantity of raw material of kind j required for one unit of good i, and b_j the total amount of raw material j available. The c_i coefficients represent the profit that can be obtained by a unit of good i. Solving the model permits to find the best (more profitable) quantity of each good to be produced in order to maximize profit while respecting the constraints on the total availability of each resource (b_j).

minimize

$$z = c_1 x_1 + \ldots + c_n x_n = \sum_{j=1}^{n} c_j x_j. \tag{1}$$

such that

$$\begin{array}{lcll} a_{11}x_1+ & \ldots & +a_{1n}x_n & \leq b_1 \\ a_{21}x_1+ & \ldots & +a_{2n}x_n & \leq b_2 \\ \vdots & \ldots & \vdots & \vdots \\ a_{m1}x_1+ & \ldots & +a_{mn}x_n & \leq b_m. \end{array} \tag{2}$$

$$x_i \geq 0, \quad i = 1, \ldots, n.$$

As can be noticed, both objective and constraints are linear functions. Linear programming is a very important class of problems, both for modelling capabilities and for the algorithmic implications. Linear programming has so many applications that we have to refer to the books in the references. The basic modelling result can be seen as in this way: any practical interesting configuration of the decision variables (corresponding to a specific real scenario) is one of the vertices of a convex polyhedron in R^n and the number of these vertices (although extremely) large is finite (see Figure 1). Assume the resource to be assigned is water for the agriculture in different fields in a given area. The optimal water allocation on the different fields (i.e. maximizing a give linear economic or function,) is one of the vertices of the polyhedron. This remains true for any objective function also if

obtained as a linear combination of different criteria (i.e. any compromise between profits and environmental impact).

Figure 1 – *An illustrative representation of the solution space of an LP program.*

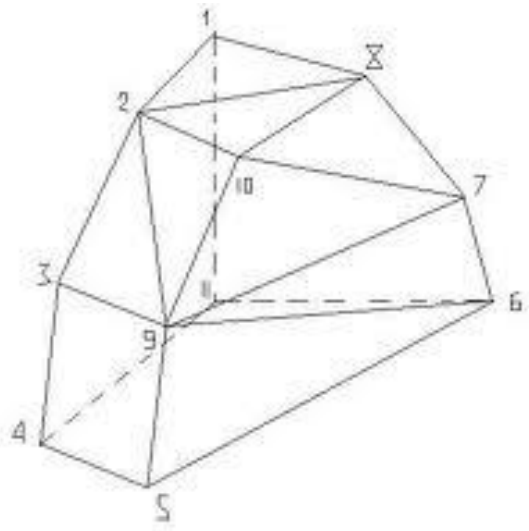
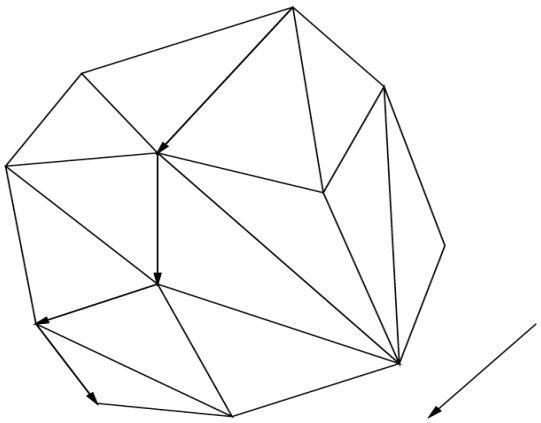


Figure 2 – *An illustrative representation the steps of the simplex algorithm toward the optimal solution.*



From an algorithmic point-of-view, having to search only for vertices has a great implication. The simplex, that moves from one vertex to an adjacent and better one, was proposed in the forties (soon after the war, and was motivated by military applications, Dantzig 1947) and, although it has performed very well in practice, is known to run in exponential time in the worst-case. The first polynomial-time algorithm, the ellipsoid algorithm, was only discovered at the end of the seventies (Kachian 1979). Karmarkar's algorithm in the mid-eighties lead to very active research in the area of interior-point methods for linear programming. We recall some of the numerous variations of interior-point methods in class (Dikin 1967), (Frisch 1977).

A first application of optimization algorithm used in practice in Italy in the cast iron production in the sixties reduced by 50% the cost. The application of the simplex method was done using an electronic desk calculator to support each step of the algorithm by two people in time measured in weeks.

Currently, the improvements, both on algorithms and in computer computational power allows to solve problems with 1 million variables in tenths of seconds.

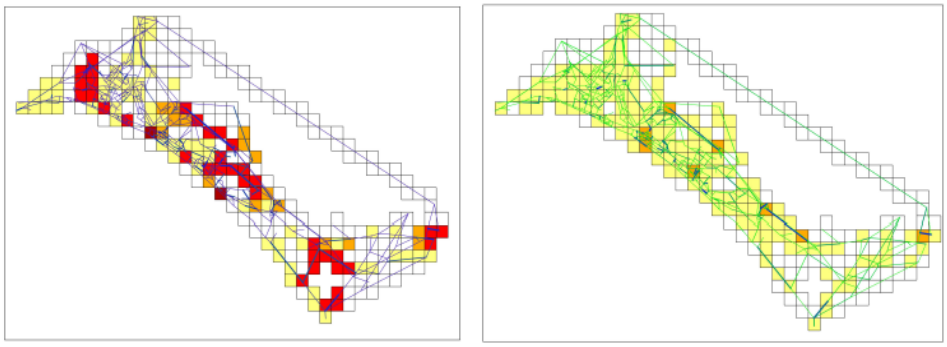
For a more recent application of linear programming in the are of land planning we mention the paper of Alampi Sottini et al. 2008, where an LP program is designed and solve to simulate both a more profitable and sustainable use of land in the area of Mugello (Tuscany, Italy) taking into account several constraints like the maximum of agriculture surface available, the surface and aliments for animals, the maximum number of family manpower, the agricultural and zootechnical productions. Solution results visualized by means of a Geographical Information System permit to the decision-maker to analyse very complex scenarios.

A further example is in equitable flow assignment on networks (see Dell'Olmo 2011). In this case, we have to assign flows on arcs of the network so to satisfying the demand of goods transportation on different origin-destination points with the double objective of minimizing both transportation cost and the impact of traffic in different areas.

The example of the application of a Linear Programming model to flow assignment for the network of Salerno is given in the next Figure. The color of an area represents the traffic volume in that area (red = high, yellow = low). As can be seen, in the right picture the optimized flow assignment has the same cost, but with a more equitable impact on the areas than the case of the picture to the left.

Linear programming capabilities are now available in commercial software tools to anyone interested in practical use of this kind of optimization models, only in specific cases research activity is devoted in improving solution algorithms.

Figure 3 – *A grid of uniform cells overlapped to the underlying road transportation network of the city of Salerno, Italy.*



3 Integer Programming, Logistics and Freight Distribution

In the early seventies the classes P and NP (Garey and Jhonson 1979) were defined, it was observed that a large class of optimization problems were equally difficult to solve and for no one of them polynomial time algorithm (like for the case of linear programming) exists. Routing and scheduling problems, which are the basic ingredients of distribution logistic management, belong (unfortunately) to this class. For these problems, decision variables must assume integers values and, in a wide range of cases, variable values are only 0 or 1. In many routing problems, for instance, a value of 1 of a variable means the corresponding arc is part of the solution, 0 means the opposite. As in practice one wants to know if an arc is in his paths or not, fractional values of decision variables have very little meaning,

The classical problem of this kind is the well known Travelling Salesman Problem (TSP). The TSP is so defined: Given a complete undirected graph $G=(V, E)$ that has nonnegative integer cost $c(u, v)$ associated with each edge (u, v) in E, the problem is to find an hamiltonian cycle (tour that visit each node only once) of G with minimum cost.

Here, the basic difficulty, for which efficient algorithms like those for linear programming cannot be applied, is that the solution set is not represented by the vertices of a polyhedron, but by integer points in a multidimensional solution space.

No general efficient solution method exists at this moment for exact solutions of this type of problems and a great effort has been done in designing specific solution procedure for problem classes.

Figure 4 – *Example of TSP solutions of value 62 and 48 respectively.*

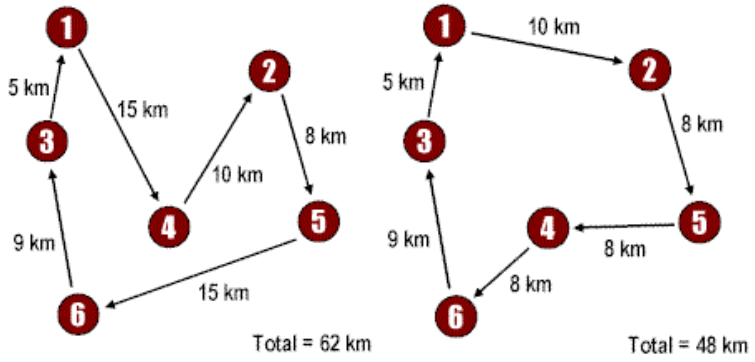
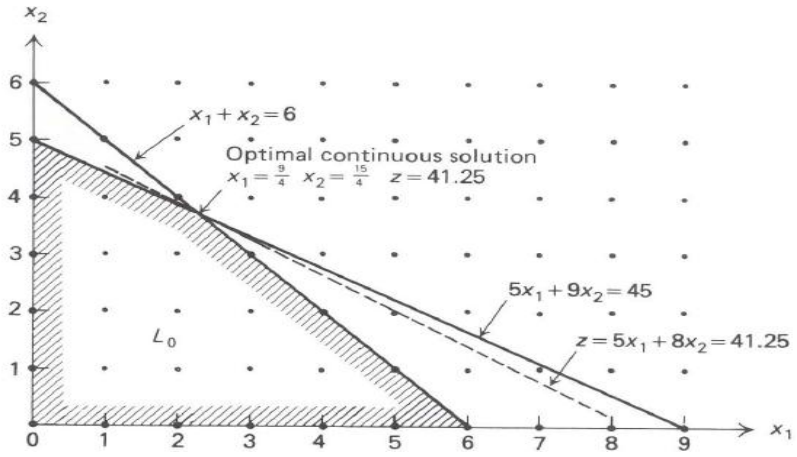


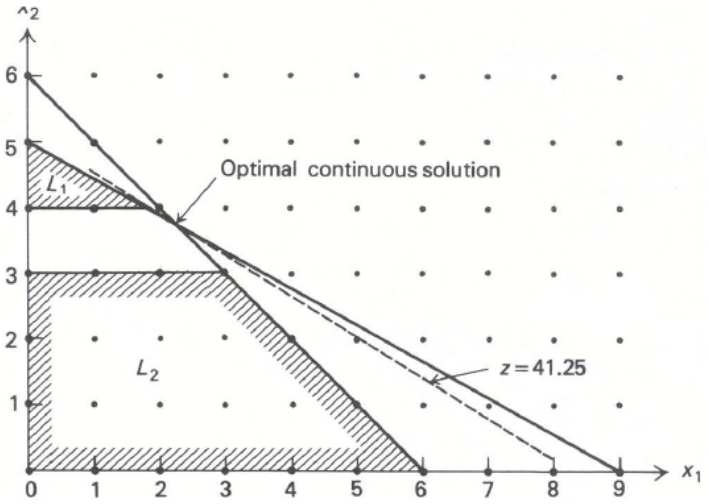
Fig. 5 – *The solution space of an integer programming is represented by the dots contained in the polyhedron.*



The main contribution of optimization methods from the late seventies up to now is to having provided a number of different solution approaches to solve computationally difficult problems of this kind.

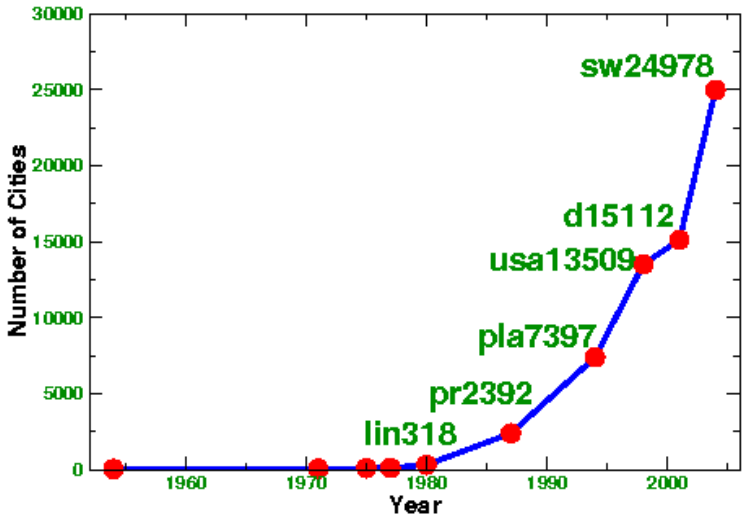
Algorithms like Dynamic Programming, Branch and Bound, Branch and Cut (see references book integer programming) have been proposed to find exact solutions to computationally intractable problems (see picture below that illustrates the way branch and bound partitions the solution space).

Figure 6 – *The partition of the solution space operated by branch and bound algorithm.*



To give an idea of progresses in algorithm design in the last decades see the following picture where the size (number of cities) of the TSP instances solved is reported on the *y* axis over the years.

Figure 7 – *The size of TSP instances solved over the years.*



Beyond the performances in test problem, it has to be noticed that the same techniques are implemented in other routing models (for instance Multi-Depot Vehicle Routing Models, Toth 2002) that are fundamental tools for a competitive distribution logistic system.

Currently, a significant effort of the research activity in this area is devoted in finding better solution methods (i.e. capable of solving real life large instances) and algorithms for specific problems that take into account a number of operational constraints (like time windows, priorities and the like). See Golden 2008 for recent advances in this area.

4 Real-Time Optimization and Services on Transportation Networks

In the last decade, transportation networks have been equipped with a number of different devices (traffic sensors, cameras, on board GPS, etc.) which changed significantly the way optimization models are used in traffic control. Especially in metropolitan areas, a complex communication network gathers data from different sources into a central control system where several decisions can be taken regarding traffic lights control, Variable Message Signs (VMS) implementation and further services for public and private transportation (see the Figure below).

Figure 8 – *Different sources and devices to collect real time data.*

In this case, optimization models are components of larger software architectures and very often are fed with real time data with the purpose of having real-time decisions.

For example, when traffic congestion slow down traffic flow on a given road, routing algorithms must be able to providing alternative paths in tenth of seconds ensuring that the whole network reaches a new acceptable state of stochastic equilibrium.

A further example of application is when distribution services accept on line (real time) requests of new pick-up and delivery. In those cases, the fleet paths must be dynamically adapted to incoming demand and on board equipment is necessary to advisor the driver for the change. For this class of models execution time must be kept as small as possible and a number of additional constraints must be taken into account also additional requirements like inventory (see Favaretto et al. 1998) for an example.

5 Mobile Services for Tourism

Following what has been described in the previous section, we present here an application of optimization models to support the mobility of a specific class of users, that is tourist in large metropolitan areas.
In this case, available time for the visit is always limited and one wants to visit as many interesting places as possible. Clearly there are several ways to approximate the utility function of a specific tourist (knowing his/her characteristics and preferences), and an example of objective function is given next:

$$\max(Z) = \sum_j S_j^k y_j \ + \sum_i \sum_j S_{ij}^k y_{ij} \tag{3}$$

Here the variable y_j is 1 if the place is visited and, similarly, variable y_{ij} is 1 if the arc connecting place i to place j is chosen, and 0 otherwise. The coefficient S^k_j and S^k_{ij} can be seen as fuzzy estimates of the marginal value for the tourist k in visiting location i or travelling in the road connecting i to j respectively.

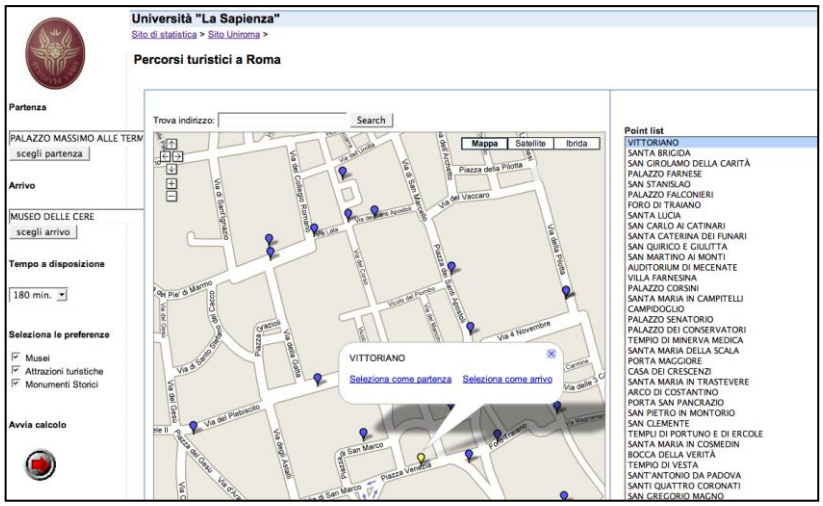
Time constraints can be represented as follows:

$$t_{max} \leq \sum_j t_j^k y_j \ + \sum_i \sum_j t_{ij}^k y_{ij} \tag{4}$$

where t^k_j is an estimation of the time required that tourist k requires to visit location j and t^k_{ij} ; t_{max} is the total time available.

Further constraints are necessary to complete the model. As for the previous section, the optimization model is only a part of a service system that could be presented as a web application (see the Figure below).

Figure 9 – *A web based application where a tourist define start and end locations of his/her visit.*



The way the service works could be sketched as follows. To the user it is presented a geographic representation of the area he/her wishes to visit (with interesting location highlighted. The user denotes:

- Main interests (museum, historical monuments, etc.)
- Time available for the trip
- Starting location
- Ending location

The system computes the walking path that maximizes the user score of the visit (that takes into account number and interest of the sites and other factors) within the available time.

Here the role of optimization models are very clear on large networks in cities that offer a variety of alternatives and some of them may be very interesting but not so well known like for the case of Rome (see the picture below with the Rome network).

Figure 10 – *The graph of Rome with 1092 nodes, 4468 arcs and 226 places of interest.*

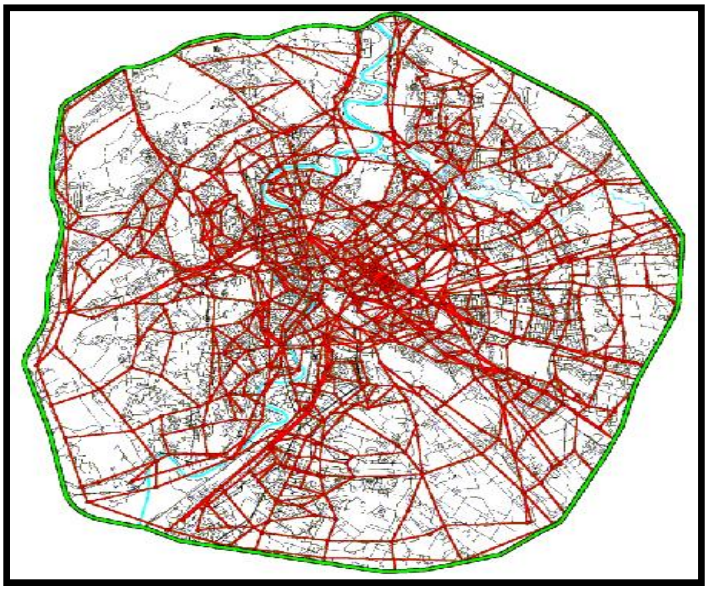
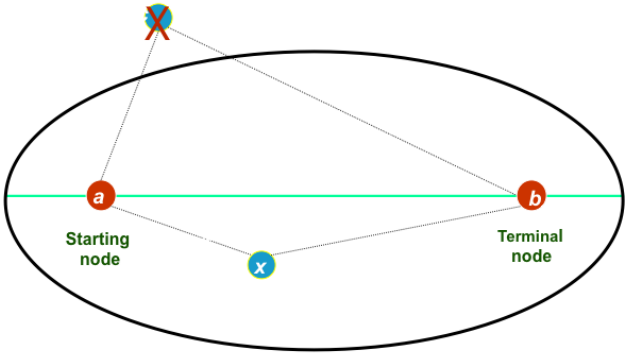


Figure 11 – *The perimeter of places of interest so that sum of distances a to x and x to b is equal*

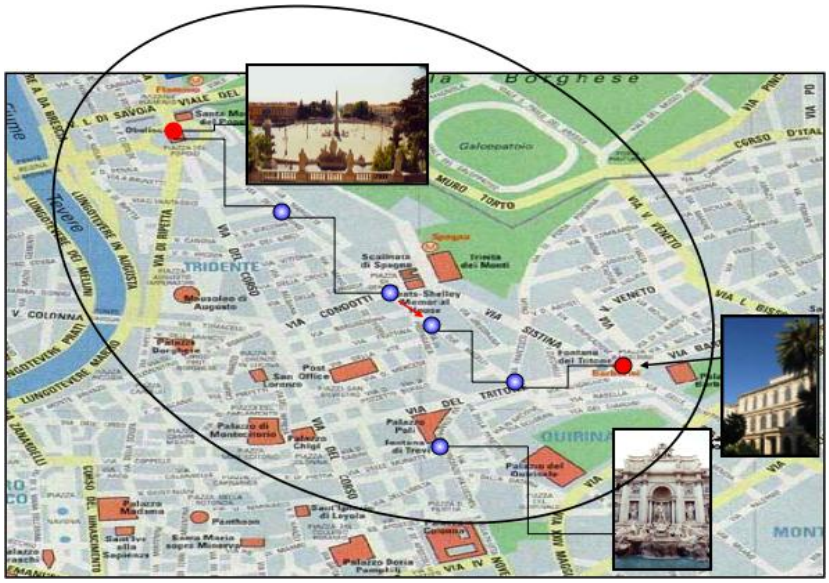


t_{max} = practicable distance on foot in the maximum time available
x = node with the maximum interest

In order to limit the search to places that can be reached within the time limit, an ellipse is defined with first and second focus the starting and ending point of the visit.

The ellipse radius is computed calculating the maximum distance that can be travel by walking in the maximum available time.

Figure 12 – *The graph of Rome with 1092 nodes, 4468 arcs and 226 places of interest.*



Thus, the main idea is that any of the places that is located within the ellipse could be added to the start-ending point of the visit, so we can select the one with maximum interest. From the computational point of view, however, the complete algorithm is not so straightforward are requires several steps to reach the optimal solution.

In each step a new location is inserted and a new ellipse is designed using the new locations as focus. The iterations continue finding a new ellipse and a new location to be added until no more places can be inserted to the path because of the time limit constraint (see the next picture).

Although important, the optimization algorithm to furnish a practical service to an end-user (tourist) requires a quite complex architecture. In the next figure we present the basic components of a possible architecture.

It should be clear that a lot of data from different sources should be integrated for the practical realization of this kind of service. For instance, time to visit locations as museums or churches has to be known in advance and coordinated with public services transportation availability and estimated travel times. Similarly, with other services like restaurants, cafés, and shops open hours has to be acquired.

Figure 13 – *An illustrative example of the application to maximize tourist utility function.*

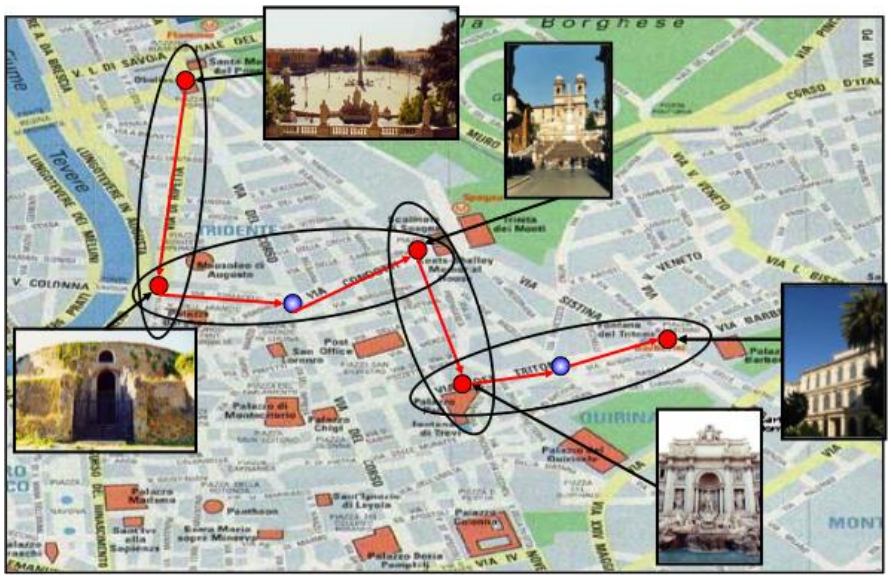
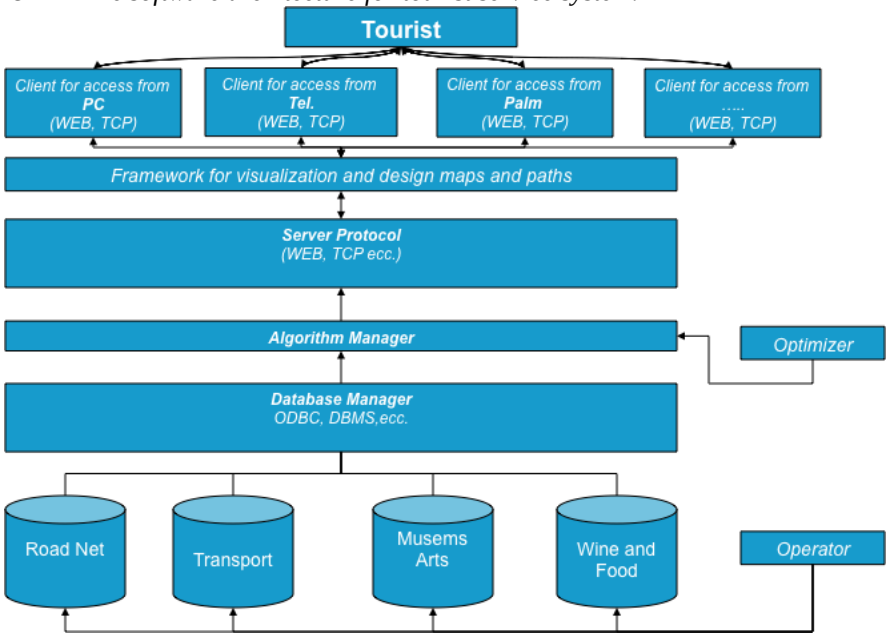


Figure 14 – *The software architecture for tourist service system.*



Acknowledgements

The author wish to thank Umberto Ferraro Petrillo, Nicoletta Ricciardi and Gianni Storchi for their contribution in the tourist service system.

References

ALAMPI SOTTINI V., MARONE E., RICCIOLI F., SCOZZAFAVA G. 2008. *Le variazioni del territorio rurale e le diverse tipologie di imprenditore agricolo: un caso di studio*. Economia e Diritto Agroalimentare, Territorio e paesaggio agrario, Vol. XIII, No.1, pp. 25-39, issn 1970-9498 (online), issn 1826-0373 (print), Firenze: University Press.

CARAMIA M., DELL'OLMO P., 2008. *Multi-Objective Management in Freight Logistics: Increasing Capacity, Service Level and Safety with Optimization Algorithms.* New York: Springer.

CARAMIA M., RICCIARDI N., SCOZZARI A., STORCHI G. 1999. Tourist Flow Organization in an Artistic Town. In: *Computer in Urban Planning & Urban Management*. Milano: Franco Angeli.

CRAINIC T.G., RICCIARDI N., STORCHI G. 2009. Models for Evaluating and Planning City Logistics Systems. *Transportation Science*, Vol. 43, No. 4, pp. 432-454.

BAITAA F., UKOVICH W. PESENTI R. FAVARETTO D. 1998. Dynamic routing-and-inventory problems: a review. *Transportation Research Part A: Policy and Practice*. Vol.32, Issue 8.

DANTZING G. B., TAMPA N. M. 1997. *Linear Programming: Introduction*. New York: Springer.

DELL'OLMO P., SGALAMBRO A. 2011. The Spatially Equitable Capacitated Multicommodity Network Flow Problem. *Lecture Notes In Computer Science*, Vol. 6701, pp. 196-209.

GAREY M.R., JOHNSON D. 1979. *Computers and Intractability: A Guide to the Theory of NP-Completeness*. New York: W. H. Freeman & Co.

GOLDEN B. RAGHAVAN; WASIL E. 2008. The Vehicle Routing Problem: Latest Advances and New Challenges. Series: *Operations Research/Computer Science Interfaces Series*, Vol. 43, New York: Springer.

JUENGER. M., LIEBLING. Th.M., NADDEF. D., NEMHAUSER G.L., PULLEYBLANK. W.R., REINELT. G., RINALDI. G., WOLSEY. L.A. 2010. *50 Years of Integer Programming 1958-2008. The Early Years and State-of-the-Art Surveys*. New York: Springer.

MARCOTTE P., MERCIER A., SAVARD G., VERTER, V. 1998. Toll policies for mitigating hazardous materials transport risk. *Transportation Science*, Vol. 43, No. 2, pp. 228–243.

TANIGUCHI E., THOMPSON R.G., YAMADA T., VAN DUIN R. 2001. *City Logistics-Network Modelling and Intelligent Transport Systems*. Pergamon.

TOTH P., VIGO V. 2002. *The Vehicle Routing Problem*, SIAM.

WOLSEY L. A. 1998. *Integer Programming*. New York: Wiley.

SUMMARY

The evolution of optimization models supporting mobility policies and territory development

The evolution of optimization techniques if often hidden in currently used decision making systems and advisory tools that support decision making at policy level. No matter how much system integration and availability of data pushed the innovation, in many cases, like distribution logistic, no practical results could be achieved without the improvement in algorithms design we have seen in the last decades. Such algorithms, integrated in a Geographical Information System to support land development plans, or in a smartphone to give personalized mobile services to tourists, make it possible to obtain answers to complex decision problems in reasonable time, not because of computational power of the processors, but for the efficiency of the solution methods. In the paper, we attempt to follow the main steps of optimization algorithms giving some examples of their impact in managing problems related to mobility and territory.

Paolo DELL'OLMO, Full Professor, Sapienza University of Rome, Department of Statistical Sciences, paolo.dellolmo@uniroma1.it

CARSHARING FOR TOURISTS

Romeo Danielis, Lucia Rotaris, Eva Valeri

1. Introduction

Carsharing[1] is a model of car rental where a person rent a car for a short period of time, often by the hour. Cars are rented by an organization, such as a commercial business, a public agency or a cooperative.

Historically, carsharing has started in Zurich, Switzerland, in 1948 by a community of people who thought that a car should not be a private but a "common" good to be shared with others and owned by the community, both for moral and economic reasons. Nowadays, even in Switzerland, this "radical" spirit is much weaker and carsharing is a commercial enterprise, run by private or public organizations (the former are more common in North America, the latter in Europe, as one would expect) with the help of sophisticated technological booking and charging systems.

In the UK the term "carsharing" is often known as "car clubs", whereas the term "carsharing" is also used for carpooling or ride-sharing. However, strictly speaking, the terms "carpooling" or "ride-sharing" refers to the shared use of a private car for a specific journey, in particular for commuting to work, by people who travel together to save on fuel costs. The term "car club" in the U.S. refers instead to a club of car hobbyists. Since, the term carsharing is internationally gradually gaining currency, it will be used throughout the paper.

It is also worth underlining that carsharing is different from traditional car rental service. The difference lies in its historical background and motivations and as well as in its organization. As for the motivations, carsharing is often motivated by social and environmental aims, as it will be discussed below, such as reducing car traffic, improving the modal split, reducing parking space needs, improving environmental quality while preserving flexibility and accessibility.

With regards to the organizational aspects, carsharing differs from car rental since:

[1] The term carsharing (earlier often written as two separate words, and still today occasionally hyphenated) is now the widely accepted international term.

- Users are members of a club and have been pre-approved to be admitted to the program;
- Reservation, pickup, and return is self-service;
- Vehicle locations are distributed throughout the service area, and often located for access by public transport;
- Carsharing time window is 24h a day and is not limited to office hours;
- Vehicles can be rented by the minute and by the hour, not only by the day as with the rent service;
- Insurance and fuel costs are always included in the rates;
- Vehicles are not always serviced after each use, although certain programs such as Car2Go (Vancouver, Canada) continuously clean and fuel their fleet.

The literature on carsharing is growing rapidly. Some of it tracks the growth and expansion of carsharing (Shaheen et al. 1998, 2006, 2009; Shaheen and Cohen 2007). Other research focuses on administrative or logistical aspects of running a carsharing organization (Kek et al. 2009; Fan et al. 2008; Shaheen et al. 2003; Barth et al. 2003; Barth and Shaheen 2002). A number of important contribution study the actual usage of the carsharing vehicles (Morency et al. 2008) and how the adoption of carsharing impacts VKT and vehicle ownership (Cervero et al. 2007; Lane 2005; Cervero and Tsai 2004; Cervero 2003). It is generally concluded that carsharing organizations provide a net reduction in VKT (Shaheen et al. 2006).

A further stream of research has performed with a detailed demographic analyses of those who have chosen to join a carsharing service (Millard-ball et al. 2005, Burkhardt and Millard-Ball 2006). It is found that the propensity to use carsharing is higher in urban residential locations, with people typically in their 30s and 40s, belonging to smaller households, with an high educational attainment, who have a concern for environment, and are willing to be an ‘‘early adopter’’.

Other studies have investigated the familiarity with the concept of carsharing and the willingness to accept it (Nobis 2006; Loose et al. 2006) with the aim of providing carsharing agencies with attractive fare structures, of understanding effective advertising strategies, and of determining the best neighborhoods to locate their carsharing vehicles (Celsor and Millard-Ball 2007).

With regards to the market potential of carsharing from the current niche market to a much larger market, some discussion has been taking place. The carsharing companies include in their promotional website a section, and sometimes also a software, that estimate the potential cost savings that one can achieve through carsharing based on the annual kilometers travelled (City Carshare 2010; Zipcar 2010, ICS[2]). The ability of carsharing of providing financial cost savings is thought

[2] http://www.icscarsharing.it/

of as a decisive factor. However, although financial savings could be an interesting starting point, forecasting the potential demand for car sharing requires a much deeper understanding of which factors enter the decision making process between carsharing and car ownership and how these can be applied to a specific area, with specific travel patterns, traffic conditions, traffic regulations and public transport supply.

In the scientific literature, an interesting application is provided by Schuster et al. (2005) who developed a complex simulation model that uses recorded travel patterns to predict the adoption of carsharing in Baltimore. They assumed the adoption of the Flexcar program in use in March 2004 in the nearby Washington, D.C., metropolitan area. It consists in an annual membership fee of $25, an hourly rate of $9, and a mileage fee of $0.35. They estimate that carsharing would be chosen 1,474 out of 35,500 trials, or 4.15 ± 0.10% of the time. Such values would drop to 3.69 ± 0.09%, when it is taken into account that some people love expensive and prestige vehicles. Since such values are comparable to the area transit mode share, which was 5.7%, they conclude that carsharing may prove a useful part of an integrated strategy to reduce the negative effects of auto dependence.

Catalano et al. (2008) present a carsharing demand estimation for urban transport using stated preference techniques for the Italian city of Palermo. Estimating a nested logit model, they predict for carsharing a traffic share between 5-10%, compared to about 40% for the private car and about 30% for public transport.

Ciari et al. (2009) discuss how a carsharing scheme should look like in order to grow from the current niche market to a large-scale scheme (defined as at least 5% of the relevant global fleet). They argue that such a scheme should be based on concepts such as the capillarity of the system, its flexibility and its integration with other urban mobility systems. They also stress the need for a methodology allowing a realistical assessement of the carsharing market potential and suggest that the adoption of an agent based approach. As a framework to model such a large scale carsharing scheme they proposed to use MATSim-T, an existing agent based traffic micro-simulation tool (Ciari, 2010).

Ducan (2010) seeks to quantify the market potential of carsharing in the San Francisco Bay Area, defined as its ability to provide cost savings to those who adopt it in contrast to vehicle ownership. The result is that a significant number (approximately more than a million people) of the Bay Area households own a vehicle with a usage pattern that carsharing could accommodate at a lower cost. Such number is still a minority of the total number of car users in the Bay Area, but much larger than the current number of carsharing member across the entire U.S.

Despite these optimistic forecasts, the actual size of the carsharing market is still quite small, although it shows huge growth rates.

Mastretta and Burlando (2007) report that in 2006 worldwide the total number of vehicles available for carsharing was equal to 11,696, two thirds of them located in Europe. The total number of carsharing members was equal to 347,910, with a ratio of 1 vehicle for every 30 members. More recent estimates (Shaheen et al. 2009), report that, in July 2008, the North American carsharing market had grown to 33 operators with 318,838 members and 7,505 vehicles collectively, that represents a threefold increase in membership and twofold increase in vehicles. Mobility, the Swiss carsharing organization, states to have 2,600 vehicles in 1,300 locations in Switzerland. In Italy, ICS reports to have in September 2011, 599 vehicles in 404 parking places and 17,925 members, located in 12 Italian cities.

Although the growth rate is impressive, the absolute size of the market is insignificant compared to the number of car circulating worldwide: consequently, carsharing is still a niche market. Moreover, in the assessment of the carsharing demand evolution is important to consider also the size of the supply of carsharing. There exist areas of great potential development of carsharing services but actually with a limited range of services (e.g., Rome) (ICS 2005). Furthermore, barriers to carsharing market entry are consistent around the world.

However, there is a great deal of discussion on the potential of carsharing, which is described as an important innovation for mobility.

In the literature on carsharing various potential market segments have been identified and targeted such as residential neighborhoods, business communities, college students and low-income families (Shaheen et al. 2009), to this list we add tourists. Tourists represent an interesting target group because they visit locations, to be preserved from an environmental point of view, which are far away from their hometown, often leaving their private car at home or without having the possibility of bringing their private car (when the location is too far away or in a different continent). However, they have stringent mobility needs: they often wish to visit as many locations as possible in as little time as possible in order to maximize the benefits of traveling. When the sites to visit are far apart and public transportation is not available with the necessary frequency and flexibility, the use of a car is very convenient.

When a tourist does not drive by his\her private car to the tourist destination, a car may be available as a taxi with a local taxi driver (in some cases rented even for an entire day), or via a car rental service, to be picked up at the airport or at the train station. The availability of a carsharing service is an additional possibility. It can compete with the previous ones in terms of costs and flexibility depending on its cost structure and service organization and on the tourists' needs and characteristics, as we will discuss below.

A further aspect which needs to be stressed is that the existence of a carsharing service may be beneficial not only from the private point of view of the tourist but also from the one of the tourist location. As locations compete among each other to attract tourists, the availability of a carsharing services could enhance the attractiveness of a location. Tourists know that a wide array of mobility options are at their disposal and that the accessibility of all interesting sites is guaranteed with an effective mean of transportation. This may even influence their choice on how to reach a location. If a carsharing service is available at the destination, driving their private car might be a discarded option in favor of flying or of riding a train, enhancing the environmental sustainability of the trip from the tourist home-town to their destination.

Even more interestingly, if the tourist destination is environmentally sensitive, the carsharing services might consist in low- or zero-emission vehicles such as an electric car which provides very limited noise and zero pollution emissions when the car is used. In turn, ”green” cars might strengthen the attractiveness of the destination and can be used as a marketing tool to signal a special attention to tourism sustainability. Mountain areas, parks or islands might even take a stronger stance and prohibit the use of private cars unless they are not up to certain environmental standards.

This paper presents a simulation model to predict potential carsharing demand for tourists. This model is based not only on transport characteristics but also on tourist and destination issues and mobility pattern. With reference to the transport related characteristics we consider both the transport mode to arrive in the location and that used at the destination to visit touristic places. The framework of our model is adaptable to different size of the study area (city, region and island).

The data are taken from the literature and adapted to Italy.

This paper is organized as follow. After an introduction a synthetic list of international experiences on carsharing for tourists are reported in section 2. Section 3 and 4 report respectively our simulation model’s framework and application, highlighting basic assumptions and results. Section 5 concludes the paper.

2. Carsharing for tourists: some examples

Carsharing services aimed at tourists are already a reality in many places. A simple Google search conducted in June 2012 revealed these examples:

- Green car-sharing by the hour at Hawaii hotels[3];Car Sharing - Official website Milan Tourism[4];
- Car Sharing Vancouver for tourists[5];
- Plan your route/ Car hire & CarSharing, Chur Tourismus, Hotel[6];
- Mobility - Car sharing - Themes - Nyon Region Tourism[7];
- Travelling & Car Sharing Llanarmon[8].

These examples prove that carsharing might be a useful addition to the services provided to tourist and a factor of attractiveness for the hotels or tourist locations that offer these services. But will the service be used? By how many and by which tourists? And what is their willingness to pay for the service? How should the service and the tariff structure be designed in order to be successful? Is the service going to be economically sustainable from a private and a social point of view?

In order to answer these questions and to advise private firms or public agencies on whether and how to organize the service, we believe that a simulation model might be a useful tool. Therefore, such a model and some numerical simulations will be presented below.

3. A simulation model

A simple simulation model to estimate the potential demand for a carsharing service by tourists is illustrated in Figure 1.

The model is made up of three components.

The first component contains the socio-economic and context variable, such as the ones capturing:

---

[3] www.springwise.com/tourism_travel/greencarhawaii/ - United States 30th August 2010 in Automotive, Tourism & Travel. Hotels and car-sharing are a natural fit.

[4] www.turismo.milano.it. A Car Sharing service, managed by several companies operating in Milan, is available. This is an innovative service that allows you to choose your vehicle.

[5] Vancouver Tourist. www.vancouvertourist.com/content/car-sharing-vancouver - Vancouver has 3 car sharing companies called car2go, ZipCar and Modo.

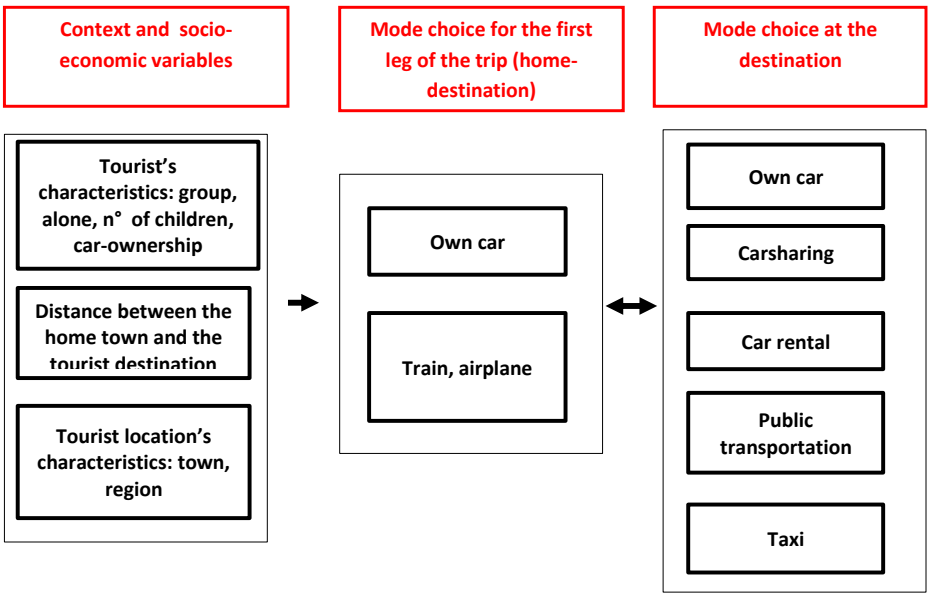
[6] www.churtourismus.ch/en/.../plan-your-route-car-hire-carsharing/ - CarSharing with Mobility is the clever way to be mobile. Mobility has 2300 vehicles at your disposal at 1150 stations throughout Switzerland. 24 hours a day.

[7] www.nyon-tourisme.ch › Home › Topics - Car sharing is the clever way to be mobile. Whenever you want – without the commitments that owning your own car entails. Mobility has 2'500 vehicles waiting

[8] www.llanarmon.com/en/tourism-and.../travelling-car-sharing/ Home Tourism & Business Here. Travelling & Car Sharing.

- The socio-economic characteristics of the tourists: age, income, number of people travelling together, number of children travelling, and so on;
- The variables describing the trip that needs to be made between the town of residence and the tourist destination: distance, geographical characteristics (intra-continental, inter-continental, island), means of transport available, and so on;
- The characteristics of the tourist destination: city, countryside, number of locations worth-visiting, means of transport available, and so on.

Figure 1 – *Flow chart of the simulation model*



The second component describes the transport choices available for the trip from the hometown to the tourist destination, that is the modes of transport available and their cost and time characteristics. We include also the car, assuming that the distance and geographical characteristic of the trip make it possible.

The third component describes the transport choices available at the tourist destination to visit the various tourist sites of interest, that is the modes of transport available and their cost and time characteristics. The private car, the taxi, carsharing, car rental and public transport are assumed available. We exclude bike and walking due their marginal role.

The next paragraph will present a numerical simulation assuming different parameters and specifications for the total transport cost functions depending on the transport mode chosen for the home-destination trip and for the trips on the tourist site.

4. A numerical simulation

4.1. Assumptions

Let us assume that the socio-economic and context variables are the following.

- Distance between home and tourist destination: 500 km, 1000 km, which could be travelled also by car;
- Type of destination: City, Region. The City is a metropolitan area with sites of interest spread in many urban and suburban locations (e.g., Rome). The Region (e.g., Sicily) contains several sites of interest at reasonable distance from the hotel where the tourists are lodged;
- Car ownership: Yes, No. The tourist may or may not own a private car.
- Number of people traveling: 1 (single), 3 (family).

Mobility at destination

Let us also assume the following holiday characteristics and mobility patterns at the tourist destination.

- Length of the holiday: 1 week;
- N ° of days: 5;
- Number of visits during the week: 7;
- Distance in km from the hotel to sites visited: 2 km (in City), 30 km (in Region);
- Number of days of use of car rental during the week: 5;
- Time needed for a visit: 4 h (in City), 6 h (in Region).

We provide now the list of the formulas used in the model and of the parameters' values assumed. The latter are as realistic as possible, considering the May 2012 prices in Italy. Whenever there is uncertainty or we wanted to perform sensitivity analysis a stochastic value is assumed and provided.

Route from home to destination

Auto costs = auto monetary cost + auto travel time cost
auto monetary cost = cost of petrol per km * km driven
cost of petrol = 0.2 €/km
cost of travel time = travel time in hours * value of travel time
travel time in hours = 4 (for 500 km), 8 (for 1000 km)
Value of time: 5 €/h (normally distributed with standard deviation equal to 1).

This value is based on the empirical literature which suggests a 20€/h value for the commuting trips. Since during holidays, there is less time pressure and tourists might benefit for the travelling activity itself, we assumed the 5 €/h value to be reasonable. Since relevant uncertainties, do exist and since the value of time might differ among tourist, a normal distribution of the value of time is assume with a standard deviation equal to 1. Similar stochastic values are assumed below when uncertainties exist and where sensitivity analysis for the variable is of interest.

Train costs = train monetary cost + train time cost

train monetary cost = train cost per km * km traveled by train
Train ticket = 0.1 €/km
train time cost = travel time in hours * value of time
travel time in hours = 5 (for 500 km), 10 (for 1000 km)

Air costs = air monetary cost + air time cost

air monetary cost = monetary cost of air ticket
monetary cost of ticket = 300 € (for 500 km), 350 € (for 1000 km)
air cost of the time = air travel time in hours * value of time
air travel time in hours = 3 (for 500 km), 4 (for 1000 km)

Carsharing

Total cost of carsharing = membership cost + journey cost + hourly cost + time cost to reach the carsharing pod
Membership cost = 5 €/week
journey cost = cost per kilometer*distance driven

Cost per km = 0.28 €/km (normally distributed with standard deviation equal to 0.05)
cost per hour = 0.375 €/h (normally distributed with standard deviation equal to 0.1)
time cost to reach the carsharing pod= time to reach the carsharing pod*value of time
time to reach the carsharing pod = 0.2 h

Private car

Total cost of private car use = fuel cost + private car parking costs
private car parking costs = hourly parking cost *parking time
hourly parking cost = 1 €/ h

Public transport

Total cost of public transport = ticket cost + cost of the extra-ticket waiting time at stops
Tickets cost € = 1.5 (in town), 3 € (in region)
cost of the extra-ticket waiting time at stops = extra waiting time at bus stops * value of time
extra waiting time at stops = 0.8 h (in City), 3 h (in Region) (normally distributed with standard deviation equal to 0.1)

Car rental

Total cost of car rental = Daily cost of car rental + fuel cost
daily cost of car rental = 47 €
Taxi
Total cost of taxi = Fixed rate + taxi cost per km
Fixed rate = 3.2 €
Cost per km = 1.03 €

4.2. Results

By running 100,000 simulations for the stochastic normally distributed variables and with the above reported parameters one gets the results illustrated in Table 1.

Table 1 – *Mode choice probability (percentages) for the first part of the trip (hometown-tourist destination) and for the mobility at the destination, based on 100,000 simulative runs.*
Note: C=City, R=Region, CS=Carsharing, PT=Public transport, CR=Car rental

Distance	Desti-nation	Auto Own.	N° pers.	Car only	Train + CS	Train + PT	Train + CR	Trai + taxi	Air + CS	Air + PT	Air + CR	Air + taxi
500	C	SI	1	0	99	1	0	0	0	0	0	0
500	R	SI	1	0	26	74	0	0	0	0	0	0
1000	C	SI	1	0	99	1	0	0	0	0	0	0
1000	R	SI	1	0	26	74	0	0	0	0	0	0
500	C	SI	3	100	0	0	0	0	0	0	0	0
500	R	SI	3	100	0	0	0	0	0	0	0	0
1000	C	SI	3	100	0	0	0	0	0	0	0	0
1000	R	SI	3	100	0	0	0	0	0	0	0	0
500	C	NO	1	0	99	1	0	0	0	0	0	0
500	R	NO	1	0	26	74	0	0	0	0	0	0
1000	C	NO	1	0	99	1	0	0	0	0	0	0
1000	R	NO	1	0	26	74	0	0	0	0	0	0
500	C	NO	3	0	99	1	0	0	0	0	0	0
500	R	NO	3	0	26	74	0	0	0	0	0	0
1000	C	NO	3	0	99	1	0	0	0	0	0	0
1000	R	NO	3	0	26	74	0	0	0	0	0	0

The following comments are in order.

If, as assumed, it is feasible to bring one's own private car at the tourist destination (provided one is an car owner), the use of the private car for all trips appears to be the best choice when a group of 3 persons travel together, both when the tourist destination is 500 or 1000 km away from the hometown, since the monetary cost component of travelling by train and airplane more than offset the

value of the longer time component of travelling by car. The opposite is true when one person travels on his\her own.

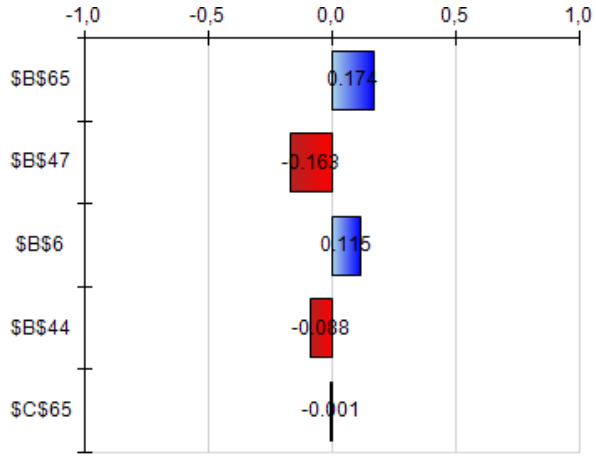
Quite surprisingly, carsharing appears to be 99% of the times the best choice when the tourist destination is a City, whereas only 26% of the times when the tourist destination is a Region. The reason has to do with the assumed carsharing cost structure. In a city, the trips are shorter, hence the distance and use costs are lower than the public transport costs, the latter suffering not so much from the ticket cost but from the extra-time assumed to be needed because of the its insufficient frequency and accessibility relative to carsharing. In a Region, on the contrary, the cost of the longer trips proved to be so expensive to counterbalance the frequency and accessibility insufficiencies of public transport.

Taxi and car rental appeared to be in all examined circumstance inferior choices.

Similarly, for the first leg, given the high cost of the air ticket for domestic flight, air is never the chosen alternative.

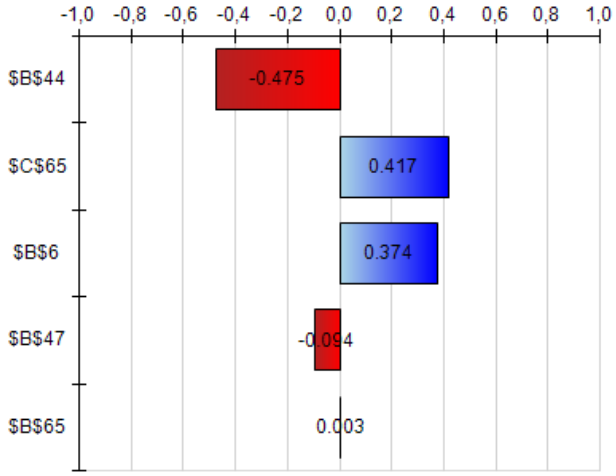
It is also of interest to perform a sensitivity analysis of the estimates provided in order to appreciate how the results depend on the various variables. Two interesting results are reported below.

Figure 2 - *Dependent variable: the probability of choosing the combination Train + Carsharing, when the tourist area is a City, 5oo km away from hometown.*



Notes:_Independent variables by correlation importance: B65 – Public transport-extra-time in a city, B47 – Carsharing-hourly cost, B6 – Value of time, B44 – Carsharing-distance cost per km, C65 – Public transport-extra-time in a region.

Figure 3 - *Dependent variable: the probability of choosing the combination Train + Carsharing, when the tourist area is a Region, 5oo km away from hometown*.



Notes: Independent variables by correlation importance: B44 – Carsharing-distance cost per km, C65 – Public transport-extra-time in a region, B6 – Value of time, B47 – Carsharing-hourly cost, B65 – Public transport-extra-time in a city.

In Figure 2, the dependent variable is the probability of choosing the combination Train + Carsharing, when the tourist area is a City, 500 km away from hometown. Keeping all variable constant and changing one at the time the variables assumed stochastic, Figure 2 reports the correlation between the dependent and independent variable. Both the sign and the size is of interest. The stochastic variable coded B65 – Public transport-extra-time in a city results negative (as expected) correlated with the highest correlation level, followed by the variables B47 – Carsharing-hourly cost, B6 – Value of time, B44 – Carsharing-distance cost per km, C65 – Public transport-extra-time in a region.

On the contrary, in Figure 3, the dependent variable is the probability of choosing the combination Train + Carsharing, when the tourist area is a Region, 5oo km away from hometown. The stochastic variable coded B44 – Carsharing-distance cost per km results negative (as expected) correlated with the highest correlation level, C65 – Public transport-extra-time in a region, B6 – Value of time, B47 – Carsharing-hourly cost, B65 – Public transport-extra-time in a city.

The less predictable result is the one relative to the value of time: the higher the more likely the tourist would use carsharing. Most probably, high income, busy tourists are the most likely users and benefiters of a carsharing service. Unfortunately, time pressure seems to be a feature of modern tourism.

5. Conclusions and future research

The paper discussed the possibility of introducing a carsharing service in a tourist area to enhance the mobility alternatives available to tourists, to improve the accessibility to the sites of interest, to increase the location attractiveness and, in some instances, to preserve the quality of the environment. We showed that such a possibility is already implemented in some locations.

In order to evaluate the potential demand and the economic sustainability of such a service, which could be implemented both by private and public organizations, a simulation model might be useful since it allows to design the service with the most convenient tariff and organizational structure.

A generic simulation model is then presented and parameterized with data relative to Italy and some results are derived. As the model is not specific to a city or a region, the results present no level of generality. However, the model implementation and the numerical simulations performed in this paper allowed us to structure the problem and to test which variables mostly affect the potential demand for carsharing by tourists.

For a full implementation of the model, we feel that the following steps would be needed:

- enhance the model with additional quantitative and qualitative variables (the latter estimated in monetary terms);
- describe with greater detail and differentiation the socio-economic and context variables;
- apply the model to a specific case study;
- fit the continuous or discrete stochastic variables with values coherent with the specific case study.

The above steps would allow developing a useful decision support system for private or public decision makers. With this more sophisticate framework then we could explore policy options through simulations in order to promote the most efficient and useful (mixed) mode of transport A plan of specific public policies are essential to support the creation and implementation of a new and more sustainable transport system. In this context, policy-makers play a crucial role. It is necessary to develop all these aspects together.

References

BARTH M., SHAHEEN S. 2002. Share-use vehicle systems: framework for classifying carsharing, station cars, and combined approaches, *Transp. Res. Rec.*, No. 1791, pp. 105–112.

BARTH M., TODD M., SHAHEEN S. 2003. Intelligent transportation technology elements and operational methodologies for shared-use vehicle systems, *Transp. Res. Rec.*, No. 1841, pp. 99–108.

BURKHARDT J., MILLARD-BALL A. 2006. Who is attracted to carsharing?, *Transp. Res. Rec.*, No. 1986, pp. 98–106.

CATALANO M., LO CASTO B., MIGLIORE M. 2008. Car sharing demand estimation and urban transport demand modelling using stated preference techniques, *European Transport \ Trasporti Europei*, No. 40, pp. 33-50.

CELSOR C., MILLARD-BALL A. 2007. Where does carsharing work?: Using geographic information systems to assess market potential, *Transp. Res. Rec.*, 1992, pp. 61–69.

CERVERO R. 2003. City Carshare: first-year travel demand impacts, *Transp. Res. Rec.*, No. 1839, pp. 159–166.

CERVERO R., GOLUB A., NEE B. 2007. City Carshare: longer-term travel demand and car ownership impacts, *Transp. Res. Rec.*, No. 1992, pp. 70–80.

CERVERO R., TSAI Y. 2004. City Carshare in San Francisco, California: second-year travel demand and car ownership impacts, *Transp. Res. Rec.*, No. 1897, pp.117–127.

CIARI F. 2010. Estimation of Car-Sharing Demand Using an Activity-Based Microsimulation Approach: Model Discussion and Preliminary Results, *Conference paper Swiss Transport Research Conference* (STRC).

CIARI F., BALMER M., AXHAUSEN K. W. 2009. Concepts for a large scale car-sharing system: Modeling and evaluation with an agent-based approach, Transportation Research Board Annual Meeting 2009 Compendium of Papers, Washington.

CITY CARSHARE: RATES AND SAVINGS. 2010. Accessed 1 May 2010. http://www.citycarshare.org/ratesandsavings.do

DUNCAN M. 2011. The cost saving potential of carsharing in a US context, *Transportation*, No. 38, pp. 363–382.

FAN W., MACHEMEHL R., LOWNES N. 2008. Carsharing: dynamic decision-making problem for vehicle allocation, *Transp. Res. Rec.*, No. 2063, pp. 97–104.

INIZIATIVA CAR SHARING – ICS. 2005. Monitoraggio del programma nazionale car sharing – Rapporto di Valutazione, giugno.

KEK A., CHEU R., MENG Q., FUNG C. 2009. A decision support system for vehicle relocation operations in carsharing systems, *Transp. Res. E*, No. 45, pp.149–158.

LANE C. 2005. PhillyCarShare: first-year social and mobility impacts of carsharing in Philadelphia, *Transp. Res. Rec.*, No. 1927, pp. 158–166.

LOOSE W., MOHR M., NOBIS C. 2006. Assessment of the future development of car sharing in Germany and related opportunities, *Transp. Rev.*, No. 26, pp. 365–382.

MASTRETTA M., BURLANDO C. 2007. *Il car sharing: un'analisi economica e organizzativa del settore*, Milano: Franco Angeli.

MILLARD-BALL A., MURRAY G., SCHURETER J., FOX C., BURKHARDT J. 2005. Carsharing: Where and how it succeeds, *TCRP Report*, n. 108, Washington.

MORENCY C., TREPANIER M., MARTIN B., (2008). Object-oriented analysis of carsharing system, *Transp. Res. Rec.*, No. 2063, pp. 105–112.

NOBIS C., (2001). Carsharing as key contribution to multimodel and sustainable mobility behavior: carsharing in Germany, *Transp. Res. Rec.*, No. 1986, pp. 89–97 .

SCHUSTER T., BYRNE J., CORBETT J., SCHREUDER Y. 2005. Assessing the potential extent of carsharing: a new method and its implication, *Transp. Res. Rec.*, No. 1927, pp. 174–181.

SHAHEEN S., COHEN A. 2007. Growth in worldwide carsharing: an international comparison, *Transp. Res. Rec.*, No. 1992, pp. 81–89.

SHAHEEN S., COHEN A., CHUNG M. 2009. North American carsharing: a ten-year retrospective, Transportation Research Board Annual Meeting 2009 Compendium of Papers, Washington.

SHAHEEN S., COHEN A., ROBERTS J. 2006. Carsharing in North America: market growth, current developments, and future potential, *Transp. Res. Rec.*, No. 1986, pp. 116–124.

SHAHEEN S., MEYN M., WIPYEWSKI K. 2003. U.S. shared-use vehicle survey findings on carsharing and station car growth: obstacles and opportunities, *Transp. Res. Rec.*, No. 1841, pp. 90–98.

SHAHEEN S., SPERLING D., WAGNER C. 1998. Carsharing in Europe and North America: past, present and future, *Transp. Q.*, No. 52, pp. 35–52.

ZIPCAR: SAVINGS CALCULATOR. 2010. http://www.zipcar.com/is-it/savings-calculator.

SUMMARY

Carsharing for tourists

The paper discusses the possibility of introducing a carsharing service in a tourist area to enhance the mobility alternatives available to tourists, improve the accessibility to the tourist sites, increase the location attractiveness and, in some instances, preserve the quality of the environment. Such a possibility is already implemented in some locations. In order to evaluate the potential demand and the economic sustainability of such a service, which could be implemented both by private and public organization, a simulation model is presented and parameterized with data relative to Italy. The model allows testing which tariff and organizational structure is more convenient.

Romeo DANIELIS, DEAMS, University of Trieste, danielis@units.it
Lucia ROTARIS, DEAMS, University of Trieste, lucia.rotaris@econ.units.it
Eva VALERI, DEAMS, University of Trieste, eva.valeri@phd.units.it

URBAN FREIGHT POLICIES AND TOURISM. THE CASE OF OWN-ACCOUNT OPERATORS IN ROME'S LIMITED TRAFFIC ZONE

Edoardo Marcucci, Amanda Stathopoulos, Romeo Danielis

1. Introduction

Almost all Italian cities and town have an historical city centres, built in Roman or medieval times, characterised by narrow and winding lanes, often leading uphill, with a dense housing structure. The charm and liveliness of the city centres depends on the its ability to conciliate the very many urban functions and activities that they host: houses and apartments for the various income groups (often low-income family but with a tendency to "gentrification"); artisan and craftsman activities (carpenters, tailors, watchmakers, jewellers, bakers, plumbers etc.), administrative offices (courts, tax offices); kindergartens and schools; local shops (clothing and shoes, chemists, house appliances) and retailers (bakeries, fruit&vegetables shops, cheese shops, dry food shops, butchers, fish mongers, florists); hotels, bars, restaurants and pizzerias. All these activities generate an strong demand for good supply from the local wholesalers and producers, particularly because they have a very small storage space at the disposal. However, goods distribution in the narrow and winding lanes of the Italian historical city centres is not an easy task: the lorry must be small and the parking places are very limited. Moreover, the interaction between passenger and goods vehicles traffic make congestion almost inevitable, especially at certain times of the day.

On top of all this, tourists enjoy living and visiting the city centres and their many monuments and churches. And in some of the most famous Italian cities (e.g., Rome, Venice, Florence but also Pisa, Siena, Urbino and so on), tourism is the main source of income for the activities located in the city centre. Hence, finding the right balance between goods distribution and tourism is not an easy task.

Urban freight policy-making aims exactly at improving the efficiency of freight movement in cities. It is to be noted that urban freight distribution is performed by

at least these agents: retailers, transport providers and own-account. Hence, an urban freight policy has an impact on complex pre-existent relationships among these agents operating in the distribution chain. The main motivation of this paper is the lack of knowledge concerning the specificities of each agent's behaviour. A thorough understanding of the specificities of each of these agents' needs, concerns and preferences is rarely analysed in current research. This is mainly attributable to the lack of appropriate data, notwithstanding the widely recognized need to analyse the potentially diversified policy effects. These considerations assume a particular interest when considering the intricate and interrelated environment within which the three agents operate. Notably, policy implementation may produce undesired results when behavioural and contextual aspects are not explicitly considered in freight transport in general and in urban freight transport (UFT) in particular. There seems to be no one-size-fits-all policy readily available for implementation (Stathopoulos *et al.*, 2012).

This paper focuses on UFT agent-specific policy analysis, in general, and contributes to filling a knowledge gap by studying own-account operators, in particular, which are among the least studied agents involved in UFT. This lack of attention to this particular agent-type is mainly due to the difficulty in acquiring data concerning their preferences and also to the widely accepted presumption concerning their relative inefficiency often giving rise to penalizing policies specifically aimed at this category. In other words, if the number of this specific agent-type has to be reduced, usually based on un-tested presumptions, why bother studying it? Recent research conducted in Italy (Danielis *et al.*, 2010) shows that the alleged lower efficiency of own-account transport is not always supported by empirical evidence and, even when this is the case, the overall situation is highly diversified among specific freight sectors and supply chains. In other words, policymakers cannot intervene with simple and rough instruments expecting homogeneous impacts and responses. The results of the study reported testify to the presence of relevant heterogeneity among own-account operators and consequently underlines the potentially biased estimates that could ensue from a simplistic study of own-account preferences.

The empirical results reported are derived from a study conducted in the limited traffic zone (LTZ) in Rome's city centre. The analysis is based on a highly detailed and representative data set collecting a wide range of information including both general information on the specific respondent involved and his/her company's characteristics as well as stated ranking exercises where interviewees are presented

with alternative policy scenarios. Drawing on the data collected, the paper reports on the differentiated preference structure for own-account operators. A systematic comparison is performed, via willingness to pay (WTP)/willingness to accept (WTA), between the potentially distorted scenario evaluations deriving from the adoption of a simplified and generic analysis of preferences for own-account operators taken together and an advanced accounting for preference heterogeneity. This allows us to comment on the potentially distorted policy forecasts that would be fed into micro simulation models to evaluate policy impacts.

Various forms of heterogeneity are explored and tested in this paper. The most fundamental and relevant pertains to the attributes included in the utility function of the agents considered. In particular, drawing on previous evidence (Stathopoulos *et al.*, 2011) we assume that the time-windows attribute has a relevant impact only in own-account operators' utility functions. The data collected allow us to analyse, among other characteristics, the impact that belonging to specific urban supply chain has on the attributes used in the policy rankings. Furthermore, adopting a latent class (LC) model specification, we test, for each member-type, for the presence of unobserved classes in responding to the policy mix considered for implementation, again underlining the bias in estimates when adopting simplistic model specifications.

The paper is structured as follows. Section 2 reports a brief overview of the relevant literature concerning agent-type analysis for UFT. Section 3 describes the study context while section 4 reports on the development of the survey instrument and describes data. The econometric results are reported in section 5, while section 6 concludes.

2. Literature review

Aggregate models are typically used when modelling freight. Little attention is usually paid to the critical role that individual actors play in the decision making process. This section reports and discusses recent findings drawn from an increasingly behavioural approach to UFT. In particular, Hensher and Figliozzi (2007) convincingly argue that standard approaches do not account for the complexity of freight movements at different geographical scales thus missing potentially relevant motivations for current scenarios. Behavioural models, a sub-set of disaggregate models explicitly consider stakeholders' utility maximization

efforts. One has to identify key decision makers to develop a modelling framework adopting an agent-based micro-simulation approach capable of describing and forecasting the behaviour of the specific actors involved (Liedtke and Schepperle, 2004). Several authors (Gray, 1982; Wisetjindawat *et al.,* 2005; de Jong and Ben-Akiva, 2007; Hensher and Figliozzi, 2007; Samimi *et al.,* 2009; Yang *et al.,* 2009; Roorda *et al.,* 2010) believe UFT is one of the most appropriate fields to develop agent-based micro models.

Policy changes influencing fuel prices, land use patterns and pricing strategies might alter the relative convenience of different UFT options. Puckett and Greaves (2009) argue that it is important to consider jointly both the instruments available to policy makers and the set of attributes influencing freight behaviour to understand the potential impacts that any policy might produce in terms of market outcomes. This is exactly what policy makers like to know *ex-ante* before implementing a given policy. It is important to identify incentives/disincentives with a relevant impact and quantify their bearing on the reference scenario before applying them in a real-life context. To do so one has to pinpoint the type of decision makers involved, discover under which constraints they operate, understand how they interact, and figure out on which set of freight service attributes they finally negotiate. This paper focuses on the role and preference of own-account operators, which in the context we study, plays a relevant role (Danielis *et al.,* 2011).

3. The study context: the roman freight limited traffic zone

The results reported in this paper draws on between March to December 2009 for Volvo Research Foundation in cooperation with Centro Trasporti e Logistica of Sapienza University in Rome and, subsequently, expanded thanks to a MIUR 2008PRIN project. The formal institution of a Limited Traffic Zone (LTZ) in Rome's historical centre dates back to the late eighties. A 5 km^2 area was originally restricted to non-resident vehicles where the bans on traffic now apply both to passenger and freight vehicles. A specific legislation characterizes the 4 km^2 LTZ area in the historical centre where only Euro 1 and later vehicles are allowed to enter with free access awarded only to residents while others (e.g. retailers and freight carriers) pay an access fee. The scheme, enforced by cameras and optical character recognition software, operates during daytime and the yearly permit costs

€ 565 per number plate. Specific time window regulations, especially aimed at own-account operators, apply for access and parking of freight vehicles. Nonetheless, a wide range of exemptions applies to third party freight operators[1].

Indeed, the regulation is essentially designed to foster the use of third account operations while discouraging lengthy parking of own-account vehicles given the shortage of on-street parking. Time windows are, alas, not systematically enforced.

4. Development of the survey instrument

Receivers, carriers and forwarders are, traditionally, considered essential stakeholders in UFT system analysis (Ogden, 1992). The survey concentrate on studying three main supply chain agents: carriers, retailers and own-account operators. The first two are well identified in the literature while stakeholder consultations carried out by the authors suggest considering own-account operators as well (Stathopoulos *et al.*, 2011). First of all, one has to define, select, develop and customize the attributes to include in the stated ranking exercises. We report the evolution from stakeholder consultation to attribute definition while highlighting and motivating which specific attributes were included in the final questionnaire design. Indeed, the level of joint policy *ex-ante* acceptability was the main criterion for attribute inclusion. Subsequently, we describe how each attribute was defined, structured in levels and ranges and progressively differentiated by agent type to account for real-world agent-type specific constraints and preferences. The attribute selection drew on results deriving from previous stakeholder surveys. The following sections overview the attributes included, describe their characterization and motivates our following steps.

4.1. Attributes included in the Stated Ranking Exercise

Each alternative in the stated ranking exercises is described by a set of attributes that can take several levels to describe ranges of variation when the alternatives are presented to the respondents. The attributes used were derived from three main sources, namely; a) literature survey; b) previous quantitative studies on city freight distribution in Rome; c) focus group meetings with relevant expert stakeholders.

[1] A synthetic summary of the regulatory regime in place is reported in the Appendix.

We conducted an extensive review of the current literature on city logistics with an agent-based perspective with the intent of identifying a set of potentially conflicting policy components when viewed from each of the different agent-type perspectives[2].

Reviewing previous quantitative studies on city logistics in Rome (STA, 2001; Filippi and Campagna, 2008) and considering the expert stakeholder surveys helped selecting the attributes for the stated ranking exercises[3]. We selected attributes with a high level of shared support with the belief that this would facilitate the introduction and persistence of a given policy (Stathopoulos *et al.*, 2011). The attributes that finally underwent pilot testing with real operators, were: 1) number of loading/unloading (U/L) bays; 2) probability to find L/U bays free; 3) time windows; 4) exemption from time windows; 5) entrance fees; 6) exemptions from entrance fees (Stathopoulos et al., 2011). Each of these six attributes has been on the political agenda for a long period and all were perceived as realistic measures to include in future policy mixes (Marcucci *et al.*, forthcoming).

4.2. Agent-type differentiations

Stated ranking exercise respondent-type differentiations were adopted after piloting with operators. The main agent-type diversification is the inclusion of the time window (TW) attribute only for own-account operators due to an anchoring affect around the *status quo* condition.

Indeed, only own-account operators are de facto facing TW restrictions since carriers, operating as third account, can access the LTZ at all times. The stated ranking exercises choice set consisted of three policy options always including the *status quo* alternative. Agents were asked to rank policy bundles according to their preferences. Table 1 reports an example of a stated ranking exercise.

2 Nighttime deliveries, for instance, were considered efficiency enhancing by carriers but reputed a mere increase in costs by retailers.

3 An important phase of the expert surveys focused on defining the policies considered most appropriate to mitigate the identified UFT problems (Stathopoulos et al., 2011). Volvo Report (2010) provides a detailed overview of the link between the stakeholder survey results and the attributes used in the stated ranking exercises.

Table 1 - *Example of a stated ranking exercise*

	Policy 1	Policy 2	Status Quo
Loading/Unloading bays	400	800	400
Probability to find L/U bays free	20%	10%	10%
Entrance fee	1000 €	200 €	600 €
Time windows open	20:00-10:00/ 14:00-16:00	04:00/ 20:00	20:00-10:00/ 14:00-16:00
Policy ranking			

Table 2 - *Attribute levels and ranges used in the stated ranking exercises*

Attribute	Number of levels	Level and range of attribute (Status Quo underscored)
Loading/unloading bays:	3	400, 800, 1200
Probability of free l/u bays:	3	10%, 20%, 30%
Time windows:	3	OPEN from 18:00 to 08:00 and from 14:00 to 16:00; OPEN from 20:00 to 10:00 and from 14:00 to 16:00; OPEN from 04:00 to 20:00
Fees:	5	200€, 400€, 600€, 800€, 1000€

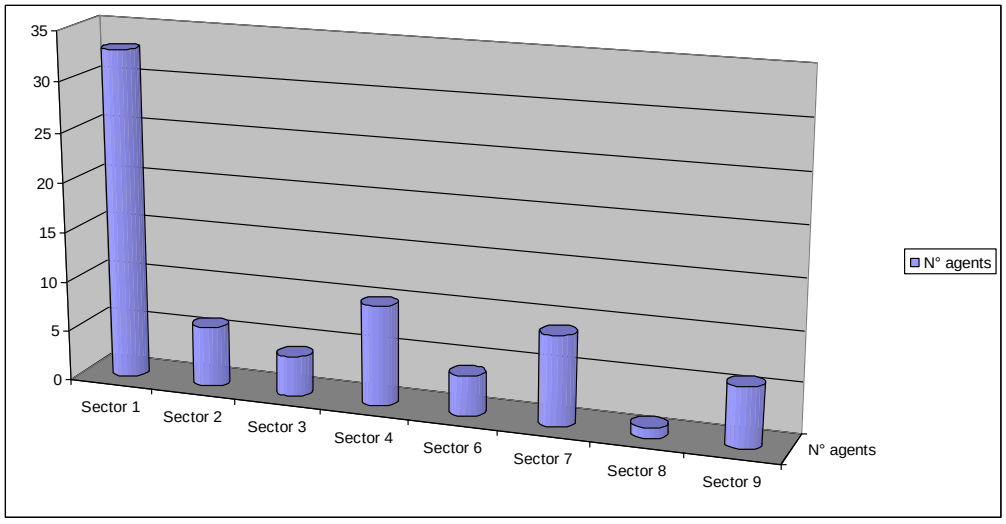
The levels characterizing the attributes should, ideally, be plausible, policy relevant and possible to implement although a choice experiment may also test currently unavailable options (e.g. a new mobility control policy). The attributes, levels, distribution and range are illustrated in Table 2.

All attributes are characterized by at least three levels. This allows testing for potential non-linear effects that are of great importance in particular when evaluating policy reactions since there might be differentiated effects deriving from specific levels.

4.3. Data description

The case study reported is part of a larger study partially financed by Volvo research foundation and MIUR concerning UFT policy definition and implementation.

Figure 3 *– Own-account agent distribution by main freight sector*



Note: The macro sectors reported are the following: 1) food (fresh, canned, drinks, tobacco, bars, hotels and restaurants); 2) personal and house hygiene (detergents, pharmaceuticals, cosmetics, perfumes, watches, barbers, etc.); 3) stationery (e.g. paper, newspapers, toys, books, CDs etc.); 4) house accessories (e.g. dish washers, computers, telephones, metal products etc.); 5) car accessories (e.g. vehicle components, vehicles, gasoline, etc.); 6) services (e.g. laundry, flowers, live animals, accessories and animal food, etc.); 7) clothing (cloth, leather, etc.); 8) construction (e.g. cement, scaffold, chemical products, etc.); 9) other (all that was not included in previous categories).

5. Econometric results

In this section we report the results, for own-account alone, of the models estimated using the data elicited via the stated ranking exercises previously described. The reference model (M1) presents all attributes as linear and

normalized to present the real measurement scale of the attribute. Further specifications report refinements with the intent of emphasizing the potential biases implicitly deriving from a simplified treatment of heterogeneity within the members belonging to this agent-type category[4].

The estimation of a model 1 (M1), reported in Table 3, utilising just normalized variables provides no interesting results[5]. In fact, the statistically significant negative impact of loading and unloading bays (LB) on utility, when dealing with a linear variable passing from lower to a higher one is counter intuitive. The entrance fee (T) attribute has a significant coefficient with the expected sign. Effects coding of the variables is introduced in a subsequent specification of the model (M2) for two reasons. First, we would like to test for the presence of relevant non-linearities in passing from one level to another given the discrete nature of variation of the levels of the attributes used. Second, effects coding avoids confounding the effect of the reference level with the overall mean of the estimated parameters at the cost of constraining their sum to be 0[6]. We report the results of a parsimonious model (M2) with effects coded variables and the number of levels reduced only to the significant ones[7].

To facilitate the interpretation of variables and results, rather than explaining the meaning of each variable we report the logic adopted in assigning the labels. The basic attributes are loading and unloading bays (LB), probability of finding the free (P), access tariff (T) and time windows (TW). The levels of the attributes are reported next, thus LB2 represent the second level of the loading bays attribute and LB23 the second and third level. When reporting sector specific results we indicate the sector last. LB23S2 thus signifies the coefficient of the loading and loading bay attribute for both the second and third level for the second freight sector. All the models reported passed a log likelihood ratio test when comparing a restricted versus unrestricted model test. Detailed results are not reported to space limitations

[4] Not even considering different utility specifications for each of the three member types considered would induce even greater biases. Due to lack of space we do not address this issue even if we are working on a companion paper specifically addressing this issue.

[5] A base model with an alternative specific constant fort the status quo was estimated and no particular difference was detected when compared to the model reported.

[6] On this, and more general estimation issues, please refer to Marcucci (2011).

[7] The level 2 (400) and 3 (800) for the loading bays attribute (LB) were considered as having the same impact on choice given the first results in estimating M1. Consequently we created a new variable denominated LB23 comprising both cases. The same was done for the probability (P) of finding the LB free thus creating the new variable P23.

but are available from Authors upon request.

Table 3a – *Model estimates for M1- M3*

M1			M2			M3		
Variable	ß	ß/S.E.	Variable	ß	ß/S.E.	Variable	ß	ß/S.E.
LB	-0,205	**	LB2	0,042	ns	LB23	0,252	**
P	-0,021	ns	LB3	0,103	ns	P23	0,452	**
T	-0,516	**	P2	0,282	**	T1	1,430	**
TW	0,354	**	P3	0,061	ns	T2	1,114	**
			T1	1,399	**	T3	0,307	**
			T2	1,124	**	T4	-0,791	**
			T3	0,318	**	T5	-2,060	**
			T4	-0,870	**	TW1	-0,497	**
			T5	-1,970	**	TW0	-0,852	ns
			TW1	-0,486	**	TW2	1,349	**
			TW0	-0,855	ns			
			TW2	1,341	**			

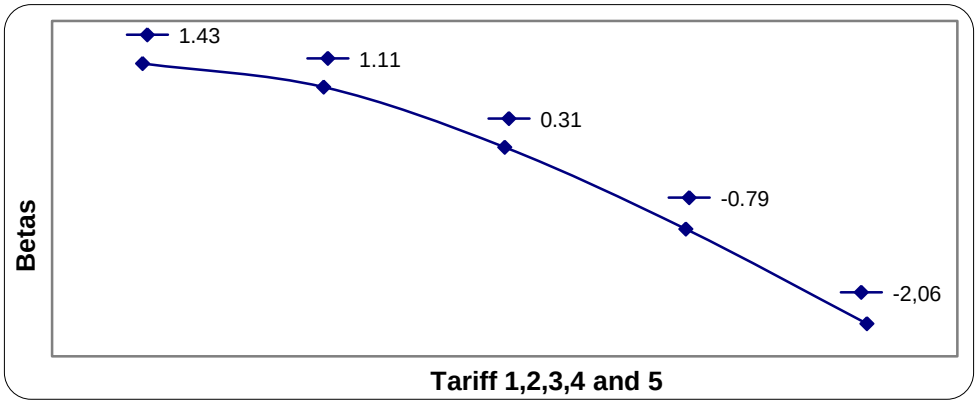
Looking at time window sensitivity there is a notably larger negative coefficient associated with the most unfavourable condition while obtaining the more favourable time window yields less utility. This indicates an asymmetry in preferences where own-account operators are generally more reluctant to accept deteriorated conditions than they are interested in obtaining improvements. Considering the entrance fare each of the coefficients are both statistically significant and different from one another thus indicating a differentiated response to equally distanced level of variation. This can be observed in Figure 4.

Table 3b - *Model estimates for M4- M6*

M4			M5			M6				
Variable	ß	ß/S.E.	Variable	ß	ß/S.E.		Classe 1		Classe 2	
LB23	0,08	0,45	LB23	0,079	0,273	Variable	ß	ß/S.E.	ß	ß/S.E.
P23	0,43	**	P23	0,42	**	LB23	0,61	*	-0,02	ns
T1	1,50	**	T1	1,62	**	P23	0,66	**	0,40	**
T2	1,09	**	T2	1,10	**	T1	1,94	**	1,75	**
T3	-0,29	ns	T3	-0,19	ns	T2	1,95	**	1,13	**
T4	-0,80	**	T4	-0,91	**	T3	0,45	ns	0,14	ns
T5	-2,13	**	T5	-2,26	**	T4	-1,23	**	-0,90	**
TW1	-0,65	**	TW1	-1,33	**	T5	-3,12	**	-2,11	**
TW0	-1,22	ns	TW0	1,29	ns	TW1	-3,15	**	-0,28	**
TW2	1,87	**	TW2	0,04	0,36	TW0	2,85	ns	0,39	ns
LB23_S1	0,32	1,52	LB23_S1	0,36	1,30	TW2	0,30	*	-0,11	ns
LB23_S2	0,32	0,82	LB23_S2	0,33	0,58	LB23_S1	-0,22	ns	0,52	**
LB23_S3	-0,47	-0,97	LB23_S3	-0,54	-0,59	LB23_S2	0,22	ns	0,20	ns
LB23_S7	0,32	0,96	LB23_S7	0,40	0,94	LB23_S3	-0,73	ns	-0,17	ns
P23_S7	0,53	*	P23_S7	0,52	0,97	LB23_S7	1,06	*	0,10	ns
T1_S7	-0,27	-1,21	T1_S7	-0,26	-0,69	P23_S7	0,81	ns	0,51	*
T2_S1	0,14	1,10	T2_S1	0,20	1,05	T1_S7	-0,65	ns	-0,05	ns
T2_S2	0,41	1,32	T2_S2	0,50	0,05	T2_S1	-0,12	ns	0,18	ns
T4_S2	-0,54	*	T4_S2	-0,61	-0,19	T2_S2	0,37	ns	0,33	ns
TW1_S2	0,49	**	TW1_S2	0,53	0,21	T4_S2	-0,71	ns	-0,58	*
TW1_S3	1,15	**	TW1_S3	1,23	**	TW1_S2	0,64	*	0,63	**
TW1_S7	0,25	1,52	TW1_S7	0,24	0,88	TW1_S3	1,61	**	0,59	**
TW2_S1	-0,58	**	TW2_S1	-0,60	**	TW1_S7	0,20	ns	0,20	ns
TW2_S2	-1,36	**	TW2_S2	-1,53	-0,17	TW2_S1	-1,52	**	0,21	ns
TW2_S7	-0,76	**	TW2_S7	-0,87	**	TW2_S2	-1,62	**	-1,22	**
			deviations	random		TW2_S7	-0,93	ns	-0,87	**
			E1	0,39	1,59		Probability of class memmbership			
			E2	0,45	**		Variable	ß	ß/S.E.	
			E3	0,78	**		Prob C1	0,47	*	
							Prob C2	0,53	**	

After various attempts of reconciling parsimony and detail in explanation, other explanatory variables pertaining to the specific freight sector considered were introduced in M3. Several of the different sectors of operation appear to have a statistically relevant impact on sensitivities: P which on average has, for the second and third level of the variable, a mean positive impact of 0,425 instead increases to 1,052 for operators in the garment sector (S7)[8]. Considering TW1, a more restrictive level with reference to the status quo, that, on average, has a negative impact of -1,270 whereas for S2 is equal to -0,785 and -0,117 for S3 and -1,025 for S7. Given the heterogeneous impact of the variable on the overall choice probability it should be expected that a given policy will provoke a differentiated reaction in the 3 sectors with respect to the average response. Similar effects are detectable for a more accommodating TW level (TW2) for S1, S2 and S7. The average 0,744 positive impact drops to 0,160 for S1 and becomes non perceptible for S2 and S7. These considerations suggest great attention when evaluating sector impacts of one-size-fits-all time windows policy.

Figure 4 – *M2 – Non-linearity of the impact of the different tariff levels*



[8] It is important to recall that the variables are effects coded and in order to interpret the coefficients correctly one has to add the value of the base variable (e.g. P23 = 0,425) to that of the sector influence (e.g. P23S7 = 0,527) to obtain the final value of the impact the variable has on utility (1,052).

We also test for the presence of latent factors explaining heterogeneity in preferences by estimating an error component specification that also accounts for the panel structure of the data employed (M4). The model testifies for the presence of such latent constructs that explain heterogeneity in preferences due to correlation among utilities across repeated alternatives. The model fit improves substantially over the previous specifications; no evident differences are detected in the non-linear effects for the T attribute (comparison not reported) while the TW attribute shows a statistical difference (given an overall non-linear effect) in how own-account agents evaluate potential deterioration of the TW attribute. The effect, of a restriction in the TW attribute is in fact larger than in M2 compared to the same estimated value in M3 and M4.

The same specification used for (M4) is employed to search for heterogeneity in the attribute coefficients by using a discrete mixing model (Latent Class) (M5) where we assume that individual behaviour depends on observable attributes and on latent heterogeneity that varies with factors that are unobserved by the analyst. Heterogeneity is introduced by different class probabilities and analysed through a model of discrete parameter variation assuming that individuals are implicitly sorted into a set of classes but where the analyst knows not which individual belongs to which class. The best results are obtained with a 2-class specification. Looking at the results obtained with this better fitting model one realizes that, with an almost proportional and statistically significant probability of belonging to one of the two classes, the impact of a restrictive time window policy that were very similar for M3 and M4 and not too different for M2, *de facto*, should be interpreted as an average of two quite distinct values (-3,153 for class 1 and -0,28 for class 2). Instead the views of improved time-windows converges for the two classes (equal to 0,395). Similar considerations under this respect can be drawn concerning a potential increase (T4 and T5) in the level of the tariff charged for entering the LTZ from the current level. In fact, the impact of T4 and T5 on utility is, on average, respectively equal to -0,858 and -2,119 in M2, M3 and M4. These values may however mask an underlying difference in the perceptions of an increase from the fourth to the highest value. In particular, in the first class of respondents, the disutility increases from -1,2 to -3,1 for the highest fee, compared to a disutility increasing from -0,9 to -2,1 in the second. From these considerations one can infer that the first class has a considerably greater sensitivity to tariff increases and time windows restrictions compared to the second.

Notwithstanding the interesting analysis just discussed, an informative

comparison among the different estimates produced in the different models reported need to be performed to circumvent the possible differences in scale across models. Willingness to pay (WTP) and willingness to accept (WTA) measures are used to pursue this objective. It is important to clarify that it is our intention to preserve the richness of the results obtained in terms of non-linearity discovered in passing from one attribute level to the other. These considerations are particularly important for T (5 levels – 4 variations) and TW (3 levels – 2 variations). It is important to clarify that since we have only ameliorative variations, with respect to the status quo level, for both LB and P in the case of reductions of T levels, in order to interpret the meaning of the coefficients one has to imagine that the value derived represents (in order to have a trade off of some sort) the amount of money the agent would be willing to receive for not having potentially benefited from the increase in the level of the beneficial attribute under consideration.

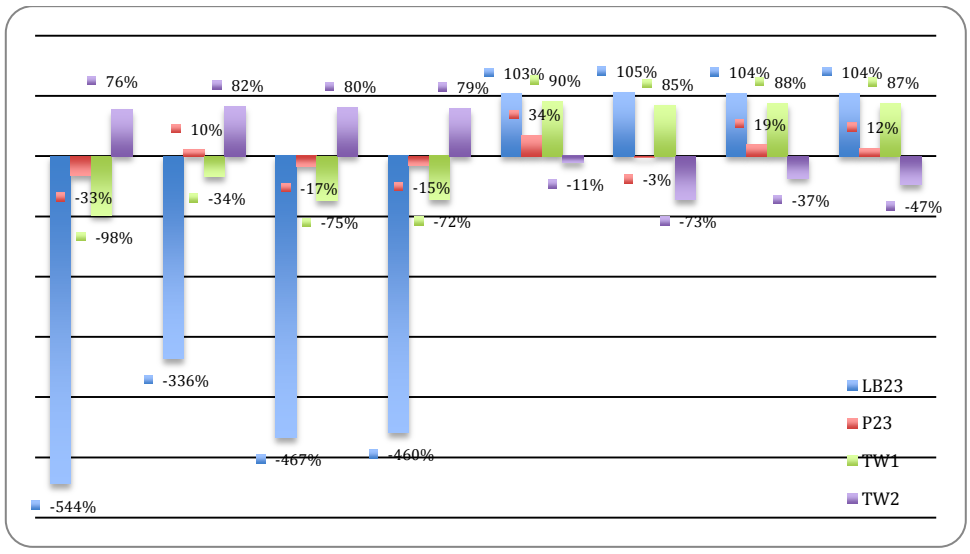
Table 4 – *WTP and WTA for M3, M4, M5C1 and M5C2*

	M3				M4				M5 - C1				M5 - C2			
	T1	T2	T4	T5	T1	T2	T4	T5	T1	T2	T4	T5	T1	T2	T4	T5
LB23	-11	-15	21	8	-10	-14	17	7	-63	-62	99	39	2	3	-4	-2
P23	-57	-76	107	40	-51	-76	92	37	-68	-68	108	43	-45	-70	88	37
TW1	170	227	-318	-119	164	241	-293	-117	324	323	-512	-202	32	50	-62	-26
TW2	-100	-133	187	70	-172	-230	322	121	-41	-40	64	25	-45	-70	88	37

The analysis of table 4 is very useful for identifying both the most relevant attributes for the agents interviewed as well as the potential biases induced by an inadequate treatment of the heterogeneity in the attributes considered and the non linear effect in passing from one tariff level to another. In fact, in M3 the WTP for an extra 200 LB when starting from a tariff of 600€ and increasing it to 800€ is 21€ per year whereas this drops to 8€ per year if the starting tariff is 800€ and is raised to 1.000€. On the other hand, using M3 estimates, would need a compensation of 15€ for not receiving a potential increase of 200 LB when the tariff is reduced from 600€ to 400€ while it is 11€ when the starting tariff is 400€ and is reduced to 200€. Analogous considerations can be performed for all the other attributes and model specifications. Analysing the results reported indicates that there are some important variations in estimates according to which model specification is used but, on the other hand, there are also some stable indications. In particular, it is quite clear that TW are, in general, valued more than LB and P. Moreover,

restrictive measures (TW1) have, in general, a greater impact than accommodating ones (TW2). These results are in line with previous results obtained with the same dataset. For the purpose of the present analysis it is worthwhile comparing the different over or under estimations for each attribute and level considered depending on the given model specification used. In so doing we compare the results obtained with the best fitting model estimated (LC with 2 classes) and the other models. With the intent of facilitating the comparison we report below the percentage variations alone. To focus the comparison we illustrate only the percentage WTP variations between M4 and M5.

Figure 5- *Percentage variations in WTP and WTA between M4 and M5*



Analysing the figure above it is clear that the presence of two latent classes has quite relevant implications in general with respect to the average values of M4 but this is much more pronounced with reference to the LB attribute and less so for P. Notwithstanding the relative biases among the models reported and their implications in terms of policy definition, the magnitude of the WTP/WTA indicates that the most important attributes are TW1, TW2 and P. These considerations are crucial in devising intervention policies since the only

infrastructural variable (LB) seems to play a relatively minor role thus suggesting that local policy makers have relatively inexpensive but powerful ways to intervene to influence own –account operators' behaviour. The results reported show how important and potentially valuable a small investment in applied research can be. Knowledge about specific characteristics helps devising appropriate and focused policies to achieve the desired objectives.

6. Summary, conclusions and future research

This paper has reported the results of a stated ranking exercise performed within Rome's LTZ own-account operators. The main objective of the paper is to underline the role that an appropriate treatment of heterogeneity might have in defining UFT policies and the need to develop sector specific analysis and policies. Local policy makers tend to intervene, for various reasons, with policies that assume homogeneity in reactions to the policy implemented. On the contrary the analysis performed on our data shows that there is relevant heterogeneity in agents preferences not only among the different agent-type considered but also within a single specific category (own-account). Several indications point towards the fact that we should expect differentiated responses to one single policy both in terms of latent classes (M5) as well as in terms of the freight sector involved (M3 and M4).

As for future research we are going to work on 2 companion papers adopting a similar approach but dealing with different agent-type, namely: transport providers and retailers. Subsequently we would like to develop a behaviourally more sophisticated model were we analytically model, following the approach developed in Sydney by Hensher and Puckett in this field, the interaction process whereby we study on which policy intervention two agent-types are going to converge if asked to express a preference.

UFT is surely an interesting field of research, especially when considering the strategic role city and city development play in fostering economic growth, but also a daunting one given all the complex and interrelated economic relations characterising it. However, if one thing has clearly emerged from our research is that ignorance of agents' preferences in UFT is not bliss.

References

DANIELIS R., MAGGI E., ROTARIS, L., VALERI E. 2011. La logistica urbana delle merci a Roma. In XXXII Conferenza italiana di Scienze regionali, Conference Proceedings. www.aisre.it.

DANIELIS R., ROTARIS L., MARCUCCI E. 2010. Urban freight policies and distribution channels: a discussion based on evidence from Italian cities. *European Transport/Trasporti Europei*, Vol. 46, pp.114 - 146.

DE JONG G., BEN-AKIVA M. 2007. A micro-simulation model of shipment size and transport chain choice. *Transportation Research Part B*, Vol. 41, pp. 950-965.

FILIPPI F., CAMPAGNA A. 2008. Indagine sulla distribuzione delle merci a Roma, nell'ambito dello Studio di settore della mobilità delle merci a Roma. CTL: Centre for studies on Transport and Logistics and ATAC: Agency of mobility of Rome's municipality.

GRAY R. 1982. Behavioural Approaches to Freight Transport Modal Choice. *Transport Reviews*, Vol. 2, No. 2, pp. 161-184.

HENSHER D.A., FIGLIOZZI M.A. 2007. Behavioural insights into the modelling in freight transportation and distribution system – guest editorial. *Transportation Research Part B*, Vol. 41, pp. 921–923.

LIEDTKE G., and SCHEPPERLE H. 2004. Segmentation of the Transportation Market with Regard to Activity–based Freight Transport Modelling, *International Journal of Logistics: Research and Applications*, Vol. 7, No. 3, pp. 199-218.

MARCUCCI E. 2011. *Scelte di trasporto e modelli a scelta discreta*. Milano: Franco Angeli,.

MARCUCCI E., GATTA V., STATHOPOULOS A., VALERI E. *(forthcoming).* Analysing Interaction in Urban Freight Distribution: the case of Rome. In MARCUCCI E., (Guest Editor) *Stated Preference Methods for Transport Choice Analysis*, *Italian Journal of Regional Science*.

OGDEN K.W. 1992. *Urban goods movement: a guide to policy and planning*. Ashgate, Aldershot, UK.

PUCKETT S. M., and GREAVES S. 2009. Estimating Policy-Induced Changes in Freight Vehicle Emissions in Sydney. *Institute of Transport and Logistics Studies Working Paper*, The University of Sydney.

ROONDA M.J., CAVALCANTE R., MCCABE S., KWAN H. 2010. A conceptual framework for agent-based modelling of logistics services. *Transportation Research Part E: Logistics and Transportation Review*, Vol. 46, pp.18-31.

SAMIMI A., MOHAMMADIAN A., KAWAMURA K. 2009. Integrating supply chain management concept in a goods movement microsimulation. IEEE International Conference on Service Operations, Logistics and Informatics, July 22 - 24, 2009, Chicago, IL, USA.

STA. (2001). Quadro conoscitivo del problema della distribuzione delle merci nel Centro Storico di Roma. Rome.

STATHOPOULOS A., VALERI E., and MARCUCCI E. 2012. Stakeholder reactions to urban freight policy innovation. *Journal of Transport Geography*, Vol. 22, pp. 34-45.

STATHOPOULOS A., MARCUCCI E., VALERI E., GATTA V., NUZZOLO A., COMI A. 2011. Urban Freight Policy Innovation for Rome's LTZ: A Stakeholder Prospective. In MACHARIS C., MELO S (Ed.) City Distribution And Urban Freight Transport: Multiple Perspectives, Edward Elgar Publishing Limited, Cheltenham, pp. 75-100.

VOLVO REPORT 2010. Innovative solutions to freight distribution in the complex large urban area of Rome, Final report, project SP-2007-50. Mimeo.

WISETJINDAWAT W., SANO, K., MATSUMOTO S. 2006. Commodity Distribution Model Incorporating Spatial Interactions for Urban Freight Movement. *Transportation Research Record: Journal of the Transportation Research Board* 1966, pp. 41-50.

YANG C. H., J., CHOW Y. J., REGAN A. C. 2009. State-of-the Art of Freight Forecasting Modeling: Lessons Learned and the Road Ahead. Proceedings, 88th Annual Meeting of the Transportation Research Board, Washington DC, 11–15 January 2009.

SUMMARY

Urban freight policies and tourism. The case of own-account agents in Rome's limited traffic zone

Finding the right balance between goods distribution and tourism in the Italian historical city centres is not an easy task. Urban freight policy-making aims exactly at improving the efficiency of freight movement in cities. It is to be noted that urban freight distribution is performed by at least these agents: retailers, transport providers and own-account. Hence, an urban freight policy has an impact on complex pre-existent relationships among these agents operating in the distribution chain. The main motivation of this paper is the lack of knowledge concerning the specificities of each agent's behaviour. This paper focuses on agent-specific policy analysis in the Limited Traffic Zone of Rome, of notable importance for the touristic attractiveness of the city. The analysis is based on a highly-detailed and representative data set collecting a wide range of information including both general information on the specific respondent involved and his/her company's characteristics as well as stated ranking exercises where interviewees are presented with alternative policy scenarios. Drawing on the data collected, the paper reports on the differentiated preference structure for own-account operators. A systematic comparison is performed, via willingness to pay/willingness to accept between the potentially distorted scenario evaluations deriving from the adoption of a simplified and generic analysis of preferences for own-account operators taken together and an advanced accounting for preference heterogeneity. This allows us to comment on the potentially distorted policy forecasts that would be fed into micro simulation models to evaluate policy impacts.

Edoardo MARCUCCI – DIPES/CREI, University of Roma Tre, Rome, Italy, edoardo.marcucci@uniroma3.it
Amanda STATHOPOULOS – TRANSP-OR, GC B3 454 (Bâtiment GC) Station 18, CH-1015 Lausanne amanda.stathopoulos@epfl.ch & CREI.
Romeo DANIELIS, DEAMS, University of Trieste, danielis@units.it

THE RELEVANCE OF THE CONCEPT OF CAPACITY FOR THE MANAGEMENT OF A TOURIST DESTINATION: THEORY AND APPLICATION TO TOURISM MANAGEMENT IN VENICE

Jérôme Massiani, Giovanni Santoro

1. Introduction

Tourism is usually seen as a local and regional development driver, but its growth could imply an excessive pressure on the environment or the cultural heritage of a destination, altering the social and economic conditions and modifying the quality of life for the local population. Moreover, the negative impacts of tourism could have an effect on the attractiveness and competitiveness of a destination.

In this context, the management of tourism flows becomes a central policy issue. This issue is often dealt with through the concept of tourist carrying capacity, or capacity "tout court" which expresses how many visitots can be acceptable in a given destination (Coccossis H., Mexa A., 2004). The UNWTO - World Tourism Organisation has defined the tourism carrying capacity as the maximum number of people that may visit a tourist destination at the same time, without causing destruction of the physical, economic, socio-cultural environment and an unacceptable decrease in the quality of visitors' satisfaction (1981).

The purpose of this article is to investigate how tourism management can help in achieving a sustainable touristic development considering a significant case study: Venice. In order to shed light on this issue, we first consider how the notion of capacity can be helpful (or instead misguiding) to evaluate to consequences of tourism. Second, we examine how the concepts of tourist capacity and tourism management actually fit with the Venice context. Third, we present a tool actually implemented in Venice based on an original definition of capacity and early booking discounts to avoid peak loads. We also, discuss the potential and limitations of such a system.

2. The notion of tourism capacity: a problematic concept

We first review the different concepts and definition of tourism capacity, and subsequently discuss the limits and critics to the notion.

2.1. A multifaceted concept

There are many definitions of the concept: Middleton and Hawkins (1998) define carrying capacity as a measure of the limit beyond which an area may suffer from the adverse impacts of tourism. Chamberlain (1997) defines it as the level of human activity an area can accommodate without the area deteriorating, the resident community being adversely affected, or the quality of visitors experience declining. Clark (1997) defines carrying capacity as a certain threshold level of tourism activity beyond which there will occur damage to the environment, including natural habitats (Trumbic I., 2001 in EC, 2002).

The three most commonly known and used definitions of carrying capacity are the physical one, the economic one and the social one. However Pearce (1989) suggested the existence of two other concepts of carrying capacity: environmental and perceptual or psychological. Related to the concept of carrying capacity is the process of tourism planning which defines it as the maximum acceptable level of tourist development in an area.

The physical dimension involves defined capacity in terms of limits to the pressure an area is able to support, involving all components of the natural environment as well as the infrastructure systems (for example, the number of users per unit of time that can visit a particular resource). From an operational point of view, the physical capacity is implemented through specific institutional and legal limits applied in relation to the kinds and the characteristics of the resource.

The economic dimension primary refers to all the economic measures employed to stimulate or to manage the tourism development and it determines the capacity of a resource - or of a system as a whole - using as only parameters costs, benefits and income. In operational terms, this dimension of capacity is difficult to determine for the entire system (a tourism destination) due to the lack of information and data. The social dimension aims at quantifying the optimal tourist flow by measuring the impacts of tourism on the local community (individuals and public institutions) from different points of view (for exampleavailable manpower or trained personnel, the sense of identity of the local community or the tourist experience) and it relates to the negative socio-cultural impacts of the tourism development: the local tolerance for tourism, the visitor enjoyment and the increase of crime.

From a more pragmatic point of view, the determination of a carrying capacity often mixes the several dimensions defined below. Beyond any definition and any categorization, in fact, the carrying capacity approach involves a set of issues which include the three basic dimensions cited above: physical-ecological, socio-demographic, political-economic. These dimensions reflect also the range of issues considered in practice (EC, 2002).

It is the case of the socio-economic carrying capacity that may be defined as the total number of visitors that can be allowed without hindering the other functions that the city performs. This dimension is closely linked to the phenomenon of crowding out (Van der Borg J., 2001 in EC, 2002).

The physical-ecological dimension comprises both fixed (the capacity of natural systems expressed occasionally as ecological capacity, assimilative capacity, etc.) and flexible (the infrastructure systems and their characteristics, like water supply, sewerage, electricity, transportation, postal and telecommunication, health services, law and order services, banks, shops and other social services) components of the natural and built-cultural environment as well as infrastructure.

The socio-demographic dimension refers to those social aspects which are important for the local communities in relation with the tourism development: for example, available manpower or trained personnel, the local community sense of identity, the tourist experience, etc. The political-economic dimension refers to the impacts of tourism on the local economic structure, and activities, including competition to other sectors.

As can be observed, the notion of capacity, or its more specific form of carrying capacity, is used with a variety of definitions. This ambiguity, together with other limitations have generated critics which are discussed more in detail in the next section.

2.2. A criticized notion

The notion of tourism carrying capacity has been criticized both from a conceptual and a practical point of view (Buckley, Wagar, Washburne, McCool, and Stankey).

A first critique is that the elements on which the carrying capacity of a tourism destination is based are often taken as stable, while they are often mutable. Another critique relates to the fact that the level of tourist experience quality is subjective, which makes any quantification of the touristic experience vain. A third critique relates to the feasibility of management measures: the level of control necessary to manage an area with the rules based on carrying capacity is likely to be impossible in the "real world".

UNESCO warns that the practical application of the concept of tourism carrying capacity can give the wrong signal, pointing out that that the whole site may be below carrying capacity while a part of it may be crowded (Pedersen A., 2002).

McCool and Lime (2001) pointed out that the concept of recreation carrying capacity relies on a number of assumptions that often are unsupported form an operational point of view and this raises questions about the objectives of tourism and protected area management actions. The conditions required to compute a carrying capacity are rarely achieved: there may be specific and infrequent situations where a capacity estimated in terms of economic variables may be appropriate but these economic variables are usually not to be thought as "binding" constraints but rather as the outcome of an equilibrium (consider for instance the capacity of restaurants or the sewage system of an area), that can thus be changed through investment.

McCool and Lime also stress the fact that continuing attempts to quantify carrying capacities of tourism destinations in presence of largely untested and often implicit assumptions compel a critical assessment of both the scientific foundations of quantified carrying capacities and their practical implementation.

One of the paradigms developed to respond to the limits of the carrying capacity approach relies on the limits of acceptable change. Based on the visitor management concept, this framework recognizes that any tourist activity has an impact and that the local authority has to monitor constantly the area and implement a process in which, according to its objectives, a limit to the number of visitors is just one among the tools available.

Another framework developed is the visitor impact management approach which focuses on the impacts of visitors, and is usually location specific, The visitor impact management technique establishes what are considered to be unacceptable visitor impacts, determines the likely cause of these impacts and sets in motion a series of actions to address the problems (Glasson et al., 1995 in EC, 2002), implemented through an iterative process of monitoring, with a comparison between indicators and standards and the identification of alternative management options if standards are not met..

2.3. Evolution of tourism capacity concepts

The focus of carrying capacity approach has shifted from the idea of determining a maximum number of users towards the achievement of desirable conditions and the identification of limits of acceptable change (Coccossis H., Mexa A., 2004) and from the measurement of a phenomena toward its perception. This change puts the carrying capacity approach in a process that does not aim at providing a unique number, but the definition of many different capacities, each

one corresponding to a given management goal. Another change of the original theory is the shift from the maximum number of visitors to the optimal one, aiming at the maximisation of net benefits.

However, the correct measurement of tourism carrying capacity raises some other issues: carrying capacity is easier to define in delimited areas; its effective implementation depends on different factors, such as the role of actors, the consensus of the stakeholders and other cultural elements; it needs to be flexible and "tailor made" for the area under consideration, moreover it has to be monitored constantly.

Carrying capacity often translates into operative actions (EC, 2002): traffic regulation, limits to free access, limits to specific activities, concentration or dispersion of tourist flows and pressures, land use/spatial planning measures, economic tools such as pricing, taxes and incentive schemes, organizational tools such as booking system, information management, education, training and market control

To conclude the concept of tourism capacity in general, and the more specific concept of tourism carrying capacity, have gone through a process of refinement from a single criteria measurement toward a multidimensional definition. Taking into account this evolution, one may now analyse how it can be helpful to assist for the design of touristic flow management policy in a specific context. We elected Venice as an emblematic case, in that it combines a delicate built environment with a intensive touristic flows.

3. Tourism pressure and impacts in Venice

We first provide quantitative evidence on the impact of tourism in Venice. Subsequently, we analyze different estimates of Venice touristic capacity and finally we explore the measures that have been proposed or taken to cope with this issue.

3.1. The pressure of tourism in Venice

Visitor arrivals have developed dramatically in Venice: in 1949, less than 400.000 tourists were coming to Venice corresponding to 1 million overnights in the city. With a progressive and constant growth, by 1977 these figures had risen to 1 million tourist arrivals and 2 million overnights; by 1994, it reached 1,4 million arrivals and 3 million overnights; by 2004, 1,7 million arrivals and 4,4 million

overnights. Nowadays (2011) the center of Venice hosts 2,5 million of tourist arrivals and more than 6 million of overnights[1].

Moreover the tourists staying overnight in Venice center's accommodations are only part of the total visitors' number: in addition to the ones staying in the mainland or Lido, the visitor pressure is increased by excursionists staying in other parts of the north-east of Italy. In 1991, excursionists were estimated to be 6 million (Canestrelli and Costa, 1991). In 1996, COSES estimated the number of excursionists[2] as 7,4 millions. COSES also conducted a survey for the years 2006, 2007 and 2008 on visitor's transit in the city terminal discovering that the global number of visitors (excursionists + tourists) grew to 20-22 millions[3].

Currently, the historic city has an average of 50-60.000 visitors a day which is nearly the resident population (COSES, 2007-2009) and, in some respects, the recent growth in cruise-ship traffic (short-term high-volume excursionists) has also placed additional strains on the city's tourist infrastructure.

3.2. Problems of overcrowding in Venice?

The increasing pressure of tourism, in particular of day-tripping which seems to be more costly and/or less beneficial than tourists, is progressively de-qualifying Venice as a tourist destination. Russo (2002) highlighted that the tourists' motivations for visiting cultural attractions of Venice puts the city in the latter stage of the resort life cycle - nearing stagnation and decline.

Montanari and Muscara (1995) recognized that Venice was saturated at key times in the year, most of all in the Easter and Summer periods, when more than 60.000 persons/day (with picks of 100.000) visit Venice. Moreover, Montanari and Muscara (1995) recognized an increasing competition between inhabitants and visitors in the use of space within the historic city: up to 34% of the public space in the main itineraries and squares is used by visitors and 49% by residents, but during special events, the use by visitors increases to 56%. Since 1987, in some particular days of the year, the bridge connecting Venice to the mainland (Ponte della Libertà) has been closed to visitors as an extreme form of flow management.

[1] Source: www.comune.venezia.it

[2] This also includes the so-called « fake excursionist » who actually stay overnight on the mainland.

[3] The global visitor market is segmented in tourist as guest of accommodations the in historic city and excursionist as visitor of Venice who does not spend a night in its accommodations; moreover, this second group is composed by day tripper as visitor of historic city who comes from and goes back home in a day, false excursionist as guest of accommodation elsewhere whose stays' motivation is to visit Venice, indirect as visitor who are on holiday elsewhere and has a day trip to Venice and in transit as visitor who are travelling to-or-from holiday destination and has a short stop in Venice.

Yet, Russo (2002) noticed that the city did not manage visits effectively (and it is likely to be still true nowadays): the time tourists spent on queuing at most attractive venues leads to lost opportunities to see lesser-known cultural attractions, increasing the congestion in the city's main points of interests. Russo (2002) highlighted that the average duration of day-trips was eight hours and many tour operators promoted day trips rather than overnight stays. The "socio-economic impact" of tourism in Venice was calculated by Costa, Gotti, van der Borg (1996) through the visitor-resident ratio in comparison with a number of other European heritage cities. In the historical centre of Venice the ratio was calculated in 89:1 while for the wider Venice municipality[4] this dropped to 27:1.

The existence of such a pressure and the consequent conflicts between local and touristic needs have pressed for the definition of an adequate capacity and have urged for the implementation of adequate measures to manage the flows.

3.3. Evaluation of Venice touristic capacity

However, it was not until 1988-1991 that the first quantitative study on measuring the carrying capacity was performed proposing the linear programming method to quantify the carrying capacity of Venice. Unlike other models which are not systemic and analyse single aspects separately, the Venice's carrying capacity model takes into account all the constraints that characterize the carrying capacity: the physical one, the economic/financial one and the social one.

To estimate the carrying capacity of the historical centre of Venice, Costa and van der Borg (1988) and Canestrelli and Costa (1991) set up a mathematical model that includes the parameters of a future visitor management plan. These authors translated the conflict between tourism and other functions into a fuzzy linear programming model that maximises the income from tourism under capacity constraints. These constraints take into account, for example, the availability of accommodation, catering facilities, parking facilities, intra-urban transportation, waste disposal services and the space available in Saint Mark's Cathedral.

The maximisation program defined by Canestrelli, Costa and van der Borg for the city of Venice is recognized as the only one that estimates different capacities and condenses them into a single measure. Although there is a large body of literature on sustainable tourism, most of it relates to rural and coastal rather than urban areas (Felziani and Miarelli, 2012). Van den Berg, van der Borg and van der Meer (1995) within their comparative investigation into the role and function of tourism in eight European cities approached sustainability of tourism pointing out the existence of a "minimum limit" , while Costa, Gotti e van der Borg studied the

[4] Which also comprises some mainland areas and other islands.

impact of tourist flows on various medium-sized cities of art in Europe ("Visitor flows in cities of art" research programme 1990-1996, CISET and UNESCO) and provided guidelines on how to intervene effectively to manage tourist flows.

Canestrelli, Costa and van der Borg found that in the case of Venice, the historical city can support about 25.000 visitors per day, of which about 15.000 tourists and 10.000 excursionists (the model tends to give priority first to tourists and then - if there is still capacity available - to excursionists): the optimal carrying capacity for the historic city of Venice would be to admit 9.780 tourists who use hotel accommodation, 1.460 tourists staying in non-hotel accommodation and 10.857 day trippers on a daily basis, than rounded (by excess) to 25.000 visitors[5].

Research quoted by Costa and van der Borg (1993) showed that every day in August the city hosted around 37.800 day trippers alone in the late 1980s, while even in 1987 the 25.000 capacity was already being exceeded on 156 days. On 6 days they found the number even exceeded 50.000 visitors. Furthermore van der Borg forecast that by the year 2000 the figures of 25.000 would be exceeded 216 days a year, while on 7 days the number would exceed 100.000 tourists, four times the supposed maximum capacity. According to an estimate of CISET, in 2000, the global number of visitors (tourists + excursionists) in Venice amounted to 11 million with a daily average of 30.000, indicating that the prospect indicated by van der Borg was substantially confirmed.

Moreover, the model indicated that the optimal visitor mix differed from the one hosted by Venice and that the overall pressure from tourism exceeded the capacity of the system. As Costa, Gotti and van der Borg (1996) observed that the negative external effects connected with the overloading of the carrying capacity were rapidly increasing and tourism was becoming increasingly ineffective for Venice: excursionists, who contribute less to the local tourism economy than staying visitors, were twice as much as the tourist overnights.

Glasson et al. (1995) summarized the problem of seeking to manage visitors and their environmental impact in Venice: every city must be kept as accessible as possible for some specific categories of users, such as inhabitants, visitors to offices and firms located in the city, and commuters studying or working in the city. At the same time, the authors claim, the art city needs to be kept as inaccessible as possible to some other user categories (the excursionist/day-trippers in particular).

[5]Also if the environmental carrying capacity (concerned with preservation) and the economic carrying capacity (concerned with economic gain) have different values, the 25.000 figure could represent a useful benchmark.

3.4. Tourism pressure in Venice: some possible solutions

Faced with tourist flow exceeding the different possible capacity definitions, one has to consider which management tools could effectively be used to cope with this issue.

Montanari and Muscara (1995) argued that Venetian water transport plays a major role in tourism within the city and could be used to manage visitors, while Russo (2002) argued that the better matching of tourism demand with the available supply of attractions through improved marketing and information would bring some economic benefits to the city.

Since 2000, a number of measures have been enacted to address the saturation of the historic city by day visitors including denying access to the city by unauthorized tour coaches through restriction in the access to the main coach terminal. Moreover, differential pricing was implemented in public transport and parking to discourage excursions.

Finally, the introduction of the Venice Card in 2004 to give pre-booked visitors priority access to attractions has been another move toward touristic flow management. This card should have been free of charge and facultative, giving considerable discounts and offering visitors access to museums and attractions that would otherwise remain closed to them. In the original idea, the card should have been turned into a sufficiently strong incentive to stop people making last minute travel decisions and to start planning their visit to the city. The number of cards available should have been equal the Venice's carrying capacity and residential tourists should automatically have received a card with the reservation of hotel accommodation. However, in order for such a system to work, a high amount of cooperation, coordination and public-private partnership was and is still necessary between the different stakeholders of the system.

Unfortunately, many of the systems proposed and set up to manage tourist flows in Venice were put aside few years later, principally for political reasons, even to give them the time to face a real start up period. Moreover, one of the evidence is that not just a system but a coordinate set of tools could better manage tourism in Venice.

4. A model for the management of tourist flows in Venice

In this section, we present a model for the evaluation and management of touristic flows in Venice. While answering to all the limitations of carrying capacity concept is out of the scope of this article, we posit the proposed approach is a progress compared to pre-existing studies in that: it relies on a univocal

quantification of capacity based on the notion of physical throughput of the different paths toward city center[6] and on the safety criteria for the number of persons simultaneously present in Saint Mark Square. This approach reflects the peculiar geography of tourism in Venice that combines a strong attraction toward Saint Mark square and constrained access through a network of (sometimes narrow) accesses.

In its basics, the approach relies on the definition of two cordons conditions. First, the flow toward the centre cannot exceed the sum of the capacity of the different itineraries toward the centre. To implement this condition, information on the network geography and on the tourists' behaviour has been gathered. It allowed the identification of:

- 3 itineraries for people reaching the centre coming from the railway/bus/parking terminals area.
- 1 itinerary from San Marco east side mainly dedicated to people staying overnight in Venice and using water coaches coming from two secondary terminals (Tronchetto and Punta Sabbioni).
- 1 itinerary for people using waterway navigation to reach the area.

While one may argue that there are some other itineraries available to reach city centre, interviews with expert, systematic recognition of possible itineraries and direct field recognition confirm that the fraction of tourists using other itineraries is negligible.

Thus, summing these different itineraries sets a limit to the number of people that physically can access the centre.

$$K^{center} = \sum_{i=1}^{I} K_i \quad (1)$$

where K^{center} denotes the capacity (people per unit of time) of the access to city center and, K_i the capacity of each access.

The second constraint relies on the occupancy rate of Saint Mark's square. The relevant criteria here cannot be based on merely physical limitations: people could be massed up to virtually 6 persons/m^2, but would this make sense? A more reasonable approach is to take inspiration from safety regulations in use in public venues, which relate the maximum occupancy of a given venue with the size and number of accesses. Regulation (Decree 19 August 1996) state that the maximum occupancy of an open air venue, depend on the number access (considering how many 0,6 "module" exist in each access). Then, one can count the different

[6]City center is defined here as the area including and surrounding Saint Mark square for a few hundred meters. It does not adhere to the local tradition of calling "centro città" the insular part of Venice city that also expands to the mainland. We choose to do so to make the concept more understandable to non venetian.

accesses to the area and apply the ratio provided by regulation to obtain the number of people that can simultaneously occupy the area.

$$k^{sm} = \sum_{a=1}^{A} k_a \quad (2)$$

with k^{sm}, capacity (number of people simultaneously present) of Saint Mark's square, k_a is the capacity provided by each access to the San Marco area.

This number can subsequently be translated into a number of visitors per period of time by taking into account the average duration of stay in the square (derived from information given by the tour operators). Thus:

$$K^{sm} = k^{sm}/\delta \quad (3)$$

With K^{sm}, capacity in Saint Mark's square (number of person per unit of time), δ average duration of stay in the area.

While we recognise that safety conditions is only one among the different aspects of touristic flow management, it constitutes a bidding and univocal criteria that is, in our view, helpful to decision makers.

4.1. Residual capacity

Once a satisfactory estimate of the capacity is available one has to make a provision for use of the capacity by local population. Even if Venice centre has a strong touristic focus, it should still allow for the use by residents. In its most extreme form, that will be adopted here because of its adherence to policy maker view, this means that only capacity in excess to local population needs should be made available to tourists. Taking into account that the "tourist" vs. "local" population is too coarse we use the categorization proposed in the table below.

Table 1 *–Population categories for the management of touristic flows*

Category	Population
Local population (priority):	Inhabitants Owners of holiday homes Students Commuters
Touristic population:	Tourist Excursionists

Thus, when taking into account the various populations, one can use a relation as follows:

$$Kt = \text{Min}\left(K^{center} - \sum_{p=1}^{R} C_p^{Center} ;\ K^{sm} - \sum_{p=1}^{R} C_p^{sm} \right) \quad (5)$$

with K_t is the capacity available for tourists, C_p^{Center} and C_p^{sm} are the capacities consumed by the local population in the access to city center and Saint Mark. This calculation results in a residual capacity of 110 000 tourists for the peak 6 hours. The different results obtained are detailed on Table 1.

Table 2 *– definition of the residual capacity for the touristic use*

	Access to city Center	San Marco
Total Capacity (6 h./ day)	170 000	150 000
Used by local population	60 000	10 000
Residual capacity:	110 000	130 000

4.2. Management of tourist flows

Once an estimate of capacity available for tourists is computed, one needs to set up operational measures to manage the flow. In our application this relies on the use of discount for tourists booking outside of the peak periods. More in detail, the model entails two sections: First a forecast of the number of tourist that would arrive in Venice in the "no policy" situation; second, a booking tool that offers discount for trips outside the forecast peak. We subsequently review these two different parts of the management tool.

The no policy flows are forecast based on two factors: calendar and special events (like Carnival, Architecture Biennale, Art biennale). Based on an archive of 50 years of tourist flows, one can disentangle the effect of these two factors and propose an estimated number of visitors for each day. Subsequently, one can classify the days according to whether the no policy flow would exceed the touristic capacity. In order to provide extra flexibility another threshold is considered where the touristic capacity is not exceeded but where it is approached[7]. Together these two thresholds define three tariff classes.

The pricing policy is implemented through discounts offered on a number of products mainly related to public amenities and services (public transport). The prospect, is, in a later stage, to enlarge the scope of the booking policy to other, non public, operators.

[7]This second threshold is defined by the average flows of the days that do not exceed the capacity.

5. Conclusions

In this paper we have reviewed the use of tourism capacity (whether carrying capacity or capacity tout court) for the management of tourism flows in Venice.

As far as conceptual issues are concerned, we find that the notion of capacity conveys a number of controversial aspects. While the recognition of the multidimensional aspects of the capacity certainly makes the concept richer and more relevant it also tends to weaken it and creates an indeterminacy: one needs to choose among the different dimensions or to create aggregation rules which will arguably appear discussible.

The concept also involves some weaknesses in terms of its use by the policy maker. Apart from the obvious objection that the indeterminacy of the concept opens the door to potential misuse (not to say manipulation), the more fundamental issue is that tourism flow management usually have strong negative outcomes for a limited number of stakeholders while it has limited/indirect benefits for a large number of stakeholders (and/or the environment). In these conditions, there is a consubstantial weakness in the political feasibility of tourism management, as strong interest could easily create coalition against.

Bearing this in mind, we have constructed a tool for the management of tourism flows in Venice that is based on the access to the city center and Saint Mark Square. This instrument can be, and is actually, used to implement booking policies that allow to shift some of the demand to non peak periods.

While this instrument is an advance toward a better management of tourism flows, our analysis suggested us that tourism management policy should have a global vision of the tourism system and could take inspiration as well from other tools of the economists. This relates mainly to the interest of using "compensatory" approaches to flow management, while the concept of capacity is, by nature, non compensatory. Thus, one could consider how the application of evaluation techniques, for instance Cost-Benefit Analysis could be of major relevance for tourism policy.

References

BUCKLEY R. 1999. *An ecological perspective on carrying capacity*. Annals of Tourism Research, Vol. 26, No. 3.

CANESTRELLI E., COSTA P. 1991. *Tourist carrying capacity: a fuzzy approach*. Annals of Tourism Research 18.

CHAMBERLAIN K. 1997. Carrying capacity, UNEP Industry and Environment 8. Paris: UNEP.

CLARK J. 1997. *Coastal Zone Management Handbook*. Boca Raton: Lewis Publishers.

COCCOSSIS H., MEXA A. 2004. The Challenge of Tourism Carrying Capacity Assessment. Theory and Practice. Aldershot: Ashgate Publishing Limited.

COSTA P., GOTTI G., VAN DER BORG J. 1996. *Tourism in European heritage cities*. Annals of Tourism Research, 23.

COSTA P., VAN DER BORG J. 1988. *La determinazione della capacità di carico turistica di Venezia*. COSES Informazioni, 32/33.

COSTA P., VAN DER BORG J. 1993. *The management of tourism in cities of art*. TRC Meeting (Tourist Research Centre), Östersund, Sweden, April 1993.

FELZIANI V., MIARELLI M. 2012. *How Many Visitors Should there Be in the City? The Case of Rome*. Canadian Center of Science and Education. Review of European Studies, Vol. 4, No. 2.

GLASSON J., GODFREY K., GOODEY B., ABSALOM H., VAN DER BORG, J. 1995. Towards Visitor Impact Management: Visitor Impacts, Carrying Capacity and Management Responses in Europe's Historic Towns and Cities. Aldershot: Avebury.

MCCOOL S.F., LIME D.W. 2001. *Tourism Carrying Capacity: Tempting Fantasy or Useful Reality?*. Journal of Sustainable Tourism, Vol. 9, No. 5.

MCCOOL S. F., STANKEY G.H., CLARK R.N. 2007. *An assessment of frameworks useful for public land recreation planning*. Gen. Tech. Report GTR-705. Portland: Pacific Northwest Research Station.

MIDDLETON V.C., HAWKINS R. 1998. *Sustainable Tourism: A Marketing Perspective*. Oxford: Butterworth-Heinemann.

MONTANARI A., MUSCARA C. 1995. *Evaluating tourist flows in historic cities: The case of Venice*. Tijdschrift voor Economische en Sociale Geografie, 86.

PAGE S.J. 1995. *Urban Tourism*. London: Routledge.

PAGE S.J. 2007. *Tourism Management. Managing for Change*. Oxford: Elsevier Ltd.

PEARCE D.G. 1989. *Tourist Development*. New York: Longman Scientific.

PEDERSEN A. 2002. Managing tourism at world heritage sites. Paris: UNESCO.

RUSSO A.P. 2002. The "vicious circle" of tourism development in heritage cities. Annals of Tourism Research, 29.

SWARBROOKE J. 1999. *Sustainable Tourism Management*. Wallingford: CABI Publishing CAB International.

UNIVERSITY OF THE AEGEAN - DEPARTMENT OF ENVIRONMENTAL STUDIES, LABORATORY OF ENVIRONMENTAL PLANNING 2002. *Defining, Measuring and Evaluating Carrying Capacity in European Tourism Destinations. Material for a Document*. Commissioned by the European Commission, Directorate-General for Environment, Nuclear Safety and Civil Protection. Athens.

UNWTO 1981. *Saturation of Tourist Destinations*. Report of the Secretary General, Madrid.

VAN DEN BERG L., VAN DER BORG, J., VAN DER MEER J. 1995. *Urban Tourism: Performance and strategies in eight European cities*. Avebury, Aldershot.

WAGAR, J.A. 1974. *Recreational carrying capacity reconsidered*. Journal of Forestry, No. 72.

WASHBURNE R.F. 1982. Wilderness recreation carrying capacity: Are numbers necessary? Journal of Forestry, No. 80.

SUMMARY

The relevance of the concept of capacity for the management of a tourist destination: theory and application to tourism management in Venice

Tourism is usually seen as a local and regional development driver, but its growth could imply an excessive pressure on the environment or the cultural heritage of a destination, altering the social and economic conditions and modifying the quality of life for the local population. Moreover, the negative impacts of tourism could have an effect on the attractiveness and competitiveness of a destination.
In this context, the management of tourism flows becomes a central policy issue. This issue is often dealt with through the concept of tourist carrying capacity, or capacity "tout court" which expresses how many visitors can be acceptable in a given destination

The purpose of this article is to investigate how tourism management can help in achieving a sustainable touristic development considering a significant case study: Venice.

Jérôme MASSIANI, University of Venice, j.massiamn@unive.it
Giovanni SANTORO University of Venice.

TOURIST DESTINATION COMPETITIVENESS: THE ROLE OF COOPERATION

Cristina Mottironi, Magda Antonioli Corigliano

1. Introduction

Territories are key in tourism. In years of growing debate on the role of local factors for economic development and of territorial marketing, tourism represents an election field of application of territorial theories. It is affirmed that, unlike any other economic sector, the peculiar tourism product is not a single commodity or service but a whole destination (Murphy et al., 2000; Ritchie and Crouch, 2003). Obviously, if the perspective of the supplier is taken into consideration, the tourist product is simply the single commodity supplied – be it a bed space, a meal, or a guided tour. However, visitors buy the different elements in order to compose their vacation experience. As a result, the tourist product is widely defined as an amalgam, starting from Medlik and Middleton (1973). It is within the destination that the majority of tourism resources, goods and services are provided and experienced, and the destination collects most of the tourist consumption and of the economic and non economic effects of tourism (Antonioli 1999; Murphy et al. 2000; Candela e Figini 2010).

The attractiveness of places, that largely depends – even though not exclusively - on the quantity and quality of their resources, is an essential prerequisite for their tourism development. Nonetheless it is increasingly recognized that the resource endowment is not sufficient: a growing number of destinations is adopting sophisticated strategies to attract visitors, beyond the traditional promotional activities. This is paramount in a competitive environment characterized by significant challenges and rapid changes, exerting pressure on the various actors of the sector. The aggressive push toward free-market systems, the growing environmental concerns and social instability, the rapid growth of new technologies, the pressing need for safety and security present threats and opportunities for destinations and industries (Gibson, Pennington-Gray & Thapa 2003). Competition between and within destinations is fierce and there is constant change in the tourism marketplace. New destinations are entering the market and new strategic alliances are being formed. Tourism demand is also changing: tourists are more informed about products and services and insist on low cost offers

and high quality experiences. As a result, some destinations are suffering despite the growth of the global tourism market and the endowment of potentially attractive resources (UNWTO 2011; WEF 2011).

Moreover it is recognized that, even though competition is played at all geographical scales, the local level is the most relevant: the competitive pressure imposes to local governments and policy makers to revaluate the use done so far of their tourism resources, in order to capitalize on them and increase the performance of tourism destinations. In particular, community based approaches and theories on clusters, districts and local cooperation are more and more emphasized both by the academia and by practitioners (see for example: Antonioli 1999; Milne & Ateljevic 2001; Denicolai et al. 2010).

2. The debate on the competitiveness of tourism territories

In economics, several studies have approached the general topic of territorial competitiveness, however the manifold and different interpretations and definitions of the concept are an evidence of the difficulties in identifying its constituent factors, coupled with the variability of the contexts of application. In the last two decades, the concept of competitiveness has been applied and adapted also to territories mainly as a consequence of the globalization and of its effects: the increasing and easier mobility of work force and capital between territories has stimulated the idea that territories are in competition in attracting and maintaining labour force, resources, and investments. In the end, territories compete to foster their economic prosperity and the standards of living of their population.

It is not our purpose here to go over this broad ground of debate, but rather to pinpoint and discuss the specific factors recognized as determinants of the performance of a tourism destination, in terms of both attracting visitor flows and generating economic prosperity for the destination through tourism development. The two issues are connected and, even though they do not coincide, it is difficult to establish certain boundaries.

Tourism literature has often concentrated on the issues connected on the attractiveness of tourism territories. The reason is straightforward: tourism requires the movement of the demand from origin (residence) to destination and without this movement the tourism phenomenon does not even exist. As a consequence, tourism literature has deeply studied the various aspects related to the attraction of visitor flows. However, nowadays, the key topic of the debate – also for who is in charge of the governance and management of tourism destinations – is how to make effective and efficient local tourism development, and this is more connected to the concept of competitiveness.

The identification of the factors that determine the competitiveness of tourism areas has gained growing interest among both scholars and policy and decision makers. The key aspect here is not recognized in the resource endowment of an area, rather in the ability to plan, organize, and manage the tourism development of the destination, assuring effectiveness and efficiency to the actions implemented, also compared to those of competitors.

The theoretical basis and empirical research on tourism competitiveness are derived from multiple bodies of knowledge. The tourism literature offers a variety of approaches that have dealt with some aspects that are considered relevant for the success of a tourism destination, but often without developing a comprehensive conceptual framework of tourism competitiveness.

Some scholars have studied the competitiveness of geographic areas using strategic planning and management concepts (Go & Govers, 2000), also applying Porter's studies with limited attention to more tourism specific elements, while other works, more concerned with the demand or market outcomes of competitiveness, have built knowledge in the field by adopting marketing concepts: in particular - as we will see more in detail - the role of the destination image has a very long tradition.

Price has been seen as a key determinant of competitiveness in a number of studies (Mangion, Durbarray, & Sinclair 2005; Papatheodorou 2002, Forsyth & Dwyer 2009): the tourist demand is price sensitive, determining the importance of price factors in international competition. However, this does not mean that destinations can compete just by lowering prices, since they can rely also on reputation and quality factors that allow obtaining premium prices (M. J. Keane, 1997; Mangion et al., 2005; Papatheodorou, 2002).

Very little literature has produced comprehensive conceptual models of tourism competitiveness and basically the reference is at the models developed by Dwyer and Kim (2003) and by Ritchie and Crouch (1998; 2003). In terms of sources of competitiveness there are not major differences between the two models, apart from the explicit recognition by Dwyer and Kim of the importance of the demand conditions as a determinant of competitiveness. While many general studies on competitiveness concentrate just on supply-side factors, tourism destinations are characterized by the market segments they serve. They may be competitive for certain markets and not for others, and also the price sensitiveness changes from one segment to another, giving more or less importance to price factors. The demand conditions are therefore included in the framework through demand-awareness, perception and preferences.

Ritchie and Crouch are the authors who have studied the topic more extensively, arriving at the proposal of a conceptual framework including a wide range of factors driving competitiveness. The starting point of the authors is that

'competitiveness without sustainability is illusory', meaning that the short term and long term perspectives need to be integrated and that the final end of tourism competitiveness is related to the wellbeing and standards of living of residents. The conceptual model is broad in scope, since it aims to collect all the aspects that can be sources of competitiveness, regardless the territorial scale of the destination and its development level. The model is based on Porter's theory of competitive advantage, but also considers the comparative advantage of a destination, since the resource endowment is considered key in tourism. Thus, the factors outlined in the conceptual model pertain both to the resources that a tourist destination has at its disposal (natural and created resources; human and capital; infrastructure and superstructure), and to the modes of deployment of this resources. The factors that drive destination competitiveness are classified in the following groups: (a) supporting factors and resources that support the possibility to have tourists at a destination; (b) core resources and attractors that are the main motivations to visit a destination; (c) destination management, meaning the activities that implement the strategic framework of a destination and enhance the quality of the supporting and core resources; (d) destination policy, planning and development that relate to the ability of a destination to have clear strategic goals and to implement them; (e) and, finally, qualifying and amplifying determinants, meaning those factors that can amplify or condition the competitiveness of a destination.

While inherited resources are paramount in order to attract visitors, their role in terms of long-term prosperity may be questionable. Destinations relying too heavily on their resources may not be able to upgrade true underlying competitiveness and long-term prosperity. As a consequence, and even though the importance of the comparative advantage is recognized by this model, the relevance of the factors pertaining to destination management and destination policy and planning needs to be stressed.

In particular, the effectiveness of the strategies and actions implemented by tourism destinations is grounded on the ability to create local networks that can guarantee the governance of the destination. A district approach is required: a district characterized by barriers and economies of scale and scope quite different from manufacturing districts, both in terms of types and roles of stakeholders involved, and in terms of environmental and socio-cultural aspects.

The following pages, thus, concentrate on two strategic aspects that tourism destinations are facing in a growing competitive environment. First, the efficient management of local tourism supply networks through a district approach is discussed. Second, a concrete issue related to the former is considered: the benefits of cooperation for the image formation and promotion of tourism destinations, also through Information and Communication Technologies (ICTs) .

3. Local networks as sources of competitive advantage: a district approach

The development of the tourism sector, mainly in the last decade, has demonstrated the need for a systemic approach to its management. This for several reasons, starting from its collective nature and the relevance of the territorial assets, arriving to the various economic advantages that derive in terms of economies of scale, economies of scope, and creation of positive externalities.

Interestingly, the advantages arise for the tourism industry but also for the communities involved, as a consequence of the relevant local impacts that distinguish the tourism sector. The advantages of a tourism district, that have important effects on territorial competitiveness, are several but the main are identified in the following ones: uphill economies of scale and for the internal management of common services and local assets (destination price policies and costs reduction); economies of specialisation and of scale for communication and promotional activities also through an increase of the bargaining power towards intermediation, the creation of centralized reservation systems, and the management of independent demand; economies of specialisation and of scale for information handling, overcoming asymmetric information issues affecting the sector; and finally, the creation of economic links with other economic sectors at local level and the reduction of economic leakages (Antonioli 1999).

The essence of a district approach in tourism lies in the ability to put into operation a system of coordinated relational networks among the various decision-makers and the various public and private operators of a destination. It has to be remained that the tourist experience is a composed one and refers to a combination of structures, infrastructures, services, and resources. All of them refer to different actors that generally do not act together as a finalized organization. As a consequence, the tourist product is structured just after a process of organization based on the coordination of the single decisions and intervention tools and, finally, on the activation and management of an effective network.

However, the creation of these type of networks and synergies is complex and often represents a key obstacle to the progress of tourism territories.

The difficulties derive from the management of these multifaceted networks, that cannot be framed either in a corporate logic or in a relationship between companies one. The extra-economic networks - meaning the relationships between public sector, private operators and local community - have a significant influence in tourism. The understanding of the underlying dynamics of these type of relations is crucial and must be based on a concrete and clear definition of specific roles for the subjects involved and on the choice of common strategic objectives, identified on the acceptance of stakes and advantages that are necessarily different for the various groups involved.

Moreover the complexity of the tourist product imposes to act not just in a cooperative way enhancing territorial resources and competences, but requires also the adoption of integrated management tools or the implementation of the so called destination management. As such, destinations have been more and more recognized and highlighted as active agents of the tourism system.

Over the last decade the relevance of managing the destination has emerged significantly and has represented a main stream of interest for both practitioners and researchers involved in tourism. The literature has stressed in particular how, in order to benefit from the economic outcomes of tourism, organizations and firms have had to increase their efforts to promote and sell their products, basically reinforcing marketing activities, striving to enhance their differentiation and image, and focusing on the quality and value of the destination product. On these issues, central in the debate on tourism competitiveness, we concentrate in the next section.

4. The integrated image of tourism territories: new strategies and new challenges

Image is a key driver of destination marketing strategies, as it has been largely identified as one of the most important factors for tourism destinations in order to increase their attractiveness and differentiate from competitors. An interesting and growing stream of research has concentrated on destination brands as tools to manage the image of tourist destinations in an integrated way, highlighting their multiple strategic functions, both in terms of building and consolidation of the proper identity of a territory and in terms of being a driving force of promotion and internationalization, and finally also in terms of being a guarantee of quality of the tourism offer of a destination (Morgan & Pritchard 2002; Murphy, Moscardo, & Benckerhoff 2007). In particular, the role of this strategies is relevant in the processes of innovation of the destination product as a whole and of the single components of the value chain. This because the destination branding policy generates significant economies of scale and of agglomeration for the companies within the tourism district.

The communication of a territory is a more complex task than the communication of single products in consideration of the aspects seen above: first the need to synthesize the variety of resources, attractions, and activities offered by a destination that – all together - compose an articulated system determining the value and image of the territory. Second, the presence of a composite array of stakeholders that are represented by the destination brand and that want their say in how the brand is defined and communicated (Marzano and Scott, 2009). Even

though tourism communication is generally analyzed with reference to the final users, the tourists, its effectiveness is rooted in the internal context of the destination.

If we consider the process from the internal side, two factors must be guaranteed. First of all, the main local stakeholders must provide proper support to the marketing policy. According to Hankinson (2007), brand managers should identify a set of core brand values together with partner organizations and establish partnerships across different sectors, by managing the conflicting interests of local tourism operators and residents. Internal communication should support all the phases of the branding process and the creation of a proper internal brand equity has proven to be relevant in making effective the diffusion and promotion of the destination brand by the local stakeholders (Sartori, Mottironi & Antonioli 2012). Second, the efficacy of destination branding depends also on the ability to generate and manage its effects locally. Key issues here are the control and guarantee of the brand, the creation of intersectoral links, and the containment of free-riding phenomena deriving from the fact that the image of a territory is a public good for all the local activities.

Finally, the use of Information and Communication Technologies (ICTs) has to be mentioned among the driving factors of destination competitiveness. The ICTs have facilitated the integration of tourism destinations, pushing innovation and creativity. In particular, the ICTs represent a powerful tool to create a coherent and innovative integration between the traditional tools of promotion, communication, and commercialization, guaranteeing the development of local networks, at least for marketing purposes (Antonioli, Baggio, 2011).

ICTs have been proved to be powerful, when used in a strategic way, to create and widespread the image of territories on the tourism marketplace and to put into practice a comprehensive promotion of the whole destination. Many examples can be cited of their positive contribution to the competitive advantage and profitability of destinations and single operators (Buhalis and Egger, 2008). In turn, the literature has often considered the conditions and the requirements needed for obtaining such good outcomes (Buhalis and Law, 2008).

In order to be effective, the adoption of ICTs requires a strategic approach which is not always granted. More specifically, the literature has consistently shown the relevance of strategic alignment between business and ICTs in order to attain a positive impact on the performance of an organization. If this does not happen, the ICTs risk to remain a mere administrative support instead of evolving in a concrete competitive asset. In particular, Chang (2003) shows how this applies also to tourism destinations. Even if the organizations in charge of destination marketing and management commonly recognize the importance of ICTs, they

often fail in exploiting their strategic support function as a real source of competitive advantage.

Moreover, what can hinder the advantages of a rational and effective implementation of ICT tools is the lack of a full integration into the operations of the organization and its strategies, which is considered critical for the survival of the organizations themselves in their role of marketing the destination and facilitating the exchange of information between suppliers and consumers (Park and Gretzel, 2007). For example, an evaluation of the regional authorities in charge of tourism destination marketing in the Italian context has shown a growing commitment in the use of ICTs for tourism promotion, at least in their marketing plans. However, only a handful of regional organizations show to be able to put fully in practice what they assert. Despite the declarations contained in most regional tourism plans, centred on the creation of a strong brand awareness and image through the online channels, the regional tourism websites, in too many cases, do not return the expected outcomes. On the contrary, the image perceived by the visitors is compromised by the lack of some important features, mainly the interactive ones and those connected with the Web 2.0 (Baggio, Mottironi & Antonioli 2011).

5. Conclusions

The literature recognizes the relevance of territorial factors in the decision and evaluation process of the tourism demand. Moreover territorial factors also support the growth and prosperity of tourism companies. Among the factors that determine the attractiveness and competitiveness of tourism destinations, the active role of territories – or the territory as an active agent of local development - is probably the most relevant and, in any case, a necessary prerequisite for the implementation of effective strategies of tourism development.

Destinations as active agents of development are destinations able to create local networks and generate typical tourism district economies and able to adopt appropriate models of destination governance and management. All these aspects are recognized as competitive advantages for the tourism industry, mainly for SMEs. The relevance of these aspects derive from the fact that a destination is a system of resources, attractions, products, and services that all together create and qualify the tourism experience. A system where the various components are owned and managed by different stakeholders, thus posing the problem of the appropriate models to represent their typical interactions and dynamics. The district approach applied to tourism shows how a number of sources of competitive advantage can derive from the ability to create and effectively manage local networks, able to

guarantee the local governance and to push the attractiveness of the area and to differentiate it from competitors. The new approaches to destination marketing and to ICTs have been proven to benefit from cooperation and – at the meantime – support an integrated management of destinations.

However, to close, it is appropriate to consider also the main difficulties and shortcomings of cooperation. Phenomena of organizational complication instead of rationalization, a focus just on promotional strategies instead of real local development, the prevailing of a logic of delegation instead of active cooperation, and, finally, a scarce participation of the stakeholders that do not allow to reach a satisfactory critical mass as a prerequisite for the implementation of incisive network actions are the most diffused problems arising from the analysis of various forms of cooperation in tourism.

References

ANTONIOLI M. 1999. I distretti turistici e le aggregazioni fra attori per lo sviluppo del prodotto-destinazione. In COLANTONI M. (Ed.), *Turismo: una tappa per la ricerca*, Bologna: Patron Editore, pp. 152-186.

ANTONIOLI M., BAGGIO R. 2011. *Internet e Turismo 2.0*, Milano: Egea.

ANTONIOLI M., MOTTIRONI C., VIGANÒ G. 2005. Mobilità non motorizzata e risorse territoriali: le nuove forma di turismo. Lo stato dell'arte. In *Progetto MIUR, Technical Report n.7, Mobilità non motorizzata e risorse territoriali*, Brescia: Università agli Studi di Brescia, Dipartimento di Ingeneria Civile.

BAGGIO, R., MOTTIRONI, C., ANTONIOLI, M. 2011. Technological aspects of public tourism communication in Italy. *Journal of Hospitality and Tourism Technology*, Vol. 2, No. 2, pp. 105-119.

BUHALIS, D., & LAW, R. 2008. Progress in information technology and tourism management: 20 years on and 10 years after the Internet - The state of eTourism research. *Tourism Management*, No. 29, pp. 609-623.

CANDELA G., FIGINI, P. 2010. *Economia del Turismo e delle Destinazioni*. Milano: McGrow-Hill.

CHANG, D. Y. 2003. Six fundamentals of strategic implementation of information systems for destination management organizations, *e-Review of Tourism Research (eRTR)*, Vol. 1, No. 4.

Crouch G.I., Ritchie J.R.B. 1999. Tourism, competitiveness, and social prosperity. *Journal of Business Research*, No. 44, pp. 137-152.

DENICOLAI S., CIOCCARELLI G., ZUCCHELLA A. 2010. Resource-based local development and networked core-competencies for tourism excellence. *Tourism Management*, Vol. 31, No. 2, pp. 260-266.

DWYER L., KIM C. 2003. Destination Competitiveness. Determinants and Indicators. *Current Issues in Tourism*, Vol. 6, No. 5, pp. 369-414.

FORSYTH P., DWYER L. 2009. Tourism Price Competiveness. In BLANKE J., CHIESA T. (Eds), *The Travel and Tourism Competitiveness Report: Managing in a Time of Turbulence*. Geneva: World Economic Forum.

GIBSON H., PENNINGTON-GRAY L., THAPA B. 2003. The effects of risk perceptions on intensions to travel in the aftermath of September 11, 2001. *Journal of Travel and Tourism Marketing*, Vol. 15, No. 2/3, pp. 19-38.

GO F., GOVERS R., 2000. Integrated quality management for tourist destinations: a Eusopean perspective on achieving competitiveness. *Tourism Management*, Vol. 21, No. 1, pp. 79-88.

HANKINSON G. 2007. The management of destination brands: five guiding principles based on recent developments in corporate branding theory. *Journal of Brand Management*, Vol. 14, No. 3, pp. 240-254.

MANGION M.-L., DURBARRAY M., SINCLAIR M. 2005. Tourism competitiveness: price and quality. *Tourism Economics*, Vol. 11, No. 1, pp. 45–68.

MARZANO G., SCOTT N. 2009. Power in destination branding. *Annals of Tourism Research*, Vol. 36, No. 1, pp. 247-267.

MEDLIK S., MIDDLETON V.T.C. 1973. The tourist product and its marketing implications. *International Tourism Quarterly*, No. 3, pp. 28-35.

MILNE S., ATELJEVIC I. 2001. Tourism, economic development and the global–local nexus: theory embracing complexity. *Tourism Geographies*, Vol. 3, No. 4, pp. 369–393.

MORGAN K. 2004. Sustainable regions: governance, innovation and scale. *European Planning Studies*, Vol. 12, No. 6, pp. 871-889.

MURPHY L., MOSCARDO G., BENCKERHOFF P. 2007. Using brand personality to differentiate regional tourism destinations. *Journal of Travel Research* , Vol. 46, pp. 5-14

MURPHY P., PRITCHARD M.P., SMITH B. 2000. The destination product and its impact on traveller perceptions. *Tourism Management*, Vol. 21, pp. 43-52.

PAPATHEODOROU A. 2002. Exploring competitiveness in Mediterranean resorts. *Tourism Economics*, Vol. 8, No. 2, pp. 133-150.

PARK Y.A. GRETZEL U. 2007. Success factor for Destination Marketing Web Sites: a qualitative meta analysis. *Journal of Travel Research*, Vol. 46, pp. 46-63.

RITCHIE J.R.B., CROUCH G. 2003. *The competitive destination. A sustainable tourism perspective*. Cambridge: Cabi Publishing.

SARTORI A., MOTTIRONI C., ANTONIOLI M. 2012. Internal stakeholder-based brand equity for tourism destination marketing: an empirical study. *Journal of Vacation Marketing*, Manuscript No "47-2011"- accepted.

UNWTO 2011. *Tourism Highlights*, Retrieved from www.world-tourism.org.
WEF 2011. *The travel & tourism competitiveness report 2011*. Geneva: World Economic Forum.

SUMMARY

Tourist destination competitiveness: the role of cooperation

Territories are key in tourism. In years of growing debate on the role of local factors for economic development and of territorial marketing, tourism represents an election field of application of territorial theories. It is affirmed that, unlike any other economic sector, the peculiar tourism product is not a single commodity or service but a whole destination.

Among the factors that determine the attractiveness and competitiveness of tourism destinations, the active role of territories – or the territory as an active agent of local development - is probably the most relevant and, in any case, a necessary prerequisite for the implementation of effective strategies of tourism development.

Destinations as active agents of development are destinations able to create local networks and generate typical tourism district economies and able to adopt appropriate models of destination governance and management.

However it is appropriate to consider also the main difficulties and shortcomings of cooperation.

Cristina MOTTIRONI, Università Bocconi – MET,
cristina.mottironi@unibocconi.it
Magda ANTONIOLI CORIGLIANO, Università Bocconi - MET,
magda.antonioli@unibocconi.it

IS IT WORTH BEING INSCRIBED IN THE WORLD HERITAGE LIST? A CASE STUDY OF "THE BAROQUE CITIES IN VAL DI NOTO" (SICILY)

Tiziana Cuccia

1. Introduction

The World Heritage List (WHL) was established by the UNESCO Convention with regard to the protection of the world cultural and natural heritage, was signed in 1972, and entered into force in 1977. From this year on, an increasing number of monuments and natural and cultural sites were inscribed in the WHL. Quite a strong competition among the States Parties has risen to include a piece of their own heritage in the List. Some studies show that the "outstanding universal value" required to be included in the WHL has been preferably recognized to be Western heritage, mainly European sites, and some empirical evidence tries to explain the most significant determinants of the World Heritage Listing (Frey and Pamini, 2009; Bertacchini and Saccone, 2010). The UNESCO Commission is aware of the unequal distribution of the global heritage covered by protection and in the updated Guidelines for the inscription in the WHL (2011), it introduces some priorities that favor a more balanced global distribution of the heritage covered by its protection.

UNESCO recognizes the universal value of the heritage that preserves as well as promotes its sustainable valorization. The promotion of cultural heritage can be a driver of economic development. As the World Heritage Committee says in the Budapest Declaration on World Heritage (2002), "*we will seek to ensure an appropriate and equitable balance between conservation, sustainability and development, so that World Heritage properties can be protected through appropriate activities contributing to the social and economic development and the quality of life of our communities."*

In the case of serial sites, which embrace different destinations sharing a common culture testified by their tangible and intangible heritage, UNESCO seems to go further by suggesting the local development model that the sites in the WHL should follow. In the case of Val di Noto, UNESCO approves the institution of a cultural district (Santagata, 2002; Scott, 2004).

There is at the same time national and international competition that is inscribed in the WHL: a national economic interest for the inclusion of a large part of the

national heritage in the WHL, and a local economic interest for what national sites have to be selected for the nomination at the UNESCO World Commission. Local policy makers compete with each other, because they suppose that the highest and the most immediate economic impact of the inscription of a site in the WHL is at the local level where the site is located. The inclusion of a site in the WHL becomes a quality certification of its cultural relevance, and the right to adopt the UNESCO trademark becomes a way to differentiate the local area in the market of tourism destinations and to attract specific segments of tourism demand that are more interested in cultural heritage. Different economic reasons can move the local policy makers to start a quite long procedure and a two-level competition to inscribe a site in the WHL: a genuine interest in new strategies for local development based on tangible and intangible expressions of the local culture and the research of political consensus.

In this article, we discuss the effectiveness of the UNESCO listings in the preservation of the WHL and in the promotion of a local development model based on tourism attractiveness. We follow a recent line of research (Jimura, 2010) that is focused on a case study concerning the World Heritage Sites (WHS). We study the case of a serial site, "The Baroque cities in Val di Noto," in Sicily. It represents a new kind of protected site; it is not a single monument or an archaeological site; rather, it is an architectural style that characterizes the historical private and public buildings, and, notably, the churches of the historical centers located in eight Sicilian municipalities in Val di Noto (VdN), an ancient geographical denomination of the South Est of Sicily. The valorization of this kind of a site involves a large number of local actors who should act in coordination and establish a "cultural district."

The rest of this article is as follows. In the First Section, we describe the pros and cons involved while including a site in the WHL, considering the present characteristics of the WHL, the UNESCO priorities reported in the Guidelines, and the limited enforcement power of UNESCO. In the Second Section, we introduce the different concepts of a cultural district that are adopted in the literature and the strength of this model in a positive and normative economic approach. In the Third Section, we provide soma data concerning the economic situation of VdN, which is our case study.

The Fourth and Fifth Sections deal with the economic impact of the inclusion in the WHL on the creative industries and tourism activity, respectively. We focus on the seasonality of tourism flows, because we assume that cultural tourism, which should be more attracted by a World Heritage Site (WHS), is less seasonal compared with the other niches of tourism. The Sixth Section offers some comments on governance and policy issues that concern not only the specific case study but also the role which an international organization, such as UNESCO,

plays in the local development process. The main conclusions are gathered in the Final Section.

2. Pros and cons of inscription in the WHL

In 1977, when the UNESCO Convention with regard to the protection of the world cultural and natural heritage entered into force, it was signed by twenty States. Nowadays, the States that adhere to the Convention are 188. Out of these 188 States, 153 States have at least one cultural site in the WHL: there are States Parties that have not had any site included as yet in the WHL. Nowadays, the WHL comprehends 936 sites: most of them are cultural sites (7256 equal to 77%); natural sites count for 20%; and mixed sites (cultural and natural) account for the remaining 3%. A large part of the sites in the WHL are located in Europe and North America, which is 48%: more precisely, 53% of the cultural sites and 32% of the natural sites.

These data show the unbalanced distribution of the UNESCO protection which can be explained both by the history of the Convention itself, and the different time each State adhered to it, and by the UNESCO experts' orientation and their idea of culture as western culture, based on ancient human expressions testified by historical buildings, churches, and archeological sites. The unbalanced distribution contributes to a reduction in the WHL credibility (Frey and Steiner, 2010). UNESCO is trying to correct this bias: in the Guidelines of the WHL (2011), priority is given to the cultural sites located in a State that has not yet had any WHS. Another priority recently introduced in the Guidelines, in favor of serial sites, as "The Baroque cities in Val di Noto," and trans-boundary sites, makes the conservation and valorization process more difficult, as more actors are involved. The solutions adopted by UNESCO could not be right, because the more UNESCO extends the Listing, the less UNESCO is really able to protect the World Heritage. The scarcity of resources, on which UNESCO can count, and its weak enforcement power, testified by the only two cases of de-accessioning from the WHL[1], are other signs of weakness. Therefore, we could argue that the longer the WHL is, the smaller is the importance of the inscription in terms of the historical and artistic value of the site and the economic impact on the local area. The weaknesses should be compared with the strengths that the States Parties evaluate when they present a nomination. They ask for help to preserve heritage, which consists of technical assistance and funding in cases of emergency. An increasing part of the World

[1]The countryside around Dresden in Germany and the Sanctuary in Oman; the two sites were deleted, respectively, because of the urban development and the discovery of oil in the site.

Heritage is located in countries where the domestic policy has to be focused on other priorities, such as health or education, and the local population is often unaware of the historic and artistic importance of the local heritage. Conservation is not the only goal of the State Parties. Especially for cultural sites that are still appreciated only at the local level, the inscription in the WHL can represent a way of becoming more well known at the national and international level. This notoriety can attract private funds from donors and investors who believe in the tourism development of the area surrounding the WHS. National legislations can also give priority to the WHS in the access to public funds for restoration and maintenance interventions.

The main economic positive impact should come from the increased interest and attractiveness not only for local residents but also for tourists. Some recent empirical studies estimate that there is a positive relationship between the number of sites a country inscribed in the WHL and the international tourism arrivals (Yang et al. 2010), and the long-term economic growth (Arezki et al., 2009). However, the results of the empirical evidence are not univocal, and the debate is still open (Cellini, 2010). In extreme cases, we could have the opposite result: the inscription in the WHL could stimulate such an interest and attractiveness for tourists that congestion phenomena can arise and threaten the conservation and the sustainable valorization of the site (Jimura, 2010). Even if a monitoring process of the sites in the WHL is required by the UNESCO procedure, the low enforcement power of UNESCO cannot completely avoid the congestion phenomena in the WHSs.

The intangible value of the UNESCO trademark is probably the main reason of competing for the inscription. The inscription in the WHL can be considered a quality certification that allows the site and the surrounding area to adopt a collective trademark for differentiation in the market of tourism destinations. However, more sites use this trademark, less the average quality of the heritage certified (Santagata and Cuccia, 2004), and less productive the trademarks are in terms of tourism attractiveness.

Therefore, UNESCO should not cover such a large number of sites on which it is not able to play an effective supervision role ex-post on how the conservation and valorization plans of the site are going on; local policy makers should be concerned with the fact that including their own cultural heritage in the WHL is just the beginning and not the final step of a project of local development and this should be based on the cultural district model.

3. Cultural districts: a positive or normative model?

The vast literature on the districts as an endogenous model of local development starts with the well-known Marshallian definition of the industrial district, in the late nineteenth century, passes through the Italian experience in manufacture, described and monitored by Becattini (1989) since the 1970s, and arrives to the present times, with attention paid to several specifications of the term *district*: cultural district, tourism district, and so on.

The common element of the different definitions is the presence of a network of small and medium enterprises, more or less horizontally and vertically integrated, localized in a specific area, that compete and cooperate at the same time. In an industrial district, these enterprises share the same industrial specialization. In the cultural and tourism districts, the enterprises produce different types of goods and services that satisfy the residents' and tourists' demands of culture and leisure. The geographical location is an essential element: the firms are established in a certain geographical area where they can share local inputs that are essential to production. The importance of these inputs depends on the stock of idiosyncratic tangible and intangible cultural capital they contain. The boundaries of the district are marked by the presence of the common cultural capital.

Specifically, the definition of cultural districts is quite recent. According to Scott (2004), they are still industrial districts oriented to temporary and permanent cultural productions. The cultural capital can be embedded in tangible cultural goods (books, movies, records, and contemporary art paintings) produced on an industrial scale and in temporary events (exhibitions, performing arts, etc.). The closeness between the producers and consumers of cultural goods contributes to the creative atmosphere in the metropolitan area, which facilitates the innovation pace (Florida, 2002).The industrial origin seems to be an essential element and an essential step in developing a cultural district.

Differently, according to the taxonomy of Santagata (2002), the industrial origin characterizes only a few types of cultural districts: the "industrial cultural district", where the cultural roots of the traditional Marshallian manufacturing district specialization are underlined, and the "metropolitan cultural district", which consists of the concentration of the cultural institutions in urban areas. In the other two types of cultural districts distinguished by Santagata (2002), the industrial specialization and the industrial organization system of production could not be present: the "institutional cultural district", characterized by ancient localized productions based on the transformation of agriculture inputs and/or on the traditional skills of artisans, and the "museum cultural district", where the role played by the public and private actors involved in the conservation of the local cultural heritage is essential.

Both the mentioned models of cultural districts can be interpreted according to a positive and a normative approach. A large part of the literature mainly adopts a positive approach: through an inductive process, starting from the description of a specific case study, it describes the local development process and its determinants. A normative approach changes the view: it is prescriptive and aims at promoting a local process of endogenous growth, supporting the adoption of a district model in those areas where *in nuce* at least some of the characteristics of a district are present, while other characteristics can be reinforced. Policy makers or consultants should be concerned with the significance of the structural change, and, more specifically, with the industrial development stage, to develop a cultural district (Scott, 2004). A central question should be, Can a cultural district be implemented where the local culture is only testified by the heritage and the intangible capital used for the transformation of primary inputs or for the production of art and crafts?

In the case of VdN, for example, the cultural heritage is located in an area where the local economy is still based on agriculture and handcraft; an industrial specialization was never present: Can we say that a cultural district can never exist and creative small enterprises cannot be inspired by this cultural atmosphere?

In this article, we present the case study of Val di Noto (VdN) by following the line of literature which recognizes that a creative environment can exist even in rural and extra-urban areas (McGranahan, 2010; Lorenzini, 2010) and partially amend the idea that VdN cannot be considered a cultural district (Le Blanc, 2010).

4. The case study: "The Baroque cities in Val di Noto"

Val di Noto (VdN) is one of the three areas based on which ancient Sicily was geographically divided, and it is located in the South East of Sicily.

After the disruptive earthquake in 1693, most of the cities of VdN were re-built while sharing the same architectural style –the Baroque– that had been adopted in the reconstruction of private, noble buildings and churches. In 2002, the peculiarity of this local expression of the Baroque style, its uniqueness, and vulnerability allowed the inscription in the WHL. It represented the first case of an inscription in the WHL of a serial site that involved in the UNESCO procedure eight municipalities adhering to three different provinces[2]. The complexity of the site, that is, the difficulties involved in co-ordinating a common policy for the

[2]Provinces are the intermediate level of local government in Italy between Municipalities and Region. The municipalities of Noto and Palazzolo Acreide are located in the Province of Siracusa; Catania, Caltagirone, and Militello are located in the Province of Catania; Ragusa, Modica, and Scicli are located in the Province of Ragusa.

preservation and valorization of the site among the large number of local policy makers involved, contributed toward innovating the UNESCO procedure. The presentation of a Management Plan (MP) was made compulsory in order to participate in the selection for the inscription in the List. The MP should state the main lines of the coordinated strategies for all the local subjects involved. Moreover, a periodical monitoring procedure should be followed. We will focus on these issues in Fourth Section.

In the next paragraph, the main socioeconomic characteristics of VdN are briefly described, and we focus on the cultural endowments. This very essential picture that we are about to present can help in an understanding of the starting point based on which we can evaluate the local economic impact of the institutions of the UNESCO site and whether pre-conditions exist in creating a cultural district.

4.1. The socioeconomic framework of the VdN

VdN is located in Sicily, in the Southern part of Italy, where the GDP per capita is structurally lower than the national average. However, if we compare the economic data registered in VdN with the regional and national data, some positive signals can be found that express a better local entrepreneurship. In 2009, in the Provinces of VdN, the rate of unemployment was lower than in Sicily (respectively, 11,4% in Catania, 8,9% in Ragusa, and 8,5% in Siracusa against 13,9% in Sicily) but higher than in Italy (7,8%); since 2002, in VdN, the economic performance, measured by the annual variation of the GDP per capita, has been better, in some years, than the national one, even if the structural gap has not been radically reduced. The main share of GDP comes from the service sector and, specifically, from the Public Administration (Unioncamere, 2010). A relevant role is also played by the primary sector: the percentage of GDP coming from agriculture in the Provinces of Ragusa and Siracusa is higher than the national percentage, respectively, 8.7% and 5.3%, versus 2.0% in Italy. Agriculture still plays a relevant role in the local economy both in quantitative and mainly in qualitative terms: many typical Mediterranean products cultivated in respect of the idiosyncratic material culture are *niche* products that received national certification of high-quality products (i.e. denomination of origin, geographical indication). The value added from the industry is significant only in the Province of Siracusa (22.4%) thanks to the contribution of the petrochemical plants located in an area of the provincial territory not included in the VdN site. No significant experience of the industrial district can be found in VdN.

The main weakness, especially in view of a local development model based on cultural heritage and tourism, is the chronic scarcity of transport infrastructure compared with the national average, as made clear by Table 1 on the basis of

relevant index numbers.

Table 1 – *Infrastructural endowment: Index numbers.*

	Roads	Railways	Airports	Ports	Total
Catania	63.6	52.3	113.4	207.3	76.4
Ragusa	44.9	17.7	11.9	84.7	24.8
Siracusa	49.2	65.8	16.8	351.5	43.9
Italy	100	100	100	100	100

Source: *Unioncamere (2006).*

4.2. The cultural heritage endowment

The VdN cultural heritage can be divided into two main categories: the tangible and intangible heritage. The tangible heritage consists of architectural and naturalistic endowment; the intangible heritage consists of historical events and religious representations of anthropological interest and of the common knowledge transmitted generation by generation, which is the fundamental input of the localized high-quality production.

The first MP prepared for the inscription in the WHL (*Consorzio Civita*, 2002) consists of 134 units of the tangible heritage in VdN; more than 80% consists of historical buildings (i.e. churches, religious buildings, and noble residences); and the remaining part consists of naturalistic sites. A study, reported in a second MP (*Mecenate*, 2005) commissioned after the inscription in the WHL to stimulate the start-up of the cultural district, shows that all the buildings of historical and artistic interest were known and catalogued, and their conservation improved after the UNESCO certification. However, all these initiatives and the restorations that followed were financed by public funds established before the formal inscription in the WHL. No relation can be found with the UNESCO recognition; the restoration works are based on emergencies (i.e. 1990 earthquake) and realized with large delays. After the UNESCO recognition, no initiatives focusing on the conservation and valorization of the UNESCO heritage have been proposed yet by a coordinated action of the policy makers of VdN.

Another important component of the tangible heritage is represented by museums' endowment. Comparing the data on the museum density per area (Km-sq) with inhabitants in the municipalities of VdN, in Sicily and in Italy (Table 2), we realize that the museum density is higher in VdN than at the regional and national levels.

Table 2 – *Museum density per area and inhabitants.*

	area (Km-sq)	Inhabitants (thousands)	Museums	Museums/ Km-sq	Museums/ 5.000 inhabitants
VdN	2.134	537.561	45	0.02	0.42
Sicilia	25.708	5.003.262	174	0.01	0.17
Italia	301.401	57.888.245	3.230	0.01	0.28

Source: *Mecenate '90 (2005).*

Out of the 45 museums in VdN, 34 are public (16 pertain to the municipalities; only 2 pertain to the Sicilian Region), and 11 are private (the largest part pertains to the Catholic Church). The different ownership of the museum affects their governance and can negatively influence the design of a coordinated action for their promotion (i.e. extending their opening hours), because it involves public and private operators that have different contractual constraints.

Generally, the ownership and the characteristics of the cultural heritage can be a problem for any preservation and valorization program in VdN. The large presence of churches devoted to their traditional religious function did not find the religious authorities prompt enough to introduce other forms of cultural fruition that could require an extension of their opening hours; the fragmented ownership on the properties of the urban historical centers requires the participation of the larger part of the residents in a project of restoration and re-generation of the whole area that aims at improving the quality of life of the inhabitants and at attracting sustainable tourism flows.

In VdN, this kind of initiative has been more effective in those municipalities (Caltagirone, Scicli, and Ragusa) where the projects of urban planning were more advanced and the instrument of the Urban Plan (*Piano Regolatore*) had been already adopted by the local policy makers. It is worth underlining that the MP approved by UNESCO in the selection process of the site was (and is) not binding, even if a monitoring process of the implementation of the projects designed in the Plan is periodically required. Thus, the realization of the planned projects is quite different across the municipalities.

5. The economic impact on the creative industries of VdN

To estimate the local economic impact of the inscription in the WHL on the creative industries, we adopt a definition of creativity as *a means* and not as *a goal* of the production process (Santagata, 2009). In the creative industries, we comprehend the production of goods and services that are directly and indirectly connected to the valorization of the cultural heritage. Therefore, we include both

the production of the cultural industries (i.e. publishing, audiovisual, multimedia, etc.) and the production of more traditional sectors, as restoring and renovating buildings, agro-industries, and the supply of tourism services. We can assume that in Italy, where the cultural heritage is spread all over the territory and located in small towns, the creative process for the valorization of cultural heritage is founded on the recovery and the innovative application of the idiosyncratic skills that satisfy the changing preferences of a demand more interested in experiences than in goods and services (Richards, 2011).

Table 3 provides some data on the enterprises and the employment in some critical creative sectors in VdN. We consider as creative sectors both a *stricto sensu* creative sector ("publishing, printing and reproduction") and the three sectors ("Non metalliferous ore processing", "Wood processing", and "Furniture, jewellery and musical instruments manufacturing")[3] included in the class called *Building and Requalification*, which can be considered *creative* according to the wider definition adopted in this study. The building restoration and requalification activities are mainly interested in Ragusa, and have a positive impact in terms of the number of enterprises in the sector (+15.8%); the negative trend in the employment (-3.3%) is less severe as compared with the regional and national trends (respectively -13.5 and -18.1%). A larger increase in publishing enterprises has been registered in Catania (+9.9%) and confirms that this kind of creative activity better develops in the urban centers with a larger dimension.

Table 3 - *Enterprises and employment in creative industries (%variation, 2000-06).*

	"Building-Requalification" Enterprises	"Building–Requalification" Employees	Publishing Enterprises	Publishing Employees
Catania	3.5	-8.8	9.9	-6.4
Ragusa	15.8	-3.3	-0.9	-14
Siracusa	0.2	-20.1	4.2	-20
VdN	4.8	-9.6	7.2	-10.4
Sicily	5.1	-13.5	10.1	-14
Italy	1.3	-18.1	3.3	-22-7

Source: *Our computations on data provided by Unioncamere (2010).*

Restoration and regeneration interventions conducted on the cultural heritage benefit the buildings of historical and artistic interest and the local real estate market. An increasing demand of apartments, in the historical centers, and country houses, in the typical countryside, comes from national and international potential buyers, and someone speaks about a new "Chiantishire", evoking what happened in

[3]The economic sectors are defined according to the ISTAT (ATECO 2002) Classification. The detail of the analysis is 3–4 digits.

Tuscany. However, this phenomenon cannot be easily quantified. If we take the Real Estate Intensity Index[4] values, we can realize that the VdN real estate market is more dynamic than the regional market but still far from the national performance. Hence, we can affirm that the private real estate market has been positively affected by the recovery of the cultural heritage in the historical centers and by the urban regeneration process that should usually be followed.

5.1. Effects on intangible culture

In VdN, there is a deep stratification of localized know-how that passes on generation by generation through the transmission of the production techniques of the main everyday life products: food, wine, art and crafts, and manufactures. Some local entrepreneurs in traditional economic sectors (i.e. agriculture, handcraft manufacturing) are aware of this intangible cultural capital and of the value added that it can give to their productions; they developed some *niche* cultivations (i.e. tomatoes, grapes, carobs, almonds) and agro-industry productions (i.e. oil, wine and cheese) which received national-quality denomination (i.e. Controlled Origin Denomination (Doc), controlled and guarantee origin denomination (Docg), and denomination of the place of origin (Dop).

The recent awareness of the mutual benefit that the intangible capital, used for the local-quality production, and the tangible capital, represented by the Baroque cultural heritage, can have as tourism attractors is at the origin of many local promotion events. The denomination of these events that involves local enterprises of typical high-quality products and cultural operators (i.e. Baroque Slow, Baroque Festival, and Baroque Week) testifies the design of the local tourism development model that has been adopted. The organization of these events that involve entrepreneurs of different local economic sectors could be considered a positive signal toward the implementation of a cultural district. However, a large part of these events are organized only occasionally by single municipalities of VdN, in the summer season, and no coordinated action among the municipalities of VdN is implemented. The only exception is the "Baroque Train", a special tourist train trip that passes through ancient railways in the VdN landscape, every summer since 2005 (it was planned in the first MP).

[4]This index estimated by the National Agency of the Territory (*Agenzia del Territorio,* 2009) annually measures the ratio of the number of normalized transactions (weighted to the quota of properties on sale) and the stock of estate properties counted in the province.

6. The impact on tourism activity

According to our broad definition of the *creative industry*, cultural tourism can be well included in creative industries, as it uses culture as a fundamental input of its production process. Cultural tourism has many definitions, and some definitions do not allow to distinguish itself from any other tourism experience where tourists visit a place that is beyond their own living environment (ICOMOS, 2002). If it is difficult to define cultural tourism, and it is more difficult to estimate it. It is commonly assumed that the cultural tourism flows are characterized by a lower level of seasonality compared with other segments of tourism demand, as the main scope of cultural tourists is visiting the cultural heritage and knowing new ways of life. On the basis of this assumption, the pattern of the seasonality of the overnight stays might indirectly help estimate the presence of cultural tourist flows in the WHS and the effectiveness of the UNESCO certification; the lower the seasonality of the tourist flows, the higher the segment of cultural tourists and the effectiveness of the UNESCO WHL inscription should be.

However, the increase of the tourism flows greatly depends on the availability of an adequate accommodation capacity in the tourism destinations selected. Otherwise, the visitors of the cultural sites are just excursionists, and their presence will have a lower impact on the local economy, if not a negative effect (i.e. congestion). Therefore, before deepening the analysis on the demand side, it is better to investigate what happens on the supply side, that is, with regard to the accommodation infrastructures, in the municipalities of VdN during the period around the inscription in the WHL (2000–2006).

6.1. The accommodation capacity

Data from ISTAT, the Italian Statistical Office on the accommodation structures in seven out of eight municipalities of VdN[5], show that, in the two years considered (2000 and 2006), in VdN, the number of beds has increased much more than in Sicily and in Italy (respectively +118% compared with + 37 and +15 %, see Table 4).

[5] In this section and in the next one, we do not include the data on the municipality of Catania, as, in our opinion, at the moment, tourism in Catania mainly presents the characteristics of business tourism and not of cultural tourism (see, Cellini and Cuccia, 2007). These characteristics are not relevant to the aim of this study.

Table 4 - *Number of beds in hotel and extra hotel (% variation, 2000-06).*

	Hotel (%)	Extra-hotel (%)	Total (%)
VdN	+47	+1.393	+118
Sicily	+38	+36	+37
Italy	+13	+17	+15

Source: *Istat, various years.*

The impressive percentage variations registered in VdN are derived from the very low absolute number of beds counted in some interior municipalities in the initial period and the astonishing increase in the number of beds in extra hotels, particularly in Bed and Breakfast (B&B) (+1.393%). In absolute value, we now count 12.794 beds in VdN (approximately one third in extra hotels, 4.629); they are mainly located in the municipalities close to the coast where the "sun and sea" attractiveness is very strong.

The diffusion of B&B –a recent phenomenon in Italy, as compared with other European countries– is striking. B&B are mainly located in the historical centers; some of them are located in ancient and noble private apartments whose costs of preservation and maintenance are so high that the private owners cannot allow them to be used as their private residence and instead prefer to partially change their use, offering this kind of temporary hospitality. They are usually managed by local family businesses and in order to enhance their positive impact on the local economy, higher efforts of coordination are required.

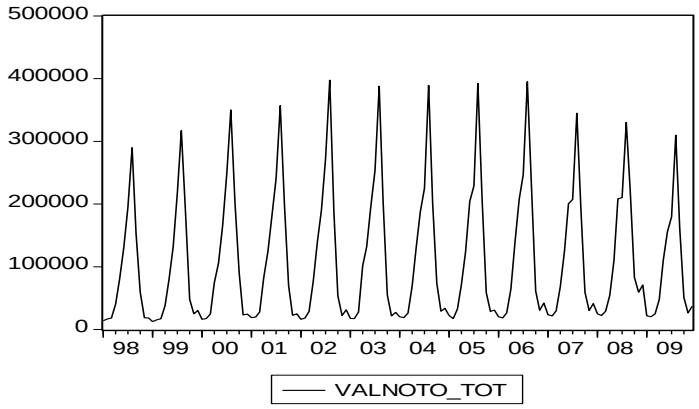
6.2. The tourism flows

The analysis is focused on the monthly overnight stays in VdN during the period 1998–2009; we consider the data registered in the statistical units that compound VdN[6]. At a first glance (Fig.1), we observe that in the years immediately preceding the official inscription in WHL (2002), the tourism incoming flow (as measured by overnight stays) has been sharply increasing; it was maintained rather stable in 2002–06; and started slightly decreasing afterwards. A more disaggregated analysis (the data are available on demand) shows that all the destinations of VdN, located along the coast, show the largest number of stays, with a higher

[6]The statistical units considered in the analysis of the tourism presence in VdN are as follows: Siracusa APT, which comprehends the Province of Siracusa where the municipalities of Noto and Piazza Armerina are located but not the main city of Siracusa; the Province of Ragusa, which includes the main city of Ragusa, the municipalities of Modica and Scicli, and the other municipalities of the province; and the unit of Caltagirone, where the municipalities of Caltagirone, Militello, and other small municipalities of the area are included. Catania is not considered for the same reasons explained in Note 5.

concentration of the stays in the summer season and, particularly, in August: the sun and sea seem to attract more than culture, but, in fact, we cannot dismiss the idea that sun and sea and cultural tourism could be complements.

Figure 1 - *Pattern of the monthly overnight stays in VdN (1998-2009).*



If we compare the pattern of the monthly overnight stays in VdN with the corresponding regional and national data, measuring the variation of the average monthly overnights stays during the period 1998–2006, we observe that in VdN, the increase is higher than in the Sicilian region and in Italy (+43% compared with +29.6 and 19.9%, respectively, in Sicily and in Italy –see Table 5). We choose 2006 as the final year for the comparison, as we suppose that the decreasing pattern in the presence registered in VdN since 2007 depends more on exogenous negative shocks, as the worldwide macroeconomic crisis that generally negatively influences the trends observed in the tourism sector.

Table 5 - *Monthly overnights during the period 1998-2006.*

	Average 1998	Average 2006	%Var
VdN	86.213	123.294	+43,0%
Sicily	933.705	1.210.727	+29,6%
Italy	24.959.032	29.925.875	+19,9%

Note: Computations on ISTAT data.

To know more about the cultural tourism flows in VdN, we focus the analysis on the seasonality of the overnight stays, based on the assumption that cultural tourists are less seasonal than sun and sea tourists.

Seasonality is a common characteristic of the tourism market that depends on both the demand side and its institutional constraints (i.e. holiday planning, school

holiday, working timetables, etc.) and the supply side (i.e. the particular geographical and climate characteristics of the destinations). As already mentioned, in VdN tourism, flows are concentrated in the summer season, due to the coasts and the seaside attractiveness. In these years, reducing seasonality becomes a priority of the local tourism development strategies that foster positive impacts and reduce the management costs of the tourism public and private services (Rossellò et al., 2004; Cuccia and Rizzo, 2011). De-seasoning can be pursued in VdN by promoting cultural tourism, and the UNESCO certification could favor this kind of tourism.

Seasonality can be measured in different ways (for a review of the literature, see Lundtorp, 2001). Here, we provide the statistics from the Census-X-12-ARIMA procedure; in particular, some tests are conducted on the significance of seasonality and the stability of seasonal factors across the years (moving seasonality) – see Table 6.

Table 6 - *Tests on seasonality conducted on the time series of the tourism overnight stays* .

	1. *F*-Test on seasonality (F(11,96))	*2.* *K*-Test on seasonality K(11)	3. *F*-Test on moving seasonality (F(8,88))
VdN	F=1110,68*	K=104.24#	F=0,90
Sicily	F=2160,14*	K=105,4#	F=5,56§
Italy	F=2876,63*	K=93,68#	F=1.65

Notes: Column (1) reports a F test on the null that the variance across months is equal to the residual variance: starred values lead to reject the null (i.e., seasonality is significant) at the 0,1% significance level. Column (2) reports the Kruskal-Wallis test on the equality of median values across months: values with # lead to reject the equality of median values, at the 0,1% significance level. Column (3) reports the F test on the stability of seasonal factors over years: the value marked by § is the unique case in which the null is rejected (at the 5% significance level), indicating that seasonal factors are moving over time; more specifically, their variability has increased (min-max passed from 0,29-2,35 in the starting year to 0,26-2,50 in the final year).

According to the considered tests, the seasonality of the overnight stays during the period 1998–2009 is significant, in both Italy and Sicily and in VdN (as well as in each considered unit of the VdN, with the exception of Catania, which is not considered in the analysis for the reasons previously mentioned). The F test on moving seasonality and the seasonal factor values indicate that the seasonal variability has increased in Sicily but not in Italy and in VdN (see Note of Table 6).

To summarize, we can affirm that the UNESCO certification of VdN has definitely contributed to the increase of the tourism flows in the area, along with a concurrent increase of the establishments in the area stimulated by the positive expectations pertaining to the demand and the public financing support. However,

these higher flows have maintained a significant seasonal pattern. We could conclude by saying that the UNESCO certification is not able to attract tourists whose unique interest is culture and, consequently, it is not able to reduce the seasonality of the tourism flows; however, the UNESCO certification has been able to stabilize the pattern of seasonality, whereas the degree of seasonality of tourism in Sicily has increased.

7. Governance and policy issues

The establishment of a cultural district according the procedure followed in VdN gives rise to two main governance issues: the first one concerns the vertical fragmentation of the functions among different layers of government involved (i.e. international, national, local) that can overlap; the other concerns the horizontal coordination of the single municipalities of VdN.

As to the first issue, the UNESCO procedure for the inscription of a cultural site in the WHL does not finish at the time of the inscription with the approval of the MP of the site; it continues with a periodical check of the implementation of the Plan (every six years). It is absolutely reasonable that UNESCO periodically checks the state of the World Heritage Sites (WHS) and threatens to strike off the list the WHS that are neglected by the local authorities. It is absolutely right that UNESCO intervenes in case of emergency, devoting its scarce resources toward recovering an abandoned WHS. It is much more difficult to believe that an international organization, such as UNESCO, could be effective in monitoring the valorization plans of the WHS implemented by the local policy makers. The cultural district model proposed in the MP of VdN and approved by UNESCO can be easily disregarded by the local policy makers without running any risk. After the inscription in the WHL, UNESCO can give advice, but it cannot impose any behavior to local authorities. Moreover, the advisory function of UNESCO could be disputable. The UNESCO's advice could be considered an outside interference in the local planning of WHS.

The distance from UNESCO and the WHS can be reduced by the intervention of the national layers of government involved in the management of cultural heritage. In Italy, the national UNESCO division of the Ministry of Culture (Mibac) selects the sites that are inserted in the Tentative List before submitting for the final international selection and establishes the Guidelines of the MP. Usually, drawing up the MP requires the intervention of private consulting agencies. Moreover, the national layer of the government mainly devoted to the preservation of the cultural heritage can overlap the management function decentralized to lower layers of the government (i.e. Regions, Provinces, and Municipalities). This

institutional framework can make the UNESCO procedure a very exhausting and expansive bureaucratic one. The institutional framework could also be at the origin of the delay in the approval of the MPs and in the establishment of the cultural districts in VdN. A recent study conducted on the state of the art of the MPs of the Italian UNESCO sites (Badia, 2009) shows that only 17 UNESCO sites (less than 40%) have an MP that was approved and transmitted to UNESCO. In the case of VdN, two MPs were drawn up; the first one was drawn up in 2002, the year of the inscription in the WHL; the second was drawn up in 2005 in order to stimulate a more active participation of the local stakeholders. However, both MPs were not effective. We noted that the UNESCO certification of VdN had an immediate positive impact on tourist stays, but the benefits did not increase in the medium term.

This empirical result introduces the second government issue: the horizontal coordination of the local nodes that connect the cultural district network. In the case of VdN, the management of the cultural endowments has been carried out by each municipality without any coordinated action. Some municipalities benefit more than others: they are the municipalities (Caltagirone, Ragusa and Scicli in the province of Ragusa) in which the policy makers are more aware of the socioeconomic relevance of their cultural endowments and enact their Urban Planning Acts on the line of the strategies advanced in the MP; other municipalities of VdN have not yet enacted any local Urban Planning Act.

However, the main institutional deficiency is the absence of an effective coordination body that designs a common development strategy for the VdN. The cultural association "South-East Cultural District", established in 2007 (five years after the inscription in the WHL) and managed in turn by the majors of the municipalities of VdN, is not effective; recently, it has also been involved in a regional project for the establishment of cultural and tourism districts, which aims at enlarging the number of municipalities involved in the projects of the cultural district. The enlargement will not make the coordination easier.

This institutional deficiency along with the infrastructural deficiency of the territory have not yet allowed the implementation of the cultural district model proposed in the MP (Le Blanc, 2010). Some positive signals arise in some municipalities of VdN in which culture became a key word of the local development policy and characterized the innovation and differentiation process in different economic sectors. Hopefully, this approach should be extended to the whole VdN. The establishment of a cultural district is an endogenous process that UNESCO can encourage with the inscription of a site in the WHL but is also something which it cannot impose.

8. Conclusions

Recently, an increasing number of studies aim at evaluating the effects that the inscription in the WHL has on the economic growth of the area where the site is located (Arezki et al.2009), on the international tourism arrivals (Yang et al. 2010; Cellini, 2011), and on the local community (Jimura, 2010): the results are not univocal. This study flows in this line of literature. It aims at analyzing the economic impact of the inscription of the "Baroque cities in VdN" in the WHL, which occurred in 2002. Specifically, we have studied the effectiveness of the UNESCO procedure in promoting the adoption of the cultural district model in VdN. This model of local development requires the valorization of the localized tangible and intangible cultural endowments to foster an endogenous development process, which started, thanks to the exogenous shock represented by the UNESCO certification.

The main results of this case study suggest some considerations on the role that an international organization as UNESCO can play in the start-up of a local development process. The following results mainly concern the case study on hand, but some points can have a more general nature:

- A significant number of historical buildings and churches in VdN have been restored even if the interventions had been established and funded before the inscription in the WHL; at the moment, no priority is given to the monuments protected by UNESCO in the public restoration and maintenance plans;
- The valorization of the localized tangible cultural heritage has a positive impact on the local economy: the idiosyncratic material culture becomes a fundamental input of any productive process. It stimulates different economic sectors: traditional sectors, such as agriculture, and creative industries, which are strictly involved in the restoration (i.e. building and requalification enterprises) and the valorization process (i.e. publishing and tourism) of the cultural heritage;
- The tourism impact in VdN has been relevant, especially if we compare the VdN data on the overnight stays with the regional and national data. The accommodation capacity and, particularly, the number of extra-hotel establishments and B&B have significantly increased the promotion of a different kind of accommodation and fruition of the cultural heritage. The pattern of the overnight stays in the period considered (1998–2009) has also increased and arrived at levels it has never attained earlier;
- UNESCO certification seems to have attracted a large number of tourists, but it has not had a permanent effect on the growth rate;
- The seasonality of tourism flows in VdN has remained stable, whereas in Sicily as a whole, it has grown. Since cultural tourism can be considered as being able to reduce tourism seasonality, we can infer that the inscription of the site in the

WHL has had a positive, but limited, impact in attracting tourists. We argue that the cultural tourism flows could only reduce but not cancel the typical seasonality pattern of a sun and sea destination such as Sicily;

- The local governance of the VdN is very deficient, as the single municipalities are not used to coordinate their policies. The valorization of the culture heritage and of the UNESCO certification is founded on the initiatives of single municipalities, the ones that are more aware of the benefits they can derive from a local development policy based on culture and creativity. The South-East cultural district proposed by UNESCO and approved in the MP of VdN has not yet been implemented. However, even if the UNESCO procedure requires both an *ex-ante* and an *ex-post* monitoring of the site, it can really neither enforce any model of local development nor sanction the delay. The case of VdN is an example of how the UNESCO action can be very limited.
- As a final remark, we can affirm that the UNESCO certification should not be considered by the local policy makers as the final goal of a procedure devoted to acquire local consensus; rather, it should be considered the first step of a local development process based on culture and tourism that should involve local communities.

Acknowledgements

I thank Venera Tomaselli, Ilde Rizzo and Roberto Cellini, along with the participants to the SIEDS 2012 Conference, for useful comments. The responsibility for any errors is, of course, mine.

References

AGENZIA DEL TERRITORIO 2009. *Real Estate Report,* www.agenziadelterritorio.it

AREZKI, R., CHERIF R., PIOTROWSKI J. 2009. Tourism specialization and economic development: evidence from the UNESCO World Heritage List. *IMF working paper* 09/176.

BADIA F. 2009. Una ricerca empirica sullo stato di attuazione dei Piani di Gestione UNESCO. *Siti*. www.rivistasitiUNESCO.it

BECATTINI G. 1989. Riflessioni sul distretto industriale marshalliano come concetto socio-economico. *Stato e Mercato*, Vol. 25, pp. 111-27.

BERTACCHINI E., SACCONE D. 2010. Searching for the determinants of world heritage listing: an econometric analysis. *Ebla working paper, University of*

Turin, n. 2010/26.
CELLINI R. 2011. Is UNESCO recognition effective in fostering tourism? A comment on Yang, Lin and Han. *Tourism Management*, Vol. 32, pp. 452-54.
CELLINI R., CUCCIA T. 2007. Catania. L'analisi del turismo nella destinazione di una città. *Economia dei Servizi*, Vol. 2, pp. 147-65.
CONSORZIO CIVITA 2002. *Le città tardo barocche del Val di Noto, Piano di Gestione* (Mimeo).
CUCCIA T., RIZZO R. 2011. Tourism seasonality in cultural destinations: Empirical evidence from Sicily. *Tourism Management*, Vol. 32, pp. 589-595.
FLORICA R. 2002. *The Rise of the Creative Class*. New York: Basic Books.
FREY B. S., PAMINI P. 2009. World Heritage: where are we? An empirical analysis. *CEsifo* W*orking Paper Series*, Munich: IFO.
FREY B. S., L. STEINER 2010. World Heritage List: Does it make sense?, Zurich *Working Paper Series* n.484, April.
ICOMOS 2002. *International Cultural Tourism Charter. Principles and Guidelines for managing tourism at places of cultural and heritage significance*. ICOMOS International Cultural Tourism Committee.
JIMURA T. 2010. The impact of world heritage site designation on local communities – a case study of Ogimachi, Shirakawa-mura, Japan. *Tourism Management*, doi:10.1016/j.tourman.2010.02.005.
LE BLANC A. 2010. Cultural Districts, a new strategy for regional development? The South-East Cultural District in Sicily. *Regional Studies*, Vol. 44, pp. 905-17.
LORENZINI E. 2011. The extra-urban cultural district: an emerging local production system. Three Italian case studies. *European Planning Studies*, Vol. 19, pp. 1441-57.
LUNDTORP S. 2001. Measuring Tourism Seasonality. In: BAUM T., S. LUNDTORP (Eds.) *Seasonality in tourism*, Oxford UK: Pergamon, pp. 23-50 .
MECENATE '90. 2005. *Avvio operativo del Piano di Gestione del sito UNESCO "Le città tardo Barocche del Val di Noto"* (mimeo).
McGRANAHAN D.A., WOJAN T.R., LAMBERT D. M.2010. The rural growth trifecta: outdoor amenities, creative class and entrepreneurial context. *Journal of Economic Geography*, Vol. 11, pp. 529-57.
RICHARDS G. 2011. Creativity and Tourism, the state of the art. *Annals of Tourism Research*. Vol. 38, pp.1225-53.
ROSSELLO'-NADALl J., RIERA FONT A., ROSSELLO' A. 2004. The Economic Determinants of Seasonal Patterns. *Annals of Tourism Research*. Vol. 31, pp. 697-711.
SANTAGATA W. 2002. Cultural Districts, Property Rights and Sustainable Economic Growth. *International Journal of Urban and Regional Research*, Vol. 26, pp. 9-23.

SANTAGATA W. 2009. *Libro bianco sulla creatività*. Milano: Egea.

SANTAGATA W., CUCCIA T. 2004. Collective property rights for economic development: the case of ceramics cultural district in Caltagirone, Sicily. In COLOMBATTO E. (Ed.) *The Economics of property rights.* Cheltenham UK: Edward Elgar.

SCOTT A. J. 2004. Cultural-Products Industries and Urban Economic Development: Prospects for growth and Market Contestation in Global Context. *Urban Affairs Review*, Vol. 39, pp. 461-90.

UNIONCAMERE 2006. *La dotazione delle infrastrutture nelle province italiane*. Istituto Guglielmo Tagliacarne, Roma.

UNIONCAMERE 2010. *Rapporto Unioncamere 2010*, Roma.

YANG C.H., LIN H. L., HAN C.C. 2010. Analysis of international tourist arrivals in China. The role of World Heritage Sites. *Tourism Management*, Vol. 31, pp. 827-37.

WORLD HERITAGE COMMISSION 2011.*The Operational Guidelines for the Implementation of the World Heritage Convention*. http://whc.UNESCO.org

SUMMARY

Is it worth being inscribed in the World Heritage List?
A case study of "The Baroque cities in Val di Noto" (Sicily)

This article deals with the effects of the inscription of a cultural site which is contained in the UNESCO World Heritage List (WHL); in particular, it focuses on the case of the "Baroque cities in Val di Noto" (Sicily, Italy) which is a serial site, constituted by a large number of towns that share the same architectural style and are located in a large area that includes eight municipalities. We discuss whether the model of the "cultural district" is appropriate enough to describe the experience of Val di Noto. More specifically, we analyze the impact of the inscription to the WHL on creative industries and tourism flows. We observe that the most relevant effects occurred in the years around the inscription (2002) and suggest that the difficulties in maintaining sustained economic growth in more recent years rest in the limited enforcement power of the UNESCO resolutions and in the limited coordination among different layers of government.

Tiziana CUCCIA, University of Catania, Department of Economics and Business, Catania, Italy, cucciati@unict.it .

TOURISM DEMAND IN SICILIAN TOURIST DISTRICTS

Vincenzo Asero, Rosario D'Agata, Venera Tomaselli

1. Introduction

The heterogeneity of goods and services that make up a destination product along with the complex interactions that take place between firms, government agencies, tourists and residents characterize tourism as a system. Each tourist system may comprise one or more destinations in which facilities and services necessary to satisfy tourist needs are located as well as tourism resources. The breadth and size of a system are determined by market supply, but can be the result of spontaneous forms of territory organization, as happened in Italy, at the sub-regional level, for the Local Tourist Systems (LTS) and the Tourist Districts (TD).

Tourism systems, therefore, can be of different scales and can have administrative and physical boundaries that define areas of responsibility of those subjects who have to worry about their management, although, sometimes, these boundaries may be more or less blurred.

In Sicily, the concept of tourism as a system is reflected in tourist districts – "territorial" and "thematic" – defined on the basis of Regional Decree n. 4/2010 that establish criteria and procedures for their recognition, prescribing certain essential requirements.

The model on which tourist districts are based follows a bottom-up approach, since it offers the opportunity for local stakeholders – public and private – to make a system through the autonomous definition of a geographic area and to identify a common project idea, accompanied by a development plan, in order to organize and manage the tourism offer within a given territory (Antonioli Corigliano, 1999).

Our study is aimed at identifying types of tourists within the territorial tourist districts in Sicily: 1. *Selinunte il Belice and Sciacca Terme*; 2. *Sicilia Occidentale*; 3. *Iblei*; 4. *Il mare dell'Etna*; 5. *Siracusa e Val di Noto*; 6. *Golfo di Castellammare*; 7. *Palermo Costa Normanna*; 8. *Valle dei Templi*; 9. *Tirreno-Nebrodi*; 10. *Thyrrenium Tyndaris – Parco dei Miti*; 11. *Venere di Morgantina*; 12. *Taormina Etna*; 13. *Isole ed Arcipelaghi di Sicilia*; 14. *Monti Sicani e Valle del Platani*; 15. *Sicilia Centro Meridionale*; 16. *Cefalù e Parchi delle Madonie e di Himera*. Our

goal is to understand how to configure the tourism demand in relation to structural characteristics of tourists and their spending behaviours[1].

2. Tourist districts in Sicily

The relationship between tourism and territory is typical of a systemic entity, since it is based on processes of integration and cooperation between the tourist industry components that determine the specialization of the territorial offer. The narrower and more functional the organizational dynamics are within a destination and the stronger interconnections between the components of the tourism system, so much more the chances of success in terms of market to a certain destination will be (Giannone, 2006).

The importance of a systemic approach in the organization of tourism in an area and the importance of the territorial dimension are confirmed in Italy in the Law n. 135/2001 "Reform of national tourism legislation" which in art. 5 defines "Local Tourist Systems" (LTS). These constitute the reference model adopted for the reorganization of the Italian regional tourism sector and for the definition of the territorial tourist offer.

The legislator's intent was to promote the integration of tourism policies, on the one hand, and territorial government policies and economic development, on the other, and to find a synthesis in public-private planning where the common interest of institutional actors and entrepreneurs of a given local area converge. Each LTS is based on the idea of implementing tourism projects, but the same consideration can be extended to TDs, and it is not, as many believed, a new permanent body of local government which is replacing the abolished regional and provincial tourism authorities (Loy Puddu, 2012).

The emphasis, therefore, seems to be more focused on the opportunities offered by tourism to regional development through the enhancement of systems and local networks, following the logic of bottom-up processes. In this framework local resources are considered strategic to reinforce the production capacity of a territory.

Sicily moved in the same direction as the national law with the Regional Law n. 10/2005, which in art. 6 defines tourist districts as "homogeneous or integrated contexts including territorial areas belonging also to more provinces and characterized by offers of qualified tourist attractions and/or cultural sights and environmental goods, including agricultural products and local handicrafts". By

[1]The reference data are from a survey carried out within the project PRIN 2007-2009 "Mobility of regional incoming tourism. Socio-economic aspects of behaviours and motivations".

using the term district the Sicilian Region wanted to emphasize the competitive advantages resulting from some territorial-economic conditions, defined in the literature as 'district economies' (Marshall, 1920; Becattini, 1989 and 2000)[2]. These are determined by the tendency towards spatial concentration of firms that operate on the same sector. They derive advantages from being close to each other in terms of reducing production and transaction costs, and increasing efficiency of production inputs. In this model the relationship between economy and the social system that structures the market functioning plays a key role.

LTSs and TDs are based largely on the model of industrial districts, characterized by the localization of firms in the same area and a system of more or less complex relationships that link firms, territory and institutions. Both, in fact, are aimed at the tourist development of a territory, increasing product efficiency and destination competitiveness (Candela and Figini, 2005). However, if we consider the heterogeneity and complementarities of tourist firms, their interconnection with the institutions, the links that tourism has with other productive sectors and if it emphasizes the fact that firms – hotels, restaurants, service agencies, etc. – individually compete with each other but together determine the competitiveness of tourism in the same area, a suitable model to represent such a system is that of Porter's *cluster* (Porter, 1998).

In fact, often, the concepts of district, local system and cluster are used interchangeably. In this respect, the choice of Sicilian Region to use TD, rather than LTS, would seem only a matter of terminology. Yet, on closer examination, the term 'district' has a stronger content than 'system', for at least two aspects. First, the district invokes a narrow, well defined geographic area and, second, the district is the result of a spontaneous process of integration and relationships structured over time between firms, institutions and territory. Therefore, a district is created from an existing network over a territory, while the Sicilian regional law would seem to reverse this process, implicitly asserting that the district allows a territory to the system.

Moreover, with regard to the first point, it should be noted that the Sicilian Region gives the opportunity to set up also 'thematic' districts, characterized by non-contiguous territories, geographically distant, but bound together by a same project. This may seem a contradiction in relation to the fact that one of the characteristics distinguishing a district is its organization within a circumscribed territory. A further critical element is the opportunity for a municipality to be part, at the same time, of a territorial TD and a thematic TD. In fact, this condition could imply some ambiguity in TD planning and implementation of project ideas.

[2]For a more detailed analysis of industrial districts in Italy, see also the contributions of Brusco (1991), Garofoli (1991), Sforzi (1991), Quadrio Curzio and Fortis (2002).

Finally, the spatial configuration of some districts risks fragmenting tourism resources (*e.g.* those of the Baroque) and determining overlap in tourist offer of some areas.

If so, then, the use of the term 'district' by the Sicilian Region to define territorial contexts with tourist value might appear to be a 'force', or perhaps just a word emptied of its real meaning, while the effects deriving from their institution may be very different from those anticipated. In fact, the risk is that a TD is organized not on the basis of a common project idea that its proponents would like to achieve, but on the basis of the economic and financial opportunities.

3. Demand analysis and territory competitiveness

TDs are set up with the aim of promoting new models of territorial development, supporting activities and processes of aggregation and integration of tourist firms and local actors, in order to implement interventions for tourist offer qualification and improvement of tourist services.

After a long bureaucratic process that, however, reveals a certain immaturity of territories in networking and defining common planning, it has now come to the recognition of, in total, 23 territorial and thematic TD proposals, defined on the basis of the aforementioned Decree n. 4/2010. In particular, art. 3 states, under penalty of inadmissibility, that each district must have a population of at least 150,000 inhabitants, a capacity of at least 7,500 beds in total, located within the municipalities that are part of the district, and at least one commercial business every 350 inhabitants; the territory of the district must also possess tangible and intangible cultural attractions, or natural ones, or otherwise; that spatial aggregation must be at least of 12 municipalities and art. 5, that participation of private entities must be at least 30% of the shareholding structure.

Destination management actions aimed at the organization and management of tourism are strategic for TD development and operation. Instrumental in these activities is demand analysis, from which derive information for understanding the economic benefits of tourism and for defining segmentation strategies to improve market competitiveness.

A tourist destination can identify its market by analysing attractions and selecting segments that these should be concerned with, *i.e.* operating on the supply side, or collecting information about its own visitors (Kotler *et al.*, 2007), using different variables – socio-demographic, geographic, behavioural, etc. – to segment the tourist market on the demand side (Dolnicar, 2005). On this topic, Fodness (1994) states that it is impossible to manage the tourism market without

understanding consumers-tourists motivations and the functional relationship between motives and behaviours can be used to segment the market.

Therefore, motivations are critical to understanding travel behaviour and their identification may allow firms and destinations to improve marketing strategies (Crompton, 1979; Fodness, 1994). It has been noted that there is a relationship between destination attributes - resources and activities - and tourist motivations (Moscardo *et al.*, 1996), which points out that motivations are related to types of tourism, since these are characterized by the use of specific attractions, whose consumption responds to the satisfaction of certain needs and expectations of tourists.

In relation to motivations, it is also possible to segment the market by distinguishing tourists expressing 'prevalent' motivations, if not 'exclusive', which are reflected in their holidays, and others, who experience 'composite' motivations, binding a certain type of holiday with other ones. (Asero *et al.*, 2011). In this regard, Swarbrooke and Horner (1999) argue that every holiday represents a compromise between multiple motivational factors, among which one becomes dominant, but a single motive is rarely identified as the sole reason for travel.

However, choosing a destination and a type of holiday is not only related to demand determinants – disposable income, amount of leisure time and motivations – but it can also be the result of destination market strategies. In this last case, however, a destination could be recognized and sold in the market mainly, or exclusively, for some attractions, which constitute only part of its overall tourist offer. This is happened in many parts of the Mediterranean area, where, for so long, largely mono-product market policies have been privileged, which have consequently influenced the localization of accommodations. One example is Sicily, where for years tourism development planning has preferred certain areas, usually on the coast, which today are better equipped with tourist facilities, not so much for their attraction value, but rather for the highest concentration of beds (Asero *et al.*, 2010).

However, more recently, these choices have been largely offset by the development of new tourism products (*e.g.* wine and food, rediscovering small towns of art, etc.), for which, in line with market trends, no motivational price factors boost tourist demand, most of them related to seeking out territory peculiarities and identity.

In this framework, then, TD development should extend the Sicilian tourist offer and improve its market competitiveness, by creating new products that focus on enhancement of many of its peculiarities.

4. The survey data

Thanks to a co-funding of the Italian Ministry of University and Research (P.R.I.N. 2007-2009), in order to study tourism demand, a research group constituting the University of Palermo (coordinator), Catania, Bologna and Sassari, has carried out a survey on incoming tourism in Sicily during two periods: July-October 2009 and March-June 2010.

The units of interest were represented by Italian (not resident in the Island) and foreign tourists[3], in order to collect direct information (from the demand-side) related to the whole period spent in the Island.

We interviewed 3,935 tourists leaving Sicily at the end of their trip, according to a complex design of *Time-Location Sampling (TLS)*, described in details in De Cantis *et al*. (2010). In this survey, due to the mobile nature of tourists and the absence of a complete list of the population units, sampling methods and techniques have been used. They are often mixed, and not immediately recognizable, from other units (*e.g.* in tourism with residents or with other travellers), which make their selection more difficult and expensive.

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.

According to the *TLS* design, the places selected where tourists have been interviewed were: the airports of Palermo, Catania and Trapani; the ports of Palermo and Catania and the Strait of Messina.

The research instrument was a questionnaire divided into different sections: organization of the trip, motivations and expectations, type of holiday, mobility, expenditure and level of satisfaction. Furthermore, in a specific section of the questionnaire the tourist was asked to indicate all the places (Municipalities) visited, where the tourist spent at least one overnight stay, specifying for each place the number of nights and the type of accommodation.

Through the analysis of data in table 1 it is possible to observe that the 3,935 tourists interviewed, made about 6,500 visits in Sicily with at least one overnight stay[4].

[3]Sicilians and other travellers (non-tourists) were excluded from the sample.

[4]Actually the total visits were 6.509 but for 24 visits information was missing as to type of accommodation chosen.

Table 1 – *Visits, overnight stays and average duration by accommodation.*

Accommodation category	*Visits*	*Overnight stays*	*Average length of stay*
Official			
Farmhouse	152	589	3.88
Holiday camp	24	200	8.33
Hotel	2,615	11,071	4.23
Campsite	377	1,183	3.14
Bed and Breakfast	1,023	3,359	3.28
Youth hostel	46	129	2.8
Sub-total	*4237*	*16531*	*4.28*
Unofficial			
House/room rented	461	4,607	9.99
Relative and friend house	1,354	12,587	9.3
Private owned house	307	4,502	14.66
Other unofficial accommodation	126	4,502	3.31
Sub-total	*2248*	*22113*	*9.31*
Total	*6,485*	*38,644*	*6.29*

However, only a part of these visits (65% - 4,237 over 6,485) would be seen from official statistics on guest arrivals. In the remaining 35% of visits, tourists used unofficial accommodations. The 3,935 tourists spent about 38 thousand nights in Sicily, with an average length of their stay of about 9.8 nights (38,644 over 3,935). 43% of the total nights were spent in official and about 57% in unofficial accommodation.

The average length of stay - the ratio between nights spent in each accommodation category and the visits made on the same category[5] - 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.

In our data, this index varies among the different accommodation categories, with higher values for unofficial accommodations and lower values for the official ones: the highest value is 14.66 for owned houses. The average length in the unofficial category is 9.31, much higher than in official accommodations (4.28), where the highest value is referred to campsite and the lowest is 2.8 for youth hostels.

[5]It appears useful to highlight how the ratio between nights spent in each accommodation 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.

5. Methods of analysis

Our analysis focused on tourists visiting just one place, because our aim is to identify typical tourists profiles by analysing motivations and behaviours within each territorial TD (from now on TTD).

In a first step, from the survey on all the 3,935 units, we extracted a database of 3,233 self-organized tourists. Afterward, in order to specify the TTD, we reduced our database to 2,238 tourists with at least one overnight stay in accommodations localized only in the touristic destination visited.

Choosing a touristic destination and a type of holiday is related to product market strategies. Some tourism destinations, indeed, are recognized and sold on the market almost exclusively for some resources (*see* section 3).

Tourists coming to Sicily for a 'seaside' holiday are more likely to visit a single destination (only 15.76% took a multi-destination trip). Whereas those who took only a 'partly seaside' holiday or who took a different type of holiday (cultural tourism, eco-tourism, etc.) were more inclined to take a multi-destination trip.

On the first data-base (n=3,233), we started to explore some of the factors that can be related to tourism behaviour: tourist nationality, first-time *vs.* repeated visitors, age, reason/motivation for vacation, family/friends or alone on holiday, information tool, type of accommodation, type of holiday.

The statistical methods for data analysis have been chosen according to analysis aims. Firstly, we studied the relationship between features, resources, actions of a destination and tourism motivations (Moscardo *et al.*, 1996) in order to define tourist typologies on the basis of behavioural and motivational features associated with specific tourism product consumption. The segmentation of the market allows us to identify tourists with dominant or exclusive motivations and tourists with several different motivations.

In a second step, we identified tourism categories, referring to our previous research (Asero *et al*., 2012). We used a *two step* cluster analysis with some categorical variables and a continuous variable. Afterwards, we checked the clustering validity by means of discriminant analysis. As result, in that work, we obtained two clusters of tourists: 'tourists' and 'not only tourists'. In the first one, the tourists mainly chose Sicilian destinations for holiday trips or leisure and they spent more than the 'not only tourists'. The 'not only tourists' visited relatives or friends, used free or private accommodations and spent less than 'tourists'.

We used a database of 1,527 records, excluding from the analysis tourists who chose a 'partly seaside' holiday. The framework of a discrete choice model - the binary logistic regression model - was proposed to analyse the characteristics of tourists, which supposedly influenced their holiday choice. Most commonly these

were binary choice models using either a *probit* or *logit* specification (Riddington, Sinclair, Milne, 2000).

Many analyses of tourism demand have empirically identified the determinants of tourism expenditure using some demand measures, most notably visitor nights or visitor numbers (Crouch *et al.*, 2007). The majority of such tourism demand studies identify the exogenous variables of tourism demand specifying causal models.

The most used method has been regression analysis and the most common model specification has been log-linear, which has the advantage of producing parameters that are equivalent to estimated elasticity of demand[6]. The binary logit model has been used for many empirical studies of choice in tourism (Seddighi and Theocharous, 2002; Luzar *et al.* 1998).

In our study, the logit analysis determines the likelihoods of a tourist's selecting 'seaside' or a different type of holiday. So, we specify a binary logistic regression model (Hosmer and Lemeshow, 1989):

$$logit\ (p) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \cdots + \beta_k X_{\mathrm{k}} = \mathbf{X\beta} \tag{1}$$

where p is the probability to choose a 'seaside' holiday or not as *Y*-dependent variable into the model.

Formally,

$$P(y|x) = \frac{e^{\alpha+\beta x}}{1+e^{\alpha+\beta x}} \tag{2}$$

and the

$$\ln\left[\frac{P(y|x)}{1-P(y|x)}\right] = \alpha + \beta x \tag{3}$$

is the logit of $P(y|x)$ (Agresti, 1990, 86).

In the last step, we analysed the TTDs considering the results just obtained in the former steps. Thus, we used χ^2 test to check the significance of association between the distribution of tourists in each TTD and the variables analysed in the model. We checked, firstly, the normal distribution of continuous variable by means of the *Kolmogorov-Smirnov* test and consequently the difference among mean ranks by the *Kruskal-Wallis* test.

[6]The study defines the longitudinal relationship between these variables and tourism demand (as the endogenous variable) and then estimating the parameters of this relationship. Such parameters indicate how the variation in tourist demand throughout time is associated with the variation in the explanatory variables in the same time period (Crounch *et al.*, 2007).

6. The model for the analysis of tourism data

To evaluate the probability of a 'seaside' holiday or not (*Y*-dependent variable), we selected the X_i-independent variables as explanatory covariates introduced into the model according to *LR-Stepwise forward* procedure (Table 2):

Table 2 – *Explanatory variables in the model.*

Motivation	*Information tool*
Visit to relatives/friends	Agency, tour guide and other
Holiday trip/Leisure	Past experience/Friends
Other	Internet
Age	*Accommodation*
Less than 25 years	Private
25-44 years	Hotel
Over 44 years	Other type
Citizenship	*Number of overnight stays*
Foreign	(continuous variable)
Italian	

At the first step, we checked the significance of the association between *Y*-dependent variable and all the X_i-independent and categorical variables (Table 3): All the *p-values* show each association is significant. So, we use these variables in order to specify the binary logistic regression model. Now, we introduce the continuous variable *Number of overnight stays* into the model, too.

Table 3 - *Statistical significance of association between Y and X_i variables.*

*Y * Xi*	*N*	*%*	*χ2*	*Df*	*p-value*
*Y * Age*	1516	99.28	19.465	2	0.000
*Y * Motivation*	1524	99.80	113.339	2	0.000
*Y * Information tool*	1523	99.74	35.123	2	0.000
*Y * Accommodation*	1526	99.93	11.640	2	0.003
*Y * Citizenship*	1527	100.00	46.707	1	0.000

Firstly, we check the goodness of fit. The *Cox* and *Snell* and *Nagelkerke* R^2 values are not so consistent but they increase step by step (Table 4). So, if we check by means of the *Hosmer-Lemeshow* test, the *p-value* equal to 0.107, it confirms the goodness of fit of the model. It is achieved at the sixth step. At this step the procedure introduces the accommodation variable into the model:

Table 4 – *Goodness of fit of the model: diagnostic measures.*

Step	X_i	*-2 log Likelihood*	*Cox* and *Snell* R^2	*Nagelkerke* R^2	*Hosmer-Lemeshow* Test		
					$\chi 2$	*Df*	*p-value*
1	*N. overnight stays*	1916.162	0.109	0.145	66.813	8	0.000
2	*Motivation*	1800.979	0.174	0.232	27.292	7	0.000
3	*Citizenship*	1741.595	0.206	0.275	34.287	8	0.000
4	*Age*	1706.246	0.225	0.299	26.978	8	0.001
5	*Information tool*	1687.406	0.234	0.312	24.680	8	0.002
6	*Accommodation*	1679.435	0.238	0.318	13.136	8	0.107

Table 5 – *Binary logistic regression model. (Y-dependent variable: 'seaside' vs 'not seaside' holiday).*

X_i	B	E.S.	Wald	Df	Sig.	Exp(B)
Age						
Less than 25 years			34.96	2	0.000	
25-44 years	-0.468	0.24	3.949	1	0.047	0.626
Over 44 years	-0.772	0.13	34.952	1	0.000	0.462
Citizenship						
Foreign	0.855	0.14	39.942	1	0.000	2.352
Number of overnight stays						
	-0.127	0.01	121.88	1	0.000	0.88
Motivation						
Other			57.269	2	0.000	
Holiday trip/Leisure	-3.412	0.53	41	1	0.000	0.033
Visit to relatives/friends	-2.757	0.54	25.807	1	0.000	0.063
Accomodation						
Private			7.919	2	0.019	
Hotel	-0.369	0.18	4.197	1	0.041	0.692
Other type	-0.464	0.17	7.439	1	0.006	0.629
Information tool						
Agency, tour guide and other			22.958	2	0.000	
Past experience/Friends	-0.681	0.23	8.672	1	0.003	0.506
Internet	-0.078	0.22	0.121	1	0.728	0.925
Costant	4.995	0.6	69.06	1	0	147.724

Note: the reference category of Y-dependent variable is 'not seaside' holiday.

Now, we estimate the parameters of the model for every X_i-independent variable (Table 5). For each one, the value of the β coefficient is significant. Only Internet as information tool is not significant. So, if we focus on the parameter signs, we note that the negative values of β_i coefficients show a higher value of

probability of 'not seaside' holiday, compared with the probability of an 'exclusively seaside' holiday, for:

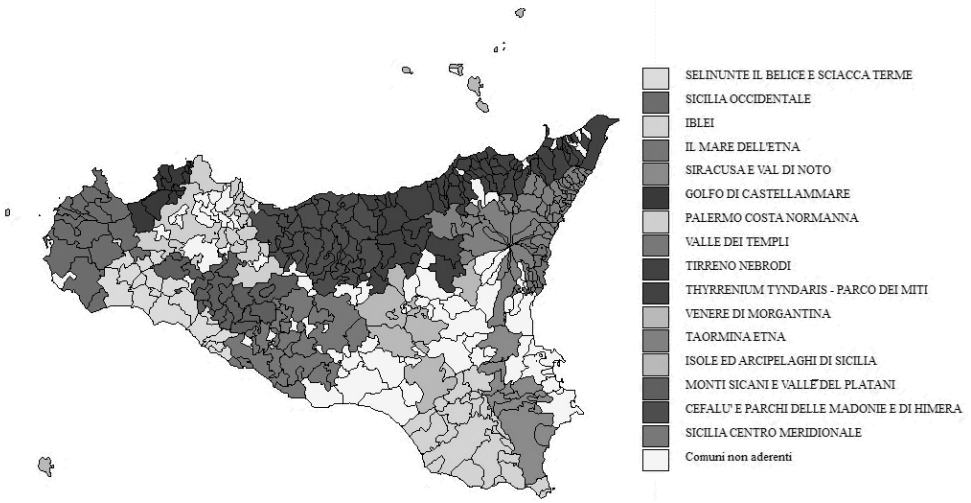
- older tourists (over 44 years) than younger tourists
- not so long stays than longer stays
- motivation related to visits to relatives or friends than holiday trips or leisure
- free or ownership accommodations than hotel or extra-hotel
- travel agency or tour guide than past experiences or friends.

Furthermore, only the value of β coefficient related to citizenship is positive (0.855). It means the probability of a 'not seaside' holiday is higher than a 'seaside' holiday for foreign tourists compared to Italian ones.

7. Focus on tourism demand in Sicilian TTD

In this section we analyse tourist distribution within Sicilian TTD (Fig. 1). So, starting from a sample of 3,233 self-organised tourists, we selected a subset of individuals who spent their holiday staying overnight in just one place included in a TTD. It entailed a sample reduction from 3,233 cases to 1,859. Again, since two districts (*Monti Sicani e Valle del Platani* and *Sicilia Centro-Meridionale*) showed few tourists, we saw fit to eliminate them from the database. The following analysis, then, was carried out on a subset of 1,834 cases.

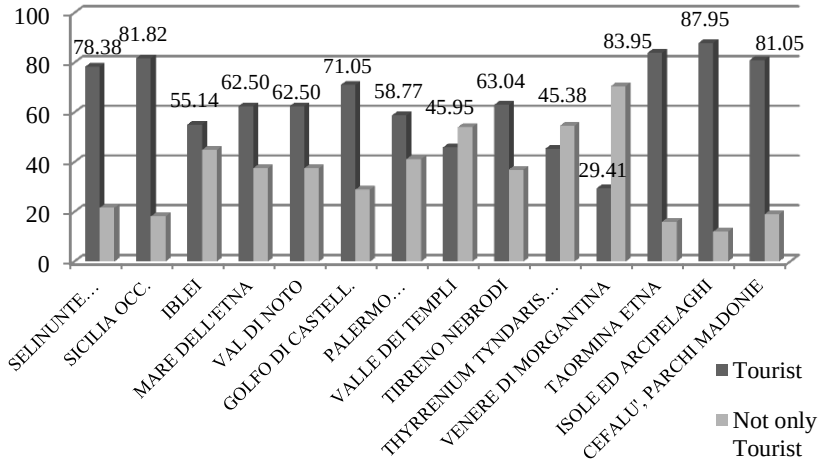
Figure 1 – *The map of Territorial Tourism Districts in Sicily.*



In the previous section, we illustrated cluster procedure to identify two different groups we defined 'tourists' and 'not only tourists'. Figure 2 shows the distribution

of clusters among the 16 TTDs. The 'not only tourist' cluster is prevalent in *Venere di Morgantina* (71.59%), *Thirrenium Tyndaris – Parco dei Miti* (54.62%) and *Valle dei Templi*. The 'not only tourist' cluster is featured by prevalence of Italian tourists, basically young people, coming to Sicily alone or with friends aiming to spend a 'not seaside' or 'partly seaside' holiday, staying in unofficial accommodations.

Figure 2 – *Cluster distribution in Territorial Tourism Districts.*



By contrast, the 'tourists' group prevails in all the other TTDs, especially in the *Isole e Arcipelaghi* (87.95%) and *Taormina Etna* (83.95%). This kind of tourist represents the typical tourist visiting Sicily. These tourists travel with their families, stay in hotels for a week and spend 'seaside' holidays. This 'Tourist' group locates mostly in those TTDs whose tourist supply revolves around the sea.

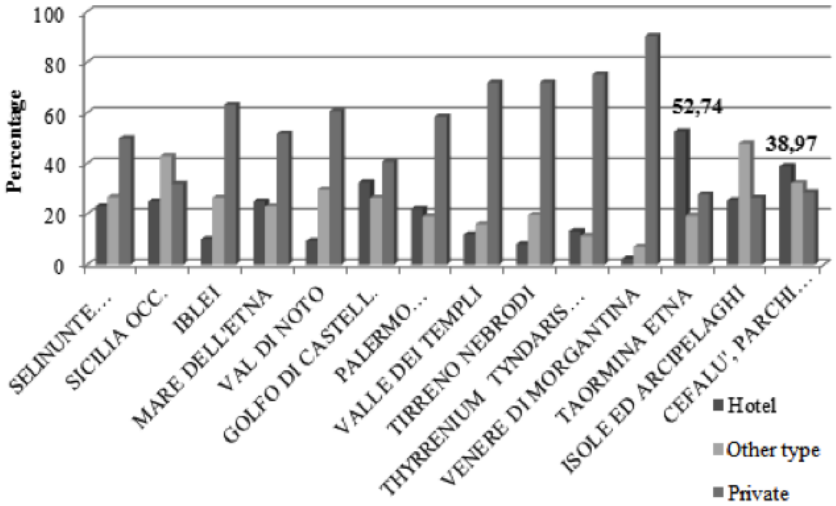
Going on with the characterization of TTDs and trying to confirm information arising from cluster distribution, we tested the significance of association between TTD and the variables employed in the analysis (Tab. 6).

Table 6 - χ^2 *test value between TTD and selected variables.*

Variable	χ^2	p-value
Tourist vs. Not only tourist	139.338	0.000
Seaside vs. Not seaside	131.141	0.000
Foreign vs. Italian	66.387	0.000
Age (≤ 44 years vs. >44 years)	37.494	0.000
Motivation (Pleasure vs. Paying visits to relatives or friends)	175.704	0.000
Information (previous experiences/friend's suggestion vs. Web)	104.428	0.000
Accommodation (Hotel – Other type – Private)	332.978	0.000

We aim to highlight the differences among TTDs according to some features considered central in studying tourism demand. One of the most discriminant variables is type of accommodation (Fig. 3). Accommodation is an important variable since it provides information about the presence of traditional tourism and allows us to distinguish those TTDs structurally voted to tourism supply.

Figure 3 – *Type of accommodation in Territorial Tourism Districts.*



Traditional accommodation typology (Hotel, Residence) prevails in *Taormina Etna* (52.74%) and *Cefalù, Parco dei Nebrodi* (38.97%) whereas in all the other TTDs accommodations are mainly private.

In spite of the numerous touristic resources (naturalistic, cultural, etc.), tourism in Sicily is basically seaside tourism. It entails the seasonality of tourism, thereby limiting the spread of the tourism industry (D'Agata and Tomaselli, 2010). In order to investigate the tourism demand among the TTDs, considering the seaside topic, we distinguished 3 types of tourism: 'composite', 'exclusively seaside' and 'mainly seaside'[7]. Figure 4 shows the distribution of type of holiday within the TTDs and points out a statistically significant association (χ^2= 109.6; *p-value* = 0.00) between type of holiday and TTD.

[7]We asked respondents whether they had an 'exclusively', 'partly' or 'not a bit' seaside holiday. If they answered 'partly' or 'not a bit' seaside holiday, we asked them to specify the type of holiday, choosing among up to 10 typologies. If they chose just one, we defined their holiday as *mainly* seaside. If they chose more than one option we defined their holiday as a *composite* holiday.

Figure 4 – *Type of holiday in Territorial Tourist Districts.*

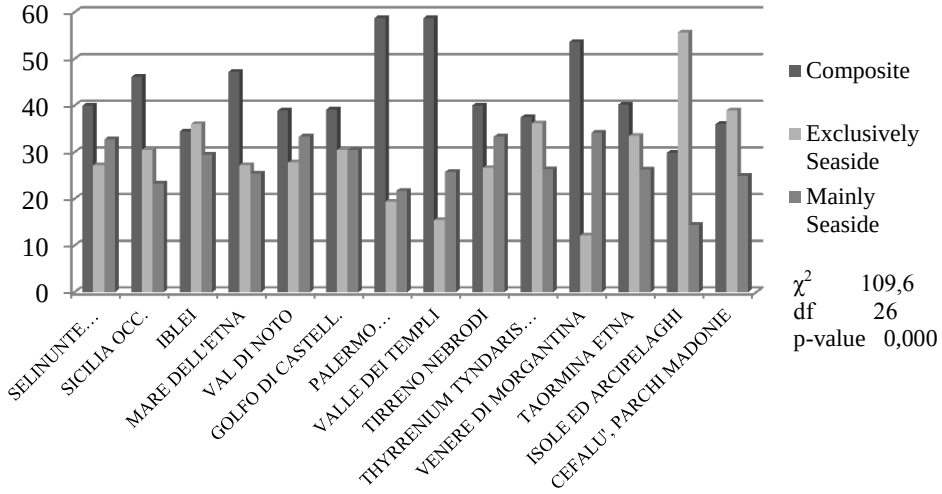


Figure 4, moreover, allows to identify those districts where tourism demand is not focused just on the seaside resource and those districts where tourism demand is strictly centred on seaside tourism, as the *Isole e arcipelaghi*, *Cefalù e Parco delle Madonie* and *Iblei*.

After having highlighted the TTD peculiarities according to typology of tourism, we tried to investigate tourist's features according to holiday typology inside each District. In other words, we enquired whether a link between tourists traits and holiday typology exists. Thus, by employing χ^2 testing, we checked the association strength between the variable 'typology' ('composite', 'mainly seaside' and 'exclusively seaside') and other interviewee variables. Table 7 shows the χ^2 test values and their significance[8]. Being foreign increases the probability of having a 'composite' holiday in *Selinunte*, *Palermo Costa Normanna*, *Isole ed Arcipelaghi* and *Cefalù Madonie*, while the younger tourists tend to have an 'exclusively seaside holiday' *in Selinunte*, *Sicilia Occidentale*, *Iblei* and *Cefalù*, *Parchi delle Madonie*.

[8] The table shows only the TTDs with statistically significant values for at least a variable.

Table 7 – *χ^2 test value between type of holiday and selected variables in TTD.*

TTD	Per capita and per day expense			
TTD	Foreign / Italian	Age	Accom.	Information Chanel
Selinunte…	11.82**	8.197*	-	7.040*
Sicilia Occ.	-	3.95*	16.463**	-
Iblei	-	4.854*	10.350*	-
Val Di Noto	-	-	-	12.674**
Palermo Costa Normanna	9.417**	-	-	16.381***
Isole Ed Arcipelaghi	7.538*	-	-	-
Cefalu', Parchi Madonie	8.985*	6.794*	-	-

In *Sicilia Occidentale* and *Val di Noto*, extra-hotel accommodation appears associated with both 'composite' holiday and 'exclusively seaside' holiday whereas accommodation in hotels is associated with 'mainly seaside' holiday. Finally, in *Selinunte, Val di Noto* and *Palermo Costa Normanna*, 'previous experiences or friend recommendations' influence the choice of having an 'exclusively' or 'mainly seaside' holiday while information collected by internet appears associated to 'composite' holidays.

In the last step of analysis, we focused on tourists' expense since it represents the topic of tourism demand. In order to consider a measure, taking into account the number of people to whom the expense is referred and the length of holiday, we computed the 'expense per capita and per day'. The third column of table 8 shows the average expense per capita and per day among TTDs. On the average, the TTD where tourists spent more money is *Taormina Etna*, 93.7 € per capita and per day, whereas tourists spent less in *Valle dei Templi*, 44.9 € per capita and per day.

Afterwards, we tried to check the statistical significance of the difference among TTDs. Preliminary Kolmogorov-Smirnov test (Z = 6.491; *p-value* = 0.000) does not allow us to assume the normality of distribution, thus preventing, the employment of traditional analysis of variance

In order to analyse the statistical significance of the average expense difference among TTDs, we computed Kruskal-Wallis test for the difference of mean ranks. The fourth column of Table 8 shows the mean ranks distribution and Kruskal-Wallis test value. This latter highlights a statistically significant difference among TTDs relating to the average expense *per capita* and *per day*.

Table 8 – *Distribution of average 'per capita and per day expense' in TTDs.*

TTD	*Per capita and per day expense*		
	N	*Mean*	*Mean Rank*
Selinunte…	49	48.42	690.11
Sicilia Occ.	177	63.59	881.69
Iblei	198	59.46	815.94
Mare Dell'Etna	52	67.31	868.03
Val Di Noto	66	66.07	836.59
Golfo Di Castell.	47	57.85	838.36
Palermo…	371	59.53	860.94
Valle Dei Templi	96	44.93	642.04
Tirreno Nebrodi	53	45.29	674.96
Thyrrenium Tyndaris…	155	59.52	808.74
Venere Di Morgantina	36	71.20	860.38
Taormina Etna	181	93.68	1091.06
Isole Ed Arcipelaghi	88	67.75	910.03
Cefalu', Parchi Madonie	126	51.23	757.64
Total	1695	62.50	
Kruskal Wallis Test χ^2			82.18
df			13
p-value			0.000

Finally, we analysed the expense items inside each TTD. Also in this case we computed the average expense 'per capita and per day' aiming to feature tourism demand according to territorial supply. Table 9 shows distribution of average expense pre capita and per day among TTDs. The last row, furthermore, reports the Kruskal-Wallis Test for difference of mean rank. The test indicates that, excepting the item 'Food and Wine' (*F&W*), the difference among the mean ranks of TTDs is always significant.

Considering the expense item for inside movement (*Mob.*), tourists spent more money in *Sicilia Occidentale* TTD (11.72 €) and less in *Venere di Morgantina.* Those who visit places inside the TTD of *Taormina Etna*, tend to spend for 'Restaurant' (*Rest*) more than the others (16.14 €). The expense for visiting museums features the TTD of *Val di Noto* (2.99 €) while the items 'Shopping' (*Shop.*) and 'happenings' (*Happ.)* are higher in *Venere di Morgantina*. For accommodation (*Accom.*), tourists spend more money in *Taormina Etna* (31.11 €) and less in *Venere di Morgantina* (4.80 €) while, finally, they spend more money for 'cooking food' (*Food*) in *Iblei* TTD (4.09 €).

Table 9 – *Distribution of average 'per capita and per day expense items' in TTD.*

TTD	*Mob*	*Rest.*	*Museums*	*F&W*	*Shop.*	*Happ.*	*Accomm.*	*Food*
Selinunte…	58,96	59,71	5,18	17,45	17,38	0,00	72,87	28,48
Sicilia Occ.	72,56	71,07	8,55	21,94	14,09	1,01	89,70	25,56
Iblei	66,08	73,56	4,57	27,90	44,98	2,77	86,40	54,35
Mare Dell'Etna	49,34	87,35	5,30	17,20	38,82	0,75	97,00	32,64
Val Di Noto	44,38	67,88	11,69	22,15	28,62	0,96	108,52	34,50
Golfo Di Castell.	60,25	66,72	4,50	34,84	43,43	2,22	81,33	36,22
Palermo…	35,59	66,26	7,51	18,58	37,55	3,61	72,19	12,95
Valle Dei Templi	61,98	68,12	8,18	54,09	60,77	6,85	36,54	36,95
Tirreno Nebrodi	60,81	88,76	2,53	27,72	23,87	1,00	45,11	40,27
Thyrrenium Tyndaris…	57,64	71,71	4,38	25,47	38,31	1,37	84,20	33,09
Venere Di Morgantina	40,65	65,41	2,33	25,55	65,18	8,34	25,93	32,50
Taormina Etna	54,10	100,80	14,91	26,09	44,97	3,36	194,28	20,43
Isole Ed Arcipelaghi	72,01	78,49	2,90	27,56	28,03	0,93	135,20	44,49
Cefalu', Parchi Madonie	66,43	80,67	6,15	26,58	18,65	0,98	138,26	17,46
Total	56,35	75,15	7,13	25,72	35,86	2,51	98,01	30,23
N	1564	1564	1490	1516	1546	1480	1530	1433

8. Conclusions

Analysing tourism demand and defining the tourist segment profiles in choosing a particular destination are essential for identifying tourism development opportunities. This information can be used for developing tourism market plans and for determining competitive strategies. In this context, motivations play a significant role, as involved in the process of choosing a destination. In fact, as many empirical studies show there is a relationship between motivations, attributes of a destination and tourist profiles. Depending upon the empirical findings, destination management would either promote attributes that best match tourist motivations or focus on a different market where tourist motivations and destination resources match each other.

The new scenario of Sicilian tourism and the organization of the territory in TDs reveal how strategically important, for market competitiveness, is the demand analysis and the definition of the types of tourists directed towards Sicily. In this regard, the results of this study may provide different insights to decision makers and useful information for the implementation of destination management actions within the TD.

The dichotomy between 'seaside' and 'not seaside' holiday has identified certain structural features that differentiate these two market segments. Subsequently, the use of segmentation variables has identified two profiles, defined as 'tourists' and 'not only tourists', whose distribution significantly differs within

the TTD. Furthermore, in all the districts it was observed that the choice to take a beach holiday is accompanied, in different measure, to other types of tourism. This would seem to confirm the theoretical assumption that in tourism rarely is a single motivation identified as the sole reason for a trip.

In conclusion, the strategic action of TTD could offer new opportunities to develop tourism in Sicily, through the revitalization and enhancement of various resources that characterize the Island.

References

AGRESTI A. 1990. *Categorical Data Analysis*, New York: John Wiley&Sons.

ANTONIOLI CORIGLIANO M. 1999. I distretti turistici e le aggregazioni tra attori per lo sviluppo del prodotto-destinazione. In COLANTONI M. (Ed.) *Turismo: una tappa per la ricerca*, Bologna: Pàtron Editore, pp. 99-140.

ASERO V., D'AGATA R., TOMASELLI V. 2010. Mercato turistico e territorio in Sicilia. In PARROCO A. M., VACCINA F. (Ed.) *Mobilità ed altri comportamenti dei turisti: studi e ricerche a confronto*, Milano: McGraw-Hill, pp. 73-89.

ASERO V., D'AGATA R., TOMASELLI V. 2011. Analisi del mercato turistico: motivazioni esclusive e concorrenti. *Rivista Italiana di Economia Demografia e Statistica*, Vol. LXV, No. 1, pp. 21-28.

ASERO V., D'AGATA R., TOMASELLI V. 2012. Mercato turistico e organizzazione del territorio: I distretti turistici in Sicilia. *Rivista Italiana di Economia Demografia e Statistica*, Vol. LXVI, No. 1, pp. 45-52.

BECATTINI, G. 1989. Riflessioni sul distretto industriale marshalliano come concetto socio-economico. *Stato e Mercato*, Vol. 25. pp. 111-128.

BECATTINI, G. 2000. *Dal distretto industriale allo sviluppo locale*. Torino: Bollati Boringhieri.

BRUSCO, S. 1991. La genesi dell'idea di distretto industriale. In F. PYKE, G. BECATTINI, W. SENGENBERGER (Eds.) *Distretti industriali e cooperazione fra imprese in Italia*, Studi e informazioni, Quaderni, N. 34, pp. 51-66.

CANDELA G., FIGINI P. 2005. *Economia dei sistemi turistici*, Milano: McGraw-Hill.

COHEN, E. 1972. Toward a sociology of international tourism. *Social Research*, Vol. 39, No. 1, pp. 164–182.

CROMPTON, J. L. 1979. Motivations for Pleasure Vacation. *Annals of Tourism Research*, No. 6, pp. 408-424.

CROUCH G. I., OPPEWAL H., HUYBERS T., DOLNICAR S., LOUVIERE J. J., DEVINNEY T. 2007. Discretionary Expenditure and Tourism Consumption:

Insights from a Choice Experiment. *Journal of Travel Research*, No. 45, pp. 247-258.

D'AGATA R., TOMASELLI V 2010. La struttura dei sistemi turistici locali in Sicilia: analisi della stagionalità *incoming*. *Rivista Italiana di Economia Demografia e Statistica*, Vol. LXIV, No. 1-2, pp. 87-94.

DE CANTIS S., GONANO G., SCALONE F., 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 PARROCO A. M., VACCINA F. (Eds.), *Mobilità ed altri comportamenti dei turisti: studi e ricerche a confronto*, Milano: McGraw-Hill, pp. 21-46.

GAROFOLI G. 1991. *Modelli locali di sviluppo*. Milano: FrancoAngeli.

GIANNONE M. 2007. La componente territoriale nei sistemi turistici locali. In DALL'ARA G., MORANDI F. (Eds.) *I sistemi turistici locali. Normativa, progetti e opportunità*, Matelica: Halley Editrice, pp. 71-81.

DOLNICAR S. 2005. Empirical market segmentation: What you see is what you get, in THEOBOLD W. (Ed.), *Global tourism, the next decade*, Butterworth-Heinemann, Oxford, 3rd, pp. 309–325.

FODNESS, D. 1994. Measuring Tourist Motivation, *Annals of Tourism Research*, Vol. 21, No. 3, pp.555-581.

HOSMER D.W., LEMESHOW S. 1989. *Applied Logistic Regression.* New York: John Wiley&Sons.

LAU G., MCKERCHER B. 2007. Understanding tourist movement patterns in a destination: a GIS approach. *Tourism and Hospitality Research*, Vol. 7, No. 1, pp. 39–49.

LETHO, X. Y., O'LEARY, J. T. and MORRISON, A. M. 2004. The effect of prior experience on vacation behavior. *Annals of Tourism Research*, Vol. 31, No. 4, pp. 801–818.

LUZAR, E. J., ASSANE, D., GAN, C. E., HENNING, B. R. 1998. Profiling the nature-based tourist: a multinomial logit approach. *Journal of Travel Research*, No. 37, pp. 48–55.

MARSHALL A. 1920. *Principles of Economics (8th ed.).* London: MacMillan.

MOSCARDO G., MORRISON A. M., PEARCE P. L., LANG C., O'LEARY J.T. 1996. Understanding vacation destination choice through travel motivation and activities. *Journal of Vacation Marketing*, Vol. 2, No. 2, pp. 109–121.

PEARCE D. 1995. *Tourism today. A geographical analysis*. Harlow: Longman.

PORTER M. 1998. Clusters and the new economics of competition. *Harvard Business Review*, November-December, pp. 77-90.

QUADRIO CURZIO A., FORTIS M. (Eds.) 2002. *Complessità e distretti industriali. Dinamiche, modelli, casi reali*, Bologna: Il Mulino.

RIDDINGTON, G., SINCLAIR, C., MILNE, N. 2000. Modelling choice and switching behaviour between Scottish ski centres. *Applied Economics*, No. 32, pp. 1011–1018.

RULLANI E. 1997. Più locale e più globale: verso una economia postfordista del territo-rio. In BRAMANTI A., MAGGIONI M. A (Eds.) *La dinamica dei sistemi produttivi territoriali: teorie, tecniche, politiche,* Milano: Franco Angeli.

SEDDIGHI, H. R., THEOCHAROUS, A. L. 2002. A model of tourism destination choice: a theoretical and empirical analysis. *Tourism Management*, No. 23, pp. 475–487.

SFORZI F. 1991. Il distretto industriale marshalliano: elementi costitutivi e riscontro em-pirico nella realtà italiana. CONTIE S. P., JULIEN A. (Eds.), *Miti e realtà del modello italiano: letture sull'economia periferica*, Bologna: Patron, pp. 83-1115.

ZHANG, T., RAMAKRISHNON R., LIVNY. M. 1996. BIRCH: *An efficient data clustering method for very large databases*. In: Proceedings of the ACM SIGMOD Conference on Management of Data. Montreal, Canada: ACM.

SUMMARY

Tourism demand in Sicilian Tourist Districts

Our study is aimed at identifying types of tourists within the territorial tourist districts in Sicily. Our goal is to understand how to configure the tourism demand in relation to structural characteristics of tourists and their spending behaviours.

In Sicily, the concept of tourism as a system is reflected in tourist districts – "territorial" and "thematic" – defined on the basis of Regional Decree n. 4/2010 that establish criteria and procedures for their recognition, prescribing certain essential requirements.

The model on which tourist districts are based follows a bottom-up approach, since it offers the opportunity for local stakeholders – public and private – to make a system through the autonomous definition of a geographic area and to identify a common project idea, accompanied by a development plan, in order to organize and manage the tourism offer within a given territory.

Vincenzo ASERO, Assistant Professor in Economics, Department of Political and Social Sciences, University of Catania, vasero@unict.it .
Rosario D'AGATA, Assistant Professor in Social Statistics, Department of Political and Social Sciences, University of Catania, rodagata@unict.it .
Venera TOMASELLI, Associate Professor in Social Statistics, Department of Political and Social Sciences, University of Catania, tomavene@unict.it .

TOURIST MOBILITY AND DESTINATION COMPETITIVENESS[1]

Antonino Mario Oliveri, Anna Maria Parroco, Franco Vaccina

1. Introduction

Twenty-five centuries ago Pythagoras stated that science has to lead observed diversity to unity, and Protagoras attributed to measurement the task of qualifying all contemporary science. Hume, heir to the new science where empiricism and quantitative methods mingle, enhanced observation and measurement as the only processes able to lead diversity to unity.

Nowadays, it is commonly accepted (in Feyerabend's terms) that, as Poincarè pointed out, science consists of the relationship between facts, and statistics is not an exception.

Statistics yet, moving from rationalism to empiricism, does not always attribute the meaning of revealed truth to its summaries; on the contrary it acknowledges they may have a conventional value and are considered able to "indicate" missing information on objects through available ones.

Indicators are consequently used in place of indicated objects, even though the "strong" cause-and-effect relationships are replaced with simple associations.

Multi-causality is at the root of the large amount of simple and composite indicators that computer technology allows to arrange and manage, so that they seem able to give proper answers to our research issues. In doing so, multi-causality is supported by the linearity principle according to which the more is the better and if linearity is lost on observations, it is retrieved by means of operational tricks or, what's worse, it is ignored so as to generate elegant but obliterating explanatory and forecast models.

[1] Although this paper is a common responsibility of all authors, sections 2 (sub-sections 2.1 and 2.2 included) and 3 are attributable to Antonino Mario Oliveri, section 4 to Anna Maria Parroco, sections 1 and 5 to Franco Vaccina. This paper is funded by University of Palermo 2007 ex 60% grants to the research on: "Utilization of tourist natural resources: analysis of residents' perceptions" (coordinator Anna Maria Parroco).

These solutions are not harmful for science if we are aware that, by doing so, results do not verify models but force unknown reality into models; and if we think of Leibniz's lesson, a potentially infinite number of models might fit observations equally well.

The same applies to the search for cause-and-effect relationships within movement traces, and to options proposed in this paper in order to "read" some observable "traces" of complex phenomena like mobility and competitiveness. Even though our study on competitiveness is circumscribed to tourists intercepted in Sicily, and competitiveness is measured according to the attractiveness perceived by tourists, we are not going to trivially state that competitiveness is higher in more visited destinations; our research on mobility allows us to map tours out, cleaning data from the replications of arrivals and distinguishing travels respect to the way they have been organized, as well as to other analytical categories.

We gathered data useful to describe mobility and to understand how much and over which destinations competitiveness works in Sicily.

Tourist mobility is in general observed as a spatial phenomenon, within a time container that might be a year, a smaller time interval or even the length of a single trip, but the opposite point of view might be adopted as well; for the analysis of a time series of arrivals, the simplest hypothesis is mono-destination and a small time scale. The time container and the spatial hypothesis define mobility, so that it becomes the "trace" of a behaviour whose motivations (pointers) consist of the choice of attractive destinations. This attractiveness, which represents one of the two main elements of tourism competitiveness (the external quality perception, the internal consisting of the organization of services), connects mobility and competitiveness providing the traces of the existence of the latter.

This idea of competitiveness is the result of both the perceptions of tourists about the features of destinations and of efficiency in the management of the destination (able to generate an attracting image of it). If we consider that efficiency is expressed through the quality-price ratio and that if properly perceived this value determines the preference for a product or service, the final choices of consumers are indicators of the relationship between produced and perceived quality when two or more products are alternative.

The role of a competitiveness indicator can be attributed to these choices after the observation of the availability of different options on the tourists' side. Choices are in fact conditional on the availability of options and we can get information on this through the way travels are organized.

With organized tours, destinations are selected by tour operators and the seller is supposed to offer clients all comparable supplies. With self-organized tours, on the contrary, information sources are wider and include also mobility towards secondary

destinations; this behaviour affects competitiveness since multi-destination choices are induced especially when small territorial areas are concerned.

The PRIN 2007-09 researches, together with the former 2003-05 ones, offer, respect to Sicily, information on incoming organized or self-organized tourism (pointers) and on multi-destinations detected by single trip (traces).

Motivational and behavioural elements are available to match tourists' experiences and resulting satisfaction.

2. Competitiveness: a conceptual framework

The concept of competitiveness has developed in different directions which have led to theoretical and operational definitions only in part overlapping while generating different measurement options. Before presenting a proposal of ours for the measurement of competitiveness, we will try to synthesize the essential terms of the on-going debate, within which our contribution is positioned.

The concept of competitiveness has been adapted from economics and the production world, where it was originally referred to the Nations (macro lens) or businesses (micro perspective). The transition from a company's competitiveness to the competitiveness of a destination was however relatively simple, though requiring appropriate adjustment related to the fact that the subject is not a single economic actor but a complex firm institutional actor, the *Destination Management Organization* (DMO) (Porter, 1990; Flagestad & Hope, 2001; Ryan, 2002).

Competitiveness has enriched its contents over time starting from an original focus on the price component, up to the product uniqueness and to the production cycle capacities to incorporate elements of innovation.

It was later added also the arrangement of primary (like physical capital) and secondary (human or organizational capital) resources to produce useful products/services not readily available elsewhere nor reproduced/imitated (Barney 1991). These elements apply to tourist products as well.

The control of scarce and defendable resources has to be combined with the ability to manage them in such a way as to satisfy customers/tourists (Peteraf, 1993; Enright & Newton, 2005).

The categories of comparative and competitive advantage (Porter 1980; 1985; 1990), introduced to analyze the overall competitiveness, were finally transposed from economics to tourism (Crouch & Ritchie, 1999). Comparative advantage refers primarily to the allocation of resources, which in the tourism sector can be usefully differentiated into attractions and facilities (Candela & Figini, 2003); the competitive advantage refers to the managerial capacity to use resources in order to achieve long-term benefits and sustainability perspective. Sustainability seems to

be one of the central elements of the debate on tourism competitiveness (Ritchie & Crouch 1999; 2000; 2003; Hassan 2000). Destinations are not really competitive if they fail to make tourism resources available to residents and lasting for the future. The use of resources by tourists should not wipe them out (Urry 1995; 2003; 2005; Rakic´& Chambers, in press) to the extent that the appeal of the destination is reduced or even undermined at the potential new consumers. Tourist consumption should not lower the residents' quality of life below the level where the perceived negative impacts of tourism overcome the positive ones thus making tourism policies no more supported by residents.

Though this is not a comprehensive review on competitiveness, the debate on the subject follows the proposed guidelines.

Among other elements of the tourist market, the mobility of visitors (both physical and virtual), has a special importance, along with the destination ability to attract visitors, increase their spending and meet their expectations. All these are valid indicators of competitiveness (Ritchie & Crouch 2000; 2003).

At this point, tourist attraction and more general competitiveness seem to overlap (as well as competitiveness and the "quality" of a tourist destination). In fact, attractiveness constitutes one of the most valid indicators of competitiveness, largely covering the semantic content of the latter.

Anyway, if a non-attractive destination cannot be deemed "competitive", the fact of being attractive does not necessarily make a destination competitive. The concept of competitiveness is in fact beyond that of attractiveness, and incorporates also dimensions related to the tourist policies and to destination management (Go & Govers, 2000), elements not frequently enhanced by studies on attractiveness. All the above considerations on competitiveness cannot be made, irrespective of comparisons with competitor destinations (that is not strictly necessary for measuring attractiveness) (Pearce, 1997).

Although the issue of competitiveness has been addressed from different perspectives (macro-micro-economic, political-economical, managerial), in recent years a market-oriented approach has put a special emphasis on tourism demand. In fact, we can speak of competitiveness and attractiveness in terms of endowment (and consequently from the viewpoint of supply) but without tourists there is no tourism (Kotler *et al.*, 2003). In this context, the issue of tourist's satisfaction has a special relevance, as well as the analysis of motivations and the construction and dissemination of the destination image. It is true that the competitiveness of a destination resides (also) in its amenities, but it is the interest shown by visitors towards these endowments that activates resources giving them value.

Those that are frequently considered relevant (potential) tourism resources: a beautiful lake, the ruins of an ancient town, etc., are lakes and ruins but not tourist attractions if they don't arouse tourist mobility; on the contrary even the symbols of

horror like the Nazi concentration camps, the area of Ground Zero or the Chernobyl power plant are transformed into tourist attractions when they become destinations for non-negligible streams of visitors.

Consistent with the above outlined picture are the measurement tools for tourism competitiveness. In a recent review, some researchers from our group in Palermo (Burgio, Contu, Mendola, 2012) showed that *"objectively measured variables such as visitor numbers, market share, tourist expenditure, employment, value added by the tourism industry…* (have to be taken into account) *… as well as subjectively measured variables such as "richness of culture and heritage", "quality of the tourism experience", etc."* (Heath, 2003). Such review distinguishes between supply and demand-based measurement tools.

2.1. Supply-based indices

One of the most known indexes is the *Travel & Tourism Competitiveness Index* (TTCI) (Blanke & Chiesa, 2009) and it points out the supply point of view (or *ex ante*: Barbosa *et al.*, 2010). Competitiveness is decomposed into three macro dimensions (*T&T regulatory framework, T&T business environment and infrastructure, T&T human, cultural and nature resources),* fourteen sub-dimensions and seventy-five simple indicators. TTCI is currently used to measure the competitiveness degree of 130 States; data are collected from various sources (for example the *World Economic Forum's annual Executive Opinion Survey*, which provides "subjective" data). The overall index is obtained through aggregation by the arithmetic mean.

Another example of a supply-side index is the *Competitiveness Monitor* (Trisnawati *et al.*, 2008), made of eight composed indicators (*Human Tourism Indicator* (HTI); *Competitiveness of Price Indicator* (PCI); *Infrastructural Development Indicator (IDI); Environmental Indicator (EI); Technological Advancement Indicator (TAI); Human Resources Indicator (HRI); Opening Indicator (OI); Social Development Indicator (SDI)).*

For the construction of their *Index of Competitively Destination*, Torres Valdez *et al.* (2010) added to the already reported dimensions: the *promotion activities*, the *financing from the State* to the touristic development and the *economic development of the country*.

2.2. Demand-based indices

Some other contributions can be classified as belonging to the demand-side measurement approach (Dwyer and Kim, 2003). In their *Competitive Ranking of destinations* Torres Valdez *et al.* (2010) measure competitiveness as tourist arrivals

("ex-post" perspective, see also Johns and Mattsson 2005) through the following four indicators (then aggregated by mean): *Change in the Relative Participation (CRP), Change in the Absolute Participation (CPA), Absolute Change (CA), Change in the tourist base (CBT).* Although this index directs measurement towards the actual behaviour of tourists, it is certainly open to criticism since the complex concept of competitiveness is flattened on the detection of arrivals.

We have shown in the past (Parroco and Vaccina, 2005; Vaccina and Parroco, 2006) that the number of arrivals does not coincide with that of tourists, representing a biased defective estimate in territories where the so-called "non-observed" tourism is high (in its double meaning of "ignored" and "hidden" tourism), and a biased rife estimate due to multiple arrivals ("replications") of tourists moving (and spending nights) throughout the territory. Biases on estimates are non-negligible both at the national and at the local territorial levels.

Garau Taberner's contribution seems kind of a forward escape (2007). The author proposes to adopt the (subjective) viewpoint of tourists in the formulation of the *Demand Competitiveness Index*. His solution is to ask tourists what factors are important in choosing a destination, and then to compare them with experiences. This seems however to address towards the analysis of motivations and tourist satisfaction rather than to destination competitiveness.

3. Tourist mobility and competitiveness

The travel experience is born from tourist mobility (either physical or virtual, as we are going to discuss). If tourism depends on mobility, the latter is an essential element for measuring also the attractiveness and competitiveness of destinations.

Mobility is related to tourism, especially in terms of the carriage of goods and persons (Henderson, 2009; Sheller, 2009; Albalate, Bel, 2010; Rosselló, Saenz de Miera, 2011). From this point of view, it has been noted that the strengthening of the transport network directly increases competitiveness, since it improves tourist destinations performances (Ahnlund, 2010). Tsamboulas *et al.* (2010) recently proposed a scientific contribution titled *"Decision Support Tool (DST) for the identification of transport solutions to remove barriers to the competitiveness of the tourism sector"*: no further comments are due.

In recent years another strand of research has grown exponentially thanks to geographers and computer scientists and depending on the spread of tracking systems, which make it possible to study the large-scale mobility within space-time coordinates (*trajectories*). Data are collected through cheap devices, data loggers; relevant information is extracted through data mining techniques (Pfoser & Theodoridis, 2003; Lau & McKercher, 2007; Spaccapietra *et al.*, 2008; Dodge *et*

al., 2009; Isaacson, 2009; Ostermann, 2010; Petterson & Zillinger, 2011; Orellana *et al*., 2012; Mauro *et al*., in press). Among other ICT devices the Bluetooth is also used (Versichele *et al*., 2012).

These instruments provide highly reliable data and are rapidly making obsolete the traditional instruments such as the logbook or the interviews at the conclusion of the holiday (more suffering from non-sampling errors). Among the techniques for the analysis of trajectories we can include stochastic models like Markov (or semi-Markov) processes (yet requiring that the sequences of visited attractions are known) (Xia *et al*., 2009; Xia *et al*., 2010).

In recent years the social network Foursquare has caught on based on using smartphones to indicate to other network users the presence of the user at a specific destination (https://it.foursquare.com/about/new). This data source has not yet been much employed for research in tourism so it represents, at the moment, a new frontier of knowledge.

A recent, rich, literature discusses the characteristics of tourist virtual mobility, which is growing side by side with physical mobility. *Virtual mobility* means that subjects move through new media, including the Internet (about which, and not coincidentally, we say "*navigation*"). New media are (also) information tools able to support the organisation of journeys toward physical destinations (let's think of the phenomenon of online reservations) (Vaccina, 2010; Polizzi, 2010; Buhalis, 1998; Buhalis & Law, 2008). The travel experience can be consumed to or within Web sites that:

1) are corporate or institutional;
2) constitute meeting places for travellers within appropriate digital environments (social networks like travel online forums or blogs, commonly referred to as *User Generated Contents*);
3) might even represent virtual tourist destinations in themselves, so as to enable cyber-tourism flows (Cheong, 1995; Prideaux, 2002, 2005; Guttentag, 2010).

In the first two cases the Internet is a medium whose aim is still to support the journey toward physical destinations; in the case of the cyber-tourism, the virtual destination can even replace the physical one. Let's think of no longer accessible destinations like Ancient Egypt, or contemporary natural or archaeological sites that are not physically accessible because of the objects of special protection or sources of danger for the physical visitors (for example, the Amazon rainforest).

The rise of virtual mobility is very important for the analysis of competitiveness of tourist destinations because it strongly contributes to the construction of the destination image (let us think of online word-of-mouth) or prepares and constitutes the entire touristic experience (cybertourism).

A special chapter in the literature on tourist mobility has to be reserved to the mobility of disabled persons, though it is in particular centered on the analysis of

motivations and expectations rather than on the characteristics of the movement (Yau *et al.*, 2004; Darcy & Pegg, 2011; Blichfeldt & Nicolaidsen, 2011; Shi *et al.*, 2012; Lee *et al.*, 2012; Kim & Lehto, 2012; but, *contra*, see Kim *et al*., 2008). Disabled persons represent the largest minority population and are increasingly interested in the tourist experience; this niche segment is consequently receiving more and more attention by the tourism operators. For obvious reasons, people with disabilities can also strongly influence the development of virtual mobility (Ford, 2001; Goodall *et al.*, 2004).

Mobility as a conceptual category for the analysis of competitiveness is so classically considered from the point of view of the transport system (as to virtual mobility we should talk of *communications*). This is certainly a consistent interpretation, as transports are fundamental infrastructural elements of the destination attractiveness (on the side of "facilities"). On the other hand, this approach emphasizes the importance of **real** mobility of tourists which constitutes the prerequisite and also a point of arrival for our proposal, which will follow in the next paragraph (Zillinger, 2007; Verbeek & Mommaas, 2008).

This approach is however strongly centered on the supply, while on the demand side the connection between real mobility, defined as a behaviour of tourists, and the competitiveness of the destination has not been given proper light (Verbeek & Mommaas, 2008). It is true that Torres Valdez *et al.* (2010) use arrivals to build their *Competitive ranking of destinations*, but their proposal is controversial because, as already discussed, the number of arrivals does not coincide with the number of tourists.

4. The researches to estimate the “real” dimension of tourist demand

During the last decade, together with some of our Italian colleagues, we have started up a research activity that was directed to investigate some aspects of tourism that, according to us, had not been studied enough, from both the theoretical perspective and the empirical one.

The two research projects co-funded by the Italian Ministry of the University and Scientific Research, dated 2003-2005 and 2007-2009 and directed by Prof. Franco Vaccina, aimed at estimating the “real” dimension of tourism demand. Some results from the first of these researches have been published in the *Studi Statistici per il turismo* book series (Padua Cleup Publisher); others in the new book series on Tourism Sciences (McGraw Hill-Italia Publisher), others in international journals.

Parroco and Vaccina (2005) highlighted the un-matching between data on guests arrivals at accommodation establishments and the number of tourists in the

same region (demand dimension). The main reasons are related to: 1) the use of un-official establishments (e.g. relatives' or friends' houses, unregistered rented houses and boats, etc.) for tourists purposes, which determines the so-called un-observed tourism (Vaccina et al., 2011), since information on these flows are not included in official statistics on arrivals; 2) the lack of information regarding guests' motivations, so that it is not possible to distinguish between tourists and other travellers; 3) the "double counting effect" of arrivals which occurs every time that a tourist changes his accommodation establishment during a single travel, being registered every time he makes a change.

In order to verify some hypotheses deriving from the previous remarks, three different surveys were planned and realized. The first two had the Aeolian Islands and the town of Cefalù as destination targets. The main purposes of these researches were: 1) to highlight the un-observed tourism component, that was supposed to have a great impact in Sicily, and 2) to provide a preliminary estimation of the double-counting effect on arrivals. Making use of the collected information, we were finally able to estimate the dimension of tourism demand, taking into account all its components.

The third survey, planned for the whole Sicily and Sardinia, aimed at analysing tourist mobility and at quantifying its impact on official tourism statistics. In this case, the two islands were considered as destinations *lato sensu*, for at least two reasons: 1) each of them benefits from unique tourist image; 2) being islands, they have a favourable geo-morphological structure with countable entrance/exit points. Of course, internal heterogeneousness has to be considered as well.

Tourists that had chosen Sicily or Sardinia as their holiday destination were considered the target population; intra-regional tourist mobility was studied recurring to the categories of multi-destination tourism travels.

The importance of knowing travel itineraries has been recognized since a long time (Leiper, 1989; Dietvorst, 1995; Fennel 1996) and multi-destination travels have been studied by several authors (Leiper 1989; Lue et al., 1996; Tideswell & Faulkener, 1999; Hwang & Fesenmaier, 2003). More recently Tussyadiah et al. (2006) and De Oliveira Santos (2011) have discussed the choice models for multi-destination tourism experiences. Lew and McKercher (2006) show the typical pattern of the touristic intra-destination movement and make a recognition of the intra-destination mobility determinants; Hwang et al. (2006) study the pattern of Asiatic tourism in the USA making use of the social network analysis; the same methodology has been used by Asero *et al.* (2011) to analyse data from our survey. Martinez-Espineira & Amoako-Tuffour (2009) analyse the costs distribution of multi-destination travels. Koo *et al.* (2012), and Oliveri & Polizzi (in press) highlight what factors can influence tourist movements.

From within the perspective of multi-destination trips, our research group focused on the distribution of tourists' movements, finally succeeding in specifying the most typical itineraries, which might help in driving marketing and managerial policies.

When a tourist moves within a territory from a place to another, he chooses, among internal destinations, the ones he considers the most competitive also respect to his/her personal socio-demographic characteristics (age, group composition, planned travelling expenses), motivations, expectations, available information about the alternatives.

From a theoretical point of view, each tourist in Sicily might visit and spend nights at each Sicilian municipality (depending also on the availability of rooms/accommodation establishments). A micro-level competition occurs among all internal potential destinations (Barbosa et al., 2010), which refers to the comparative and competitive dimensions we previously spoke about.

The point is that, from a demand side, competitiveness has to be studied starting from the analysis of tourists' behaviours, and mobility is surely one of the most relevant. We are speaking of a real touristic mobility (no matter if it is a physical or a virtual one), which cannot be described through the number of arrivals, since this does not correspond to the number of tourists (especially where un-observed tourism exists).

Competitiveness among intra-regional destinations is based on the fact that tourists choose among different alternatives. In this sense, the distinction between independent and organized tourists is essential. For organized tourists the available set of options is limited at the start and tourists can choose only among few packages arranged by tour operators.

At a local (regional) level, destinations compete one another to be included by tour operators as nodes of the touristic itineraries, to the detriment of other destinations. According to this point of view, the first step of competition concerns the supply side. Only in a second step the included destinations compete to meet the demand (to attract tourist flows).

From the point of view of demand, the multi-destinations recorded for each single travel can be considered as clues that tourists leave in visited territorial units (destinations); these are data on real tourists and not on generic arrivals.

From now on, some results from our PRIN researches are presented, referring to Parroco et al. (2011 a, 2011b), Asero et al. (2011) and D'Agata et al. (2012).

Our research project was conducted between summer 2009 and spring 2010; in this time interval 3935 tourists were interviewed at the main Sicilian exit points before leaving the island. The sampling design belongs to the class of Time Location Sampling (De Cantis et al. 2010).

68% of the 390 Sicilian municipalities were visited at least once by intercepted tourists. The more visited town is Palermo (909 visits), followed by Catania (534 visits), Siracusa (452), Taormina (423), Agrigento (343) and Cefalù (315).
About 32% of interviewees visited more than one destination during their tour in Sicily (Table 1). The average number of visited destinations is equal to 1,65 with a standard deviation of 1,19. As previously mentioned, multi-destination travels generate a double counting effect on guests arrivals, which increases as the number of visited destinations increases.

Table 1 – *Distribution of incoming tourists interviewed, by number of destination visited in Sicily (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

Table 2 shows that interviewees made about 6500 touristic visits to Sicilian destinations (with at least one overnight stay). Only a part of these have been included in official tourism statistics. The sampled tourists spent in Sicily about 38.000 nights, with an average number of about 9,8 nights. About 57% of all nights were spent at unofficial establishments.

Table 2 – *Visits, overnight stays and average duration of visit by accommodation establishment category (Summer-Autumn 2009, Spring 2010).*

Accommodation establishment category		Visit	Overnight stays	Average duration of a 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 hotels	46	129	2,80
Un-official establishments	House or room rented	461	4.607	9,99
	Relative and friends houses	1.354	12.587	9,30
	Owned houses	307	4.502	14,66
	Other un-official establishment	126	4.502	3,31
Total		6.485	38.644	5,96

A simple descriptive analysis of the tourists paths, where the occurrences of visited destinations are counted in relation to the different number of per travel visited destinations (one, two, three or more) shows that touristic flows follow specific routes (Table 3, Figure 1).

Multi-destination travels and related mobility can be studied recurring to more sophisticated methodologies: see Asero *et al.* (in press) and D'Agata *et al.* (2012) for an example. These authors use the *social network analysis* to demonstrate that the whole network develops around few touristic towns, endowed with the necessary structures and infra-structures (Figure 2).

Figure 1 – *Some of the main tourists itineraries in Sicily (Summer-Autumn 2009, Spring 2010).*

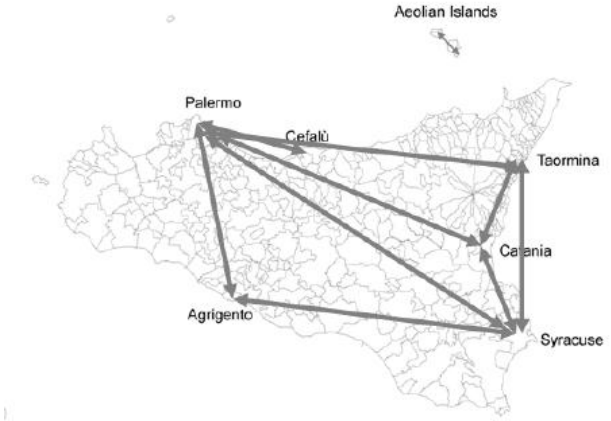


Figure 2 – *Net graph of the most attractive areas concerning Sicilian tourism routes (Summer-Autumn 2009, Spring 2010).*

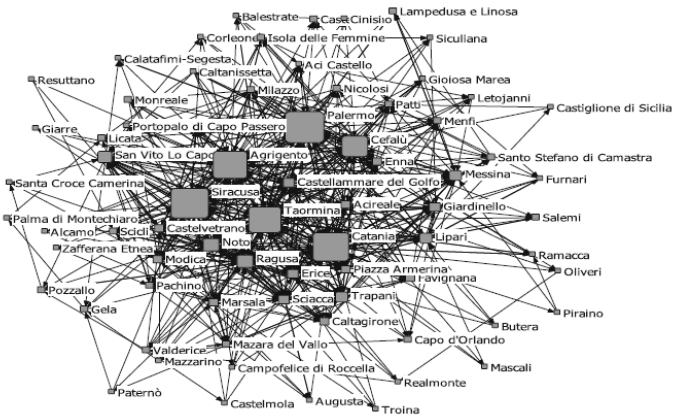


Table 3 – *The main paths of incoming tourism in Sicily (Summer-Autumn 2009, Spring 2010).*

Two-destination paths	Freq.	Three-destination paths	Freq.	Four-destination paths	Freq.
Palermo Agrigento	95	Palermo Agrigento Siracusa	32	Agrigento Siracusa Taormina	12
Palermo Cefalu	80	Taormina Catania Siracusa	23	Palermo Catania Lipari Lipari	3
Catania Siracusa	77	Agrigento Siracusa Taormina	20	Etna Catania Siracusa Agrigento	3
Taormina Siracusa	69	Palermo Agrigento Catania	19	Palermo Letojanni Palermo Agrigento	3
Siracusa Agrigento	68	Lipari Lipari Lipari	17	Lipari Palermo Cefalu Agrigento	3
Taormina Catania	57	Catania Siracusa Agrigento	14	Taormina Agrigento Palermo Noto	2
Catania Palermo	50	Palermo Taormina Siracusa	12	Siracusa Catania Porto Empedocle Palermo	2
Palermo Taormina	49	Palermo Catania Siracusa	11	Noto Catania Siracusa Agrigento	2
Palermo Siracusa	46	Palermo Cefalu Agrigento	9	S. Vito Lo Capo Catania Siracusa Messina	2
Aeolian Islands (2 destinations)	37	Cefalu Palermo Taormina	9	Palermo Cefalu Palermo Siracusa	2
				Ragusa	

5. Conclusions

From our first-stage considerations based on premises, theories, methodological and epistemological issues, existing information and the first results of a 2010 very specific survey on the mobility of incoming tourists in Sicily, it is difficult to draw conclusions on competitiveness. We might at most indicate the inevitable limits that a simplification of the phenomenon brings when it is read based on quali-quantitative determinations.

Indeed, a correct decision process requires choosing among several alternatives once you have got full awareness of them. This is the condition under which we can speak of the competitiveness of areas identified within the tourist routes.

The distinction between organized and unorganized trips seems fundamental: in the first case compared to the second, alternatives are certainly limited, but traceable among tour operators packages. No idea we have about available information at the level of single tourists. In this last case information gaps cannot be easily filled, and it is consequently hard work to assess how much competitive each destination is.

These issues could be fixed by means of more targeted surveys identifying the mobility of tourists and excursionists as the trace of competitiveness within large tourist destinations. This is, at the moment, our goal and this is also the exploratory meaning that we should attribute to our results. The existence of a relationship between mobility and competitiveness gives "value" to the tourists' paths as "indicators" of destination competitiveness.

References

AHNLUND C. 2010. Tourism strategy at Swedish transport administration, *WIT Transactions on Ecology and the Environment*, Vol. 139, pp. 13-19.

ALBALATE D., BEL G. 2010. Tourism and urban public transport: Holding demand pressure under supply constraints, *Tourism Management* Vol. 31, pp. 425–433.

ASERO V., D'AGATA R., TOMASELLI V. 2011. La mobilità delle destinazioni turistiche in Sicilia: un approccio di Network Analysis. In ASERO V., D'AGATA R., TOMASELLI V. (Eds), *Turisti per caso?... Il turismo sul territorio: motivazioni e comportamenti di spesa*, Acireale: Bonanno.

BARNEY J.B. 1991. Firm resources and sustained competitive advantage, *Journal of management*, Vol. 17, pp. 99-120.

BLANKE J., CHIESA T. 2009. The Travel & Tourism Competitiveness Report 2009, World Economic Forum, http://www.weforum.org/issues/travel-and-tourism-competitiveness/ .

BLICHFELDT B.S., NICOLAISEN J. 2011. Disabled travel: Not easy, but doable, *Current Issues in Tourism*, Vol. 14, pp. 79-102.

BUHALIS D. 1998. Strategic use of information technologies in the tourism industry, *Tourism Management*, Vol. 19, pp. 409-421.

BUHALIS D., LAW R. 2008. Progress in information technology and tourism management: 20 year on and 10 years after the internet: the state of eTourism research, *Tourism Management*, Vol. 29, pp. 609-623.

BURGIO M., CONTU G., MENDOLA D. 2012. La competitività di una destinazione turistica, *Paper submitted for publication to the McGraw-Hill Book Series on Tourism Sciences*.

CANDELA G., FIGINI P. 2003. *Economia del turismo. Principi micro e macro economici*, Milano: McGraw-Hill.

CHEONG R. 1995. The virtual threat to travel and tourism, *Tourism Management*, Vol. 16, pp. 417-422.

CROUCH G.I., RITCHIE J.R.B. 1999. Tourism, competitiveness, and societal prosperity, *Journal of Business Research*, Vol. 44, pp. 137-152.

CROUCH G.I., RITCHIE J.R.B. 2003. *The competitive destination. A sustainable tourism perspective*, CAB Publishing.

D'AGATA R., GOZZO S., TOMASELLI V. 2012. Network analysis approach to map tourism mobility, *Quality & Quantity*, DOI 10.1007/s11135-012-9710-7.

DARCY S., PEGG S. 2011. Towards Strategic Intent: Perceptions of disability service provision amongst hotel accommodation managers, *International Journal of Hospitality Management*, Vol. 30, pp. 468–476.

DE CANTIS S., GONANO G., SCALONE F., 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 PARROCO A.M., VACCINA F. (Eds), *Mobilità e altri comportamenti dei turisti: studi e ricerche a confronto*, Milano: McGraw-Hill.

DE OLIVEIRA SANTOS G.E., RAMOS V., REY-MAQUIEIRA J. 2011. A microeconomic model of multidestination tourism trips, *Tourism Economics*, Vol. 17, pp. 509-529.

DIETVORST A. G. 1995. Tourist behaviour and the importance of space-time analysis. In ASHWORTH G.J., DIETVORST A.G. (Eds), *Tourism and spatial transformations: Implications for Policy and Planning*, Wallingford: CAB International.

DODGE S., WEIBEL R., FOROOTAN E. 2009. Revealing the physics of movement: Comparing the similarity of movement characteristics of different types of moving objects, *Computers, Environment and Urban Systems*, Vol. 33, pp. 419–434.

DWYER L., KIM C. 2003. Destination Competitiveness: a model and determinants, *Current Issues in Tourism*, No. 6, pp. 369-414.

ENRIGHT M.J., NEWTON J. 2005. Determinants of Tourism Destination Competitiveness in Asia Pacific: Comprehensiveness and Universality, *Journal of Travel Research*, Vol. 43, pp. 339-350.

FENNEL D. 1996. A tourist space-time budget in the Shetland Island, *Annals of Tourism Research*, Vol. 42, pp. 166-171.

FLAGESTAD A., HOPE C.A. 2001. Strategic success in winter sports destinations: a sustainable value creation perspective, *Tourism Management*, Vol. 22, pp. 445-461.

FORD P. J. 2001. Paralysis lost: Impacts of virtual worlds on those with paralysis, *Social Theory and Practice*, Vol. 27, pp. 661-680.

GARAU-TABERNER J. 2007. Measuring destination competitiveness: an exploratory study of the Canaries, mainland Spain, France, the Balearics and Italy, *Tourism Today*, No.7, pp.61-77.

GO F.M., GOVERS R. 2000. Integrated quality management for tourist destinations: a European perspective on achieving competitiveness, *Tourism Management*, Vol. 21, pp. 79-88.

GOODALL B., POTTINGER G., DIXON T., RUSSELL, H. 2004. Heritage property, tourism and the UK Disability Discrimination Act, *Property Management*, Vol. 22, pp. 345-357.

GUTTENTAG D.A. 2010. Virtual reality: Applications and implications for tourism, *Tourism Management*, Vol. 31, pp. 637-651.

HASSAN S. 2000. Determinants of Market Competitiveness in an Environmentally Sustainable Tourism Industry, *Journal of Travel Research*, Vol. 38, pp. 239-245.

HEATH E. 2003. Towards a model to enhance destination competitiveness: A Southern African perspective, *Proceedings of the Council for Australian University Tourism and Hospitality Education National Research Conference on Riding the wave of tourism and hospitality*, Australia, February 5-8.

HENDERSON J. 2009. Transport and tourism destination development: An indonesian perspective, *Tourism and Hospitality Research*, Vol. 9, pp. 199-208.

HWANG Y.H., FESENMAIER D.R. 2003. Multidestination pleasure travel patterns: Empirical evidence from the American Travel Survey, *Journal of Travel Research*, Vol. 42, pp. 166-171.

HWANG Y.H., GRETZEL U., FESENMAIER D.R. 2006. Multicity trip patterns, tourists to the United States, *Annals of Tourism Research*, Vol. 33, pp. 1057–1078.

ISAACSON M. 2009. *Tourist Mobility and Advanced Tracking Technologies*. T & F Books.

JOHNS N., MATTSSON J. 2005. Destination development through entrepreneurship: a comparison of two cases, *Tourism Management*. Vol. 26, pp. 605-616.

KIM H., LEE J.K., LEE S.H. 2008. The analysis of the accessibility improvement plan for the mobility handicapped persons in passenger ship, *Proceedings of Interfaces and Human Computer Interaction*, MCCSIS'08 - IADIS Multi Conference on Computer Science and Information Systems, pp. 287-290.

KIM S.E., LEHTO X.Y. 2012. The voice of tourists with mobility disabilities: Insights from online customer complaint websites, *International Journal of Contemporary Hospitality Management*, Vol. 24, pp. 451-476.

KOO T.T.R., WU C.L., DWYER L. 2012. Dispersal of visitors within destinations: Descriptive measures and underlying drivers, *Tourism Management*, Vol. 33, pp. 1209-1219.

KOTLER P., BOWEN J., MAKENS J. 2003. *Marketing for Hospitality and Tourism*, Upper Saddle River: Pearson Education, Inc.

KWAI-SANG YAU M., MCKERCHER B., PACKER T.L. 2004. Traveling with a disability. More than an access issue, *Annals of Tourism Research*, Vol. 31, pp. 946–960.

LAU G., MCKERCHER B. 2007. Understanding the movement patterns of tourists in a destination: a GIS approach, *Tourism and Hospitality Research*, Vol. 7, pp. 39–49.

LEE B.K., AGARWAL S., KIM H.J. 2012. Influences of travel constraints on the people with disabilities' intention to travel: An application of Seligman's helplessness theory, *Tourism Management*, Vol. 33, pp. 569-579.

LEIPER N. 1989. Main Destination Ratios: Analysis of Tourist Flows, *Annals of Tourism Research*, Vol. 16, pp. 530-41.

LEW A., MCKERCHER B. 2006. Modeling tourist movements, a local destination analysis, *Annals of Tourism Research*, Vol. 33, pp. 403–423.

LUE C.C., CROMPTON J.L., STEWART W.P. 1996. Evidence of cumulative attraction in multidestination recreational trip decisions, *Journal of Travel Research*, Vol. 35, pp. 41-49.

MARTÌNEZ-ESPINEIRA R., AMOAKO-TUFFOUR J. 2009. Multi-Destination and Multi-Purpose Trip Effects in the Analysis of the Demand for Trips to a Remote Recreational Site, *Environmental Management*, Vol. 43, pp. 1146–1161.

MAURO S., POLLICHINO G.B., STUPINO F. in press. Tecnologie GPS per la valutazione dei comportamenti spazio-temporali dei flussi turistici in area vasta. In DE CANTIS S., OLIVERI A.M (Eds), *Il turismo regionale incoming. Comportamenti e motivazioni*, Milano: McGraw-Hill.

MEDEIROS BARBOSA L.G., CARLYLE FALCÃO DE OLIVEIRA T., REZENDE C. 2010. Competitiveness of tourist destinations: The study of 65 key destinations for the development of regional tourism, *RAP*, Vol. 44, pp. 1067-95.

OLIVERI A.M. 2006. Escursionisti a Cefalù. L'indice di attrattività escursionistica IPAE. In TOMASELLI V., VACCINA F. (Eds), *Turismo a Cefalù: dimensioni statistiche ed effetti socio-economici*, Padova: Cleup.

OLIVERI A.M., DE CANTIS S. 2004. Le fonti statistiche per l'analisi dei mercati turistici sub-regionali. In GIAMBALVO O., PARROCO A.M. (Eds), *Analisi dei merati turistici regionali e sub-regionali*, Padova: Cleup.

OLIVERI A.M., POLIZZI G. in press. Turisti in Sicilia: aspetti motivazionali e comportamentali. In OLIVERI A.M., DE CANTIS S. (Eds), *Il turismo regionale incoming. Comportamenti e motivazioni*, Milano: McGraw-Hill.

OLIVERI A.M., VACCINA A. 2006. Emerso ufficiale ed emerso telematico. Risultati di una ricerca sui siti Internet. In TOMASELLI V., VACCINA F. (Eds), *Turismo a Cefalù: dimensioni statistiche ed effetti socio-economici*, Padova: Cleup.

ORELLANA D., BREGT A.K., LIGTENBERG A., WACHOWICZ M. 2012. Exploring visitor movement patterns in natural recreational areas, *Tourism Management* Vol. 33, pp. 672-682.

OSTERMANN F.O. 2010. Digital representation of park use and visual analysis of visitor activities, *Computers, Environment and Urban Systems*, Vol. 34, pp. 452–464.

PARROCO A.M., VACCINA F. 2005. Aspetti di qualità delle statistiche sul turismo: effetti distorcenti derivanti dall'uso di alcune statistiche. In PARROCO A.M., VACCINA F. (Eds), *Isole Eolie: quanto turismo?!,* Padova:CLEUP.

PARROCO A.M., VACCINA F. (Eds) 2010. *Mobilità e altri comportamenti dei turisti: studi e ricerche a confronto*. Milano: McGraw-Hill.

PARROCO A.M., VACCINA F., DE CANTIS S., FERRANTE M. 2011a. Multi–destination trips: the survey on incoming tourism in Sicily, Economics Discussion Paper - www.economics-ejournal.org .

PARROCO A.M., FERRANTE M., VACCINA F. 2011b. Viaggi multi-destinazione e percorsi turistici in Sicilia. In ASERO V., D'AGATA R., TOMASELLI V. (Eds), *Turisti per caso?... Il turismo sul territorio: motivazioni e comportamenti di spesa*, Acireale: Bonanno.

PEARCE D.G. 1997. Competitive Destination Analysis, *Journal of Travel Research*, Vol. 36, pp.16-24.

PETERAF M.A., 1993. The cornerstones of competitive advantage: a resource-based view, *Strategic Management Journal*, Vol. 14, pp. 179-191.

PETTERSSON R., ZILLINGER M. 2011. Time and space in event behaviour: Tracking visitors by GPS, *Tourism Geographies*, Vol. 13, pp. 1-20.

PFOSER D., THEODORIDIS Y. 2003. Generating semantics-based trajectories of moving objects, *Computers, Environment and Urban Systems* Vol. 27, pp. 243-263.

POLIZZI G. 2010. *La comunicazione della destinazione turistica al tempo di Internet*, Milano: McGraw-Hill.

POON A. 1993. *Tourism, Technology and Competitive Strategies*, Wallingford, UK: CAB International.

PORTER M. E. 1980. *Competitive Strategy: Techniques for analyzing industries and competitors*, Cambridge: Free Press.

PORTER M. E. 1985. *Competitive Advantage*, Cambridge: Free Press

PORTER M. E. 1990. *The Competitive Advantage of Nations*, New York: Free Press.

PRIDEAUX B. 2002. The Cybertourist. In DANN G. (Ed), *The Tourist as a Metaphor of the Social World*, Wallingford, UK: CAB International.

PRIDEAUX B. 2005. Cyber-tourism: A New Form of Tourism Experience, *Tourism Recreation Research*, Vol. 30, pp. 5-6.

RAKIC´ T., CHAMBERS D. in press. Rethinking the consumption of places. *Annals of Tourism Research.*

RITCHIE J.R.B., CROUCH G.I. 2000. The competitiveness destination: a sustainability perspective, *Tourism management*, Vol. 21, pp. 1-7.

ROSSELLÓ J., SAENZ-DE-MIERA O. 2011. Road accidents and tourism: The case of the Balearic Islands (Spain), *Accident Analysis and Prevention*, Vol. 43, pp. 675–683.

RYAN C. 2002. Equity management, power sharing and sustainability – issues of the "new tourism", *Tourism management*, Vol. 23, pp. 17-26.

SHELLER M. 2009. The new Caribbean complexity: Mobility systems, tourism and spatial rescaling, *Singapore Journal of Tropical Geography*, Vol. 30, pp. 189-203.

SHI L., COLE S., CHANCELLOR H.C. 2012. Understanding leisure travel motivations of travellers with acquired mobility impairments, *Tourism Management*, Vol. 33, pp. 228-231.

SPACCAPIETRA S., PARENT C., DAMIANI M.L., DE MACEDO J.A., PORTO F., VANGENOT C. 2008. A conceptual view on trajectories, *Data & Knowledge Engineering*, Vol. 65, pp. 126–146.

TIDESWELL C., FAULKNER B. 1999. Multidestination travel patterns of international visitors to Queensland, *Journal of Travel Research*, Vol. 37, pp. 364-374.

TORRES VALDEZ J.C., MALDONADO CRUZ P., VELASCO A.E.M. 2010. Tourism Competitiveness in Mexico: The elements of a More Rational Tourist Policy, *Proceedings of the Conference 2010 Regional Studies Association Annual International*, Hungary, May 24-26.

TRISNAWATI R., WIYADI W., PRIYONO E. 2008. Analysis of the competitiveness tourism industries increasing the local economy. The Comparative Study Analysis of the Competitiveness Tourism between Surakarta and Yogyakarta, *Jurnal Ekonomi Penbangunan*, Vol. 13, pp. 61-70.

TSAMBOULAS D., MORAITI P., COSSU P. 2010. A decision support tool (dst) for improving tourism sector competitiveness, *Proceedings of the 12th WCTR*, July 11-15, Lisbon, Portugal.

TUSSYADIAH I.P., KONO T., MORISUGI H. 2006. A model of multidestination travel: Implications for marketing strategies, *Journal of Travel Research*, Vol. 44, pp. 407-417.

URRY J. 1995. *Consuming places*. London and New York: Routledge.

URRY J. 2003. The 'consumption' of tourism. In D. B. CLARKE D.B., DOEL M. A., HOUSIAUX K.M.L. (Eds.) *The consumption reader*, London: Routledge.

URRY J. 2005. The 'consuming' of place. In JAWORSKI A., PRITCHARD A. (Eds.), *Discourse, communication and tourism*. Clevedon: Channel View Publications.

VACCINA A. 2010. *Marketing turistico e comunicazione spontanea in Internet*. Milano: McGraw-Hill.

VACCINA F., PARROCO A.M. 2006. Referring To Space And Time While Using Territorial Data: The Case Of Touristic Arrivals, *Proceedings of the 55th Session of the International Statistical Institute*, Sidney, 5-12 April.

VERBEEK D., MOMMAAS H. 2008. Transitions to sustainable tourism mobility: The social practices approach, *Journal of Sustainable Tourism*, Vol. 16, pp. 629-644.

VERSICHELE M., NEUTENS T., DELAFONTAINE M., VAN DE WEGHE N. 2012. The use of Bluetooth for analysing spatiotemporal dynamics of human movement at mass events: A case study of the Ghent Festivities, *Applied Geography*, Vol. 32, pp. 208-220.

XIA J., ZEEPHONGSEKUL P., ARROWSMITH C. 2009. Modelling spatio-temporal movement of tourists, using finite Markov chains, *Mathematics and Computers in Simulation*, Vol. 79, pp. 1544–1553.

XIA J., ZEEPHONGSEKUL P., PACKER D. 2011. Spatial and temporal modelling of tourist movements using Semi-Markov processes, *Tourism Management*, Vol. 32, pp. 844-851.

ZILLINGER M. 2007. Tourist routes: a time-geographical approach on German car-tourists in Sweden, *Tourism Geographies*, Vol. 9, pp. 64-83.

SUMMARY

Tourist mobility and destination competitiveness

The concept of tourism competitiveness has developed over the years in different directions. Nowadays definitions overlap only in part. The concept of competitiveness, formerly introduced in economics and in the world of production, was easily translated into the tourism field as destination competitiveness, though in tourism the subject charged of the implementation of competitive strategies is a complex institutional actor (Destination Management Organization).

Competitiveness can be defined from both the supply (endowments) and the demand side (tourists' behaviour, satisfaction, ...).

The analysis of mobility is essential for the measurement of destination attractiveness and competitiveness; mobility can be observed in all kinds of movement (physical and virtual).

Through some PRIN researches we analysed the mobility of incoming tourists in Sicily and Sardinia from the demand side, in terms of actual tourist behaviours.

The observed phenomenon of multi-destinations suggests that mobility might be considered as an indicator of competitiveness. In fact, competition between alternative destinations appears at the intra-regional level. Such a competition is conditional on the

correct knowledge of available alternatives, and is influenced by being independent or organized tourists.

From the demand side destination competitiveness can be investigated through the analysis of real tourist flows (something different from generic arrivals) and in this sense multi-destinations detected in single travels represent tracks that tourists leave in the territory.

In the paper some results from PRIN researches, aiming at estimating the "real" dimension of tourist demand, are presented.

Antonino Mario OLIVERI, Dipartimento di Scienze Economiche, Aziendali e Finanziarie - Università degli Studi di Palermo, antoninomario.oliveri@unipa.it .

Anna Maria PARROCO, Dipartimento di Scienze Economiche, Aziendali e Finanziarie - Università degli Studi di Palermo, annamaria.parroco@unipa.it .

Franco VACCINA, Dipartimento di Scienze Economiche, Aziendali e Finanziarie - Università degli Studi di Palermo, franco.vaccina@unipa.it .

MEASURING THE IMPACT OF TOURISM: A 'TERRITORIAL' APPROACH

Giuseppe Notarstefano, Serena Volo[1]

1. The changing face of tourism and the need for new impact studies´ approaches

The range, reach and nature of tourism and its stakeholders are changing and this calls for a re-examination of the way the information needs, for effectively planning and managing tourism, are viewed. The increasing importance of tourism to the development of local, regional and national economies -coupled with technological advancements, that make geographical boundaries less relevant to economic planning- is making many of the traditional tourism data resources and the related impact measurement methods less useful and in some cases even obsolete. The decline in their usefulness accrues less from a decrease in the relevance of the variables, and the geographical areas for which the data have traditionally been collected, than from an increase in the need for the data to reflect tourism related activity not just across multiple and differently defined geographical boundaries, but also across multiple dimensions of tourism related activity. Significant growth in both domestic and international tourism has blurred the relevance of geographical boundaries – local, regional and international – for purposes of economic planning, resulting in a need for economic planning to cover not just larger geographical areas, but larger and differently defined spheres of tourism-related activity. There have been admonishments from different institutions, organizations and tourism experts to take more seriously regional tourism (Massieu, 2012). This however, will require greater coordination and governance of tourism policies with an integrated and multi-level vision (OECD, 2011, p. 5). It will also require a multi-dimensional vision of tourism and the spheres of economic activities within and across which it plays out.

The digital revolution, and the virtual world it has birthed, makes geographical boundaries sometimes superfluous, and the growth in our understanding of tourism and the explosion of tourism products and modes of delivery has changed the

[1]The present paper is the result of the joint work of the authors. However, G. Notarstefano wrote sections 1 and 2, 3 and S. Volo wrote sections 4 and 5.

complexion of tourism in facts as well as in the ways that tourists access and experience these products (Volo, 2012). These changes call for a new way of viewing the informational needs of planners at all levels of government and at all levels of economic and enterprise planning. There is a very basic need to redefine the "space" over which statistical data are collected, aggregated and analyzed (Volo and Giambalvo, 2008) and a need for more rigorous and discriminatory interpretations of different regional development paths (Camagni, 2007).

The "space" over which impact studies need to be defined goes beyond geographical boundaries and includes multiple dimensions of the physical and virtual realities within which the "tourism experience" plays out -as well as the behavioral antecedents and consequences of the stakeholders- in the planning, preparation, operation and maintenance of the "territorial experience" related activities. For example, the Internet expands the market of potential tourists that destination or territory can easily reach with their offering; and social media link participants across many boundaries of tourism activity (Volo, 2010). Similarly, new stakeholders have evolved e.g., environmentalist, who have increasingly become relevant forces that other stakeholders must reckon with.

The concept introduced and explored in this study is that of a tourism activity "territory". The "territory" is defined as having both "physical and intangible" and "actual and virtual" properties and boundaries. It is represented as a network comprised of tourism-related activity and stakeholders, none of whom controls a majority of the network, but all of whom are affected by the actions of any part of it. It is further posited that the total overall stakeholder value creation potential of the network is optimized when all stakeholders act in concert with each other. Thus, to plan and manage the network effectively there is created the need for a new set of performance measures that reflect the contribution of each participant-stakeholder to the aggregate value created by the network. This paper examines what this tourism-activity-related network - the "tourism territory"- might look like, what data it would require to function effectively and how the collaboration of stakeholders might be incentivized.

In this regard, new approaches and tools are needed. In particular, there is a need for appropriate conceptual frameworks that can provide definitional and operational guidance and support for gathering more complex and detailed tourism data and evidence of related phenomena across a wider geographical area and over additional dimensions of more spheres of tourism related activity, while at the same time serving the need of local authorities to measure the impact of tourism at regional and local (i.e., sub-regional) level. Among the tools needed are certainly new and different information bases and statistics capable of articulating and documenting the variety of phenomena in a spatially redefined scale of

observation: in this sense a territorial approach can be useful for a greater and better understanding of the "facts of tourism".

2. Tourism and Territory

The “territory” is increasingly regarded as a subject of economic and tourism planning and not just as context for it. For example, its growing importance in the analysis of social phenomena is attested to by the attention that scholars have paid to the issue and their reference to the space not only as "geographical" but as a place where a plurality and variety of "transformations" due to social action and cultural forces are taking place. The idea of territory as used in this report detaches itself from the idea of a mere geographic container and moves closer to the concept of an agglomeration of dense relational networks where interactions of different nature are generated. Tourism resources belong to the common heritage of mankind, and the communities of the territories where they are situated have particular rights and obligations with respect to them. Tourism is the social phenomenon that - perhaps more than other factors of mobility such as transitions in labor supply or production processes of relocation of labor demand - identifies the nature of territorial development as an evolution of a “trade-off frontier” where the balancing of activation and conservation of local resources and amenities plays out.

In recent years, some important signals have emerged from the tourism demand side, such as the increased intensity and volume of international flows (UNWTO, 2010), the growth in domestic tourist mobility, same-day visitors flows and residential tourism (Frechting, 2009, Manente, 2009). Furthermore, the commodization (Augè, 2007) of the tourist experience generates the widespread belief among economic agents and policy makers that any local tourist area (destinations actual or "potential") can somehow compete in the global marketplace, and some are exploiting their characteristics of "marginality" and singularity (Mignon, 2010). This reflects the growing awareness gained by researchers in the analysis of globalization, that the competition is to be played out mainly in absolute terms rather than relative terms and that specific local factors can, in this perspective, increasingly become an element of synthesis and value creation and realization (especially economic and productive) of physical plant and infrastructure and similar resources present in a geographic area (Camagni, 2007).

Tourism is increasingly perceived and thought of and talked about, particularly by program developers and local decision makers, as a "device" that tends to attract the resources of a territory, mobilizing and channeling them towards effective management. The basic premise is that more efficient deployment of the resources

and assets across a larger geographical areas and spheres of influence can generate previously unrealized value and increase the aggregate "territorial value creation". In local development policies there is frequently, though often not adequately justified, an emphasis on tourism with a consequent need for a multi-level governance of tourism policies (Hall, 2008). In addition, the issue of sustainable tourism in the territories, with particular attention to small and very small or remote places (such as islands) is growing, hence the need to measure and evaluate the specific environmental and social impacts resulting from the pressure of increased human presence and exploitation of destinations and natural areas along with the effects on the production structure and the local economic cycle.

The focus on the territorial scale also allows the established division between positive impacts (usually economics) and negative (typically social and environmental) proposed in the literature to be neutralized (see Liu et al, 1987). Therefore, the attention of local public policies on tourism is growing within the sphere of awareness of the key role of the territory. Furthermore, while the definition of "sector, non-sector" given by Costa and Manente still appears to be the better one when referring to tourism, the awareness that, to measure and to predict the impact of tourism, a clear-cut explanation of its boundaries (which may not always be geographical is needed) is growing. Furthermore, a redefinition of the activities and the boundaries of what could be defined as the tourism sector, is essential for a more careful assessment of potential production and employment effects of tourism and the economic planning to support them.

A recent more articulated proposal has been made in an editorial by Pizam (2009) in which he defines the overlapping boundaries of the tourism, travel and hospitality industries. Such a redefinition is needed to identify the strategic implications that can be generated, within and between regions when embarking on a path of tourism development. The concept of territory as defined here, offers the opportunity to change the perspective in the evaluation of peculiar and specific abilities to sustain tourism development (see Candela and Figini, 2005). Therefore, a paradigm that can penetrate and elucidate the impact of various economic and activity dimensions along with various modifications and "tensions" as implied by this new way of thinking about the "tourism-relevant territory" is needed and, if developed, can advance our understanding of "spheres of tourism activity" and how to better harvest the opportunities to reap the optimal benefit of all stakeholders, while at the same time being environmentally neutral or positive and thus contributing as well to sustainability.

3. Measurements of Tourism Impacts

The challenge of measuring the impact of tourism has for a long time been identified in the search for models to determine estimates of direct and induced effects observed on a production structure (impact as activation). In this sense, the trend of studies on the estimation of economic impacts has focused on input-output models and, more recently on CGE models and patterns of social and economic accounting (SAM). And it must be noticed that numerous studies have focused on this topic (for a review see Dwyer, Forsyth, Spurr, 2004). The idea of impact that emerges from different past approaches can be defined as follows: "activation, pressure and interaction". Briefly, it can be said that the economic dimension considers the impact as a mechanism of activation of the productive and sectorial interdependencies and through direct and indirect impulse on employment and on value added. Whereas, the environmental dimension considers the pressures on the ecosystem and natural capital, and finally, the social dimension aims at detecting interactions between tourists and hosting communities with particular attention to cultural aspects, as recently noted by Deery, Jago and Fredline (2012).

Many attempts have been undertaken to jointly assess several dimensions of tourism impacts (Duffield, 1982; Frechtling, 2011; Gormsen 1997; Johnson and Moore, 1993; Mbaiwa, 2003). Examples include the work of Lindberg and Johnson (1997) and Alavalapati and Abramowicz (2000). But above all, we must remember the areas of study and the numerous attempts to build and apply more sophisticated models and accounting tools such as the social accounting matrices and the satellite accounts. A new territorial approach to measuring impacts must therefore leverage the following change of perspective: consider the territory as a subject from both the perspective of policies and that of measurement and construction of the necessary information supports, placing more emphasis on the role of local actors to identify and indicate levels of qualitative and quantitative performance expectations.

One theoretical construct which has been implicitly invoked in this paper is the notion of Territorial Capital, which is understood as a combination of factors that defines the specific geographical area (Camagni, 2007). The very idea of competition at the territorial level requires a rethinking in a strategically sound way of the formulation of objectives and policies, and when referring to the sustainability it requires the ability to look at the big picture and the long term to implement these objectives, and it requires the rigorous practice of evaluation as an expression of judgment on the public actions based on effective and structured information materials and conducted with rigorous and coded methods. For example, the construct of a value net would be relevant in this regard, and the value net analysis methodology could be useful if identifying the potential for increasing,

by any particular policy or action, the value creation within a territory. Then, the strategic planning and management principles of the balanced scorecard (BSC) could be profitably brought to bear on the production factors within a territory to achieve the "territorially optimal" outcome by measuring and incentivizing the activities of all players in, or critical to, the territory in a manner that maximize the aggregate territorial value creation.

4. An integrated territorial approach: The *Balanced Scorecard*

The model proposed here for an integrated system of territorial planning and performance measurement is that of the Balanced Scorecard (BSC) developed by Kaplan and Norton (1996), with adaptations of those developments and applications as described by Vila, Costa and Rovira (2010), and by Ioppolo, Saija and Solomon (2012). The Balanced Scorecard is a strategic analytic tool of management derivation that aims to provide a Strategic Measurement System (Kaplan and Norton, 1996). With the Balanced Scorecard, enterprise or organizational performance is not limited to purely economic and financial indicators, but rather through a "dashboard" of four, broad but balanced performance categories: (1) economic and financial, (2) the customer perspective, (3) the perspective of internal processes, and (4) training and growth.

The purpose of the BSC is to balance the financial indicators, especially short term financial measures that may ignore or conceal longer term deficiencies and which tell more about past than future performance, with addition measures which are more likely to foretell the future value creation of the organization. Further, the BSC attends in its design to the fact that different stakeholders in the organization will not all view the company's performance in various areas similarly, that some stakeholders will view some performance measures neutrally, or even consider them as irrelevant, even if their long term interests are served by factors reflected in these performance measures.

Since it is axiomatic that management gets what management measures (Kaplan and Norton, 1992), we would expect to observe that stakeholders perform in a manner that conforms to what the organization measures, and implicitly therefore, what it values. So if the main performance measure is quarterly ROI's or production or sales volumes, stakeholders who will be affected by these measures, say in their compensation, and who are in a position to drive these measures will shape their behavior to conform to them. The problem, of course, is that actions that will maximize their performance for the quarter may be damaging to the longer term vitality of the entire overall organization. Further, and arguably more potentially damaging to the organization, is that narrowly defined performance

measures, though they may incentivize behavior that maximizes the performance of one department, operational area or division, may at the same time be at the expense of the performance of the others.

It is therefore critical that all stakeholders understand well what the measures are that signal the overall performance of the territory and how those measures reflect direct and indirect short and long term consequences to themselves, not just the measures obviously relevant to their own self interests. Importantly, when stakeholders are provided data that they would otherwise not be aware of, but which foretell the future performance and payoffs of the overall territory, including their own spheres of interest and areas of authority, they become more willing to buy into an implementation of the overall Balanced Scorecard concepts and the practices. Typical "across-territory measures" that would be relevant to the planning (strategic and operational) and impact evaluation of a territory's tourism sector would include the following:

a) Customer perspective
Tourists: destination image and attractiveness, customer service levels, tourism and hospitality service product performance, value, price and quality, visitors' motivations and experience, percentage of returning tourists, complaints, (relative) market share, etc.
Residents: economic advantages (e.g., employment, tax revenues), impact of tourism on the quality of life, load on the urban infrastructure, cultural and social conflicts.

b) Internal process perspective
Tourism and overall infrastructures and their management, hospitality vision of the community, productivity of the territory.

c) Learning and growth perspective
Qualified and motivated tourism, hospitality and travel workforce, territory-wide information systems, innovation in tourism offerings, and hospitality and travel services.

d) Territorial well-being perspective
Social (social statistics indicators), economic (foreign direct investment, tourism receipts), environmental results (environmental indicators)

The idea is that if each stakeholder is held accountable for making contributions, and stakeholders are measured on their contribution to all the areas that drive the long term vitality, sustainability and profitability of the territory, they will shape their behavior to the necessities for such wide range and long term performance. Consequently, each territorial "department, operational area or division" is measured not just on their performance on outcomes for which they

have clear, direct and indisputable responsibility, but on their contribution to the ability of other departments and operational areas to do the same. Thus, "territory managers-stakeholders" balance their resources and their efforts so as to maximize the benefit to the overall organization-territory-destination, not just the functions for which they have indisputable responsibility. Remarkably, balancing the criteria on which stakeholders and their units are measured and evaluated effectively drives their behavior toward balancing their effort for the long term benefit of the overall destination, and therefore indirectly their own long term benefit.

This last point is critical to the argument made here: that the Balanced Scorecard is a viable model with which to approach territorial planning, development and measurement, because it assumes that there are common benefits that can accrue to all stakeholders across a territory, as defined here – i.e., not just geographical – if they are made aware of, and are measured on, a more balanced set of performance criteria. Of course the definition of what these performance criteria should be will require research, development and experimentation, but those listed earlier can provide an idea of what they might be and even some guidance for identifying defining them. Furthermore, the ideas of "activation, pressure and interaction" the emerged from past studies on tourism impact could very well be integrated into the Balanced Scorecard approach.

The Balanced Scorecard had also quickly evolved into a comprehensive strategic management tool designed to insure alignment between the organization's strategy and the programs and operational practices required to successfully implement it (Kaplan and Norton, 1996). In this sense it focuses the performance measurement system not just on the organization's end result but also on the interim things required to achieve a good end result. In short, the BSC attempts to align what an organization seeks to achieve – i.e., its strategy -- with what it does – i.e., its operations. Further, the BSC focuses attention on what the organization needs to be doing in all areas of management, not just for short term results, but for sustained, long term results, including the development of new organizational forms strongly driven by and oriented to the strategy. Thus, the BSC marks a departure from traditional performance measures, based exclusively or predominantly on economic and financial related indicators, and a transition to a balanced approach that includes multiple measures in a multidimensional structure (Chytasa, Glykasb, and Valiris, 2011; Mendes et al., 2012).

In adapting the BSC methodology to the "territorial concept" advanced here, there are of course difficulties that will be faced that most organizations, even those of significant size (e.g., General Electric or regional governments) do not face. For example, while there may be minor, or even modest, differences of opinion within most organizations as to how to best serve the organization's mission, there is typically at least general agreement as to what the mission is. On the other hand,

within the "territorial entity" as envisioned and described here, stakeholders may not only hold different views of the collective mission or perhaps not even agree that there is a common one, they will also likely hold different visions and beliefs as to how best to achieve the mission, even if they can agree as to what the mission is. In fact, the various stakeholders may not recognize, and may even debate or deny linkages that do exist between their collective welfare and survival. For example some stakeholders may see modernization of territorial transportation or communication infrastructure linking the components of the territory as essential while others will see no connection at all to their own welfare and survival. Or some stakeholders may feel antagonistic to certain cultural or linguistic traditions or requirements they feel burdensome to their financial objectives, while it may be the reason for the existence of others.

There are two important points regarding that adaptation of the BSC to the "territorial entity". First, the adaptation of the concept that is being advocated here is more conceptual than it is operational. Second, the fate of the stakeholders in a "territory" will in fact be tied to many common, and commonly accessible, factors, and it is a long held view among sociologists and political scientists alike that any aggregation of society or body politic will benefit more when all elements of either are performing well and in concert with the others. The reason this fact typically is not exploited to the benefit of the components of the aggregation in what here we have referred to as "territory" is that there is no single governance structure that has the responsibility, readily accessible opportunity or the authority to mount such a campaign and enlist the participation of the stakeholders with the same gravity as single organizations can. This however, does not negate the adaptability of the BSC to our concept of "territory", it merely changes the requirements of its implementation. Conceptually, the adaptation of the BSC for "territories" is the same as for single organizations. The challenge for "territories" is also the same as for organizations, that is, to get stakeholders to see that their own long term interests are tied not just to their own short term performance, but also to the long term performance and well-being of a range of stakeholders and that they should behave in a manner that optimizes the overall system, not just their own segment of it, and to then submit to performance measures that reflect how well they are doing this.

Finally it should be noted that there are a number of practical and methodological problems related to the implementation of the BSC methodology over a territory comprised of many qualitatively different stakeholders, some of whom may have what appear to be competing interests. Also, the identification, definition, measurement, weighting and aggregation of the optimal set of indicators will be a task of no modest proportions. An effective approach for applying BSC principles to a territory, we postulate, would be that of the "Proactive Balanced

Scorecard". The "Proactive Balanced Score Card" (Chytasa, Glykasb, and Valiris, 2011) as it would be applied to a territory, is a method that determines a process of engagement in order to define a common "strategic vision" for the territory and the steps required to translate the vision into action steps: the determination of the objectives for each area; the choice of operational definitions and measurement tools; the definition of specific targets; the definition of initiatives to achieve the target; the identification of the areas and the responsibilities for the initiative; the creation of "what if" scenarios through simulations, etc. The very act of attempting to define the physical and abstract boundaries of the territory, the actual and virtual dimensions of the territory, and stakeholders thinking collaboratively about the territory in terms of the BSC criteria can open new insights and identify potential opportunities for improving the value creation of the territory while improving its sustainability. A full implementation of BSC will actually realize the value creation potential and in a manner that can be embraced by all stakeholders.

5. Conclusion

The nature of tourism and the spheres of activity relevant to managing it are changing both in character and in scope. Consequently, traditional statistical and management information resources are not adequate for effective tourism planning and for tourism impact evaluation because they are deficient both in scope and focus. To adapt to the evolving nature of tourism and realize the full value creation potential for all stakeholders, planners, managers and operators must adopt a new conceptualization of the "space" over which relevant tourism related activities occur and over which these activities must therefore be comprehended and managed. A "territorial space", which is not defined simply by geographical boundaries, but also by physical and intangible as well as actual and virtual boundaries is offered as a framework within which to conceptualize and approach planning and managing tourism in the newly evolved reality, and the BSC is as an effective tool for facilitating the implementation of a new approach in evaluating and studying the impacts of tourism as it could be well embedded into the "territory" concept and the Italian experiment on tourism districts will provide a perfect setting for applying the Proactive Balanced Scorecard to tourism.

References

ALAVALAPATI J.R., ABRAMOWICZ W. L. 2000. Tourism Impact Modeling for Resource Extraction Regions. *Annals of Tourism Research*, Vol. 27, No. 1, pp. 188-202.

AUGE M. 2007. *Pour une antropologie de la mobilité*. Barcelona : Editorial Gedisa S. A. Trad. It. 2010 Editoriale Jaka Book Milano.

CAMAGNI R. 2007. *Towards a Concept of Territorial Capital*. paper ERSA, Paris.

CANDELA G., FIGINI P. 2005. *Economia dei sistemi turistici*. McGraw-Hill Italia.

CHYTASA P., GLYKASB M.,VALIRIS G. 2011. A proactive balanced scorecard. *International Journal of Information Management*, No. 31, pp. 460– 468.

DEERY M., JAGO L., FREDLINE L. 2012.

Rethinking social impacts of tourism research: A new research agenda. *Tourism Management*, No. 33, pp. 64-73.

DUFFIELD B. S. 1982. Tourism: the measurement of economic and social impact. *Tourism Management*, December, pp. 248-255.

DWYER L., FORSYTH P., SPURR R. 2004. Evaluating tourism's economic effects: new and old approaches. *Tourism Management* No. 25, pp. 307–317.

FRECHTLING D. C. 2011. *Exploring the Full Economic Impact for Policy Making. Extending the Use of Tourism Satellite Account trough Macroeconomic Analysis Tools*, UNWTO.

GORMSEN E. 1997. The impact of tourism on coastal areas. *GeoJournal*, Vol. 42, No. 1, pp. 39–54.

HALL C. M. 2008. *Tourism planning: Policies, processes and relationships*, Pearson-Prentice Hall.

IOPPOLO G., SAIJA G., SALOMONE R. 2012. Developing a Territory Balanced Scorecard approach to manage projects for local development: Two case studies. *Land Use Policy*, No. 29, pp. 629– 640.

JOHNSON R. L., MOORE E. 1993. Tourism Impact Estimation. *Annals of Tourism Researc*h, Vol. 20, pp. 279-288

KAPLAN R. S.,NORTON D P 1992. The Balanced Scorecard: measures that drive performance. *Harvard Business Review*, Jan – Feb, pp. 71–80.

KAPLAN R. S., NORTON D. P. 1996. *Balanced Scorecard: Translating Strategy into Action*. Harvard Business School Press

LIENDBERG K., JOHNSON R. L. 1997. The Economic Value Tourism's Social Impacts. *Annals of Tourism Research* Vol. 24, No. 1, pp. 90-116.

LIU J., SHELDON P., VAR T. 1987. A cross-national approach to determining resident perceptions of the impact of tourism on the environment. *Annals of Tourism* Research, Vol. 14, pp. 17-37.

MANENTE M. 2009. *Analysing and Understanding Domestic Tourism within a Destination Perspective.* provisional draft submitted to First International Conference on the Measurement and Economics Analysis of Regional Tourism. Donostia – San Sebastian (Spain), 27-28 October2009.

MASSIEU, A. 2012. *Measuring and Analyzing Regional Tourism: towards a set of general guidelines*. INRouTe 1st Seminar on Regional Tourism: setting the focus Venice, Italy 5--6 July 2012.

MBAIWA J. E. 2003. The socio-economic and environmental impacts of tourism development on the Okavango Delta, north-western Botswana. *Journal of Arid Environments*, No. 54, pp. 447–467.

MENDES P., SANTOS A.C., PERNA F., RIBAU TEIXEIRA M. 2012. The balanced scorecard as an integrated model applied to the Portuguese public service: a case study in the waste sector. *Journal of Cleaner Production*, No. 24, pp. 20-29.

MIGNON J. M. 2010. *Les défis du tourisme et de la cohésion sociale.* Atelier de l'OCDE Les stratégies de développement durable du tourisme, Paris, 18 juin 2010.

OECD 2011. *Studi OCSE sul Turismo: Italia: Analisi delle criticità e delle politiche*. OECD Publishing. http://dx.doi.org/10.1787/9789264116030-it .

PIZAM A. 2009. What is the hospitality industry and how does it differ from the tourism and travel industries? Editorial, *International Journal of Hospitality Management*, No. 28: 183–184.

VILA M. , COSTA G. , ROVIRA X. 2010. The creation and use of scorecards in tourism planning: A Spanish example. *Tourism Management*, No. 31, pp. 232–239.

VOLO S. 2010. Bloggers' Reported Tourist Experiences: Their Utility as a Tourism Data Source and Their Effect on Prospective Tourists. *Journal of Vacation Marketing*, Vol. 16, No. 4, pp. 297-311.

VOLO S. 2012. Blogs: "Re-inventing" tourism communication. In: Web 2.0 in Travel, Tourism and Hospitality: Theory, Practice and Cases. U. Gretzel, M. Sigala, E. Christou (Eds). Ashgate Publishing Ltd.

VOLO S., GIAMBALVO O. 2008. Tourism Statistics: Methodological Imperatives and Difficulties: The Case of Residential Tourism in Island Communities. *Current Issues in Tourism*, Vol. 11, No. 4; pp. 369-380.

SUMMARY

Measuring the impact of tourism: a 'territorial' approach

The nature of tourism and the spheres of activity relevant to managing it are changing both in character and in scope. Consequently, traditional statistical and management information resources are not adequate for effective tourism planning and for tourism impact evaluation because they are deficient both in scope and focus. To adapt to the evolving nature of tourism and realize the full value creation potential for all stakeholders, planners, managers and operators must adopt a new conceptualization of the "space" over which relevant tourism related activities occur and over which these activities must therefore be comprehended and managed. A "territorial space", which is not defined simply by geographical boundaries, but also by physical and intangible as well as actual and virtual boundaries is offered as a framework within which to conceptualize and approach planning and managing tourism in the newly evolved reality, and the BSC is as an effective tool for facilitating the implementation of a new approach in evaluating and studying the impacts of tourism as it could be well embedded into the "territory" concept and the Italian experiment on tourism districts will provide a perfect setting for applying the Proactive Balanced Scorecard to tourism.

Giuseppe NOTARSTEFANO, University of Palermo, Department of Economics, Business and Finance (SEAF)– Palermo, Italy. giuseppe.notarstefano@unipa.it .
Serena VOLO, Free University of Bozen-Bolzano; School of Economics and Management; Competence Centre in Tourism Management and Tourism Economics (TOMTE) - (Bolzano), Italy. serena.volo@unibz.it .

DESTINATIONS' COMPETITIVENESS AND TOURIST SATISFACTION SURVEYS: AN ECONOMIC ANALYSIS

Marco Gallegati

1. Introduction

The marketing research literature has extensively analysed the concept of customer satisfaction over the past decades with the aim to measure and explain it. Following Oliver (1980) the concept of consumer satisfaction (also called positive disconfirmation) has been mainly related to the difference between expected and perceived performance for a product or service experience (the expectancy disconfirmation theory, see Oliver, 1997), where satisfaction is the result of a subjective evaluation process.

Tourist satisfaction surveys are widely employed within tourist destinations to get the tourist viewpoint of the specific different attributes or characteristics and of the destination as a whole. Tourist assessments, represented by direct information given explicitly in tourist satisfaction surveys, are also interpreted as a basis to measures competitiveness of any given destination, since competitiveness is a key element of a destination strategy. The implicit assumption for such interpretation is that tourists perceptions will provide an implicit comparison between different attributes of competing tourist destinations based on their past experiences (Kozak and Rimmington, 1999, Dwyer and Kim, 2003).

In this paper we try to establish whether tourist satisfaction surveys are useful for assessing destination competitiveness through the lens of economics. In particular, we first analyse the consequences of the composite nature of the tourism product and the evolution of consumer preferences for the tourist's choice of a destination. Then we analyse how the *experience good* nature of the tourism product is likely to affect tourist's destination choice because of the high costs associated to information search.

Both slowly evolving preferences, suggested by the "directional choice theory", and a satisfaction risk associated to the information search for an *experience good,* indicate that tourists are more likely to change more frequently destination than type of tourism. Therefore, the sample population involved in tourists satisfaction surveys tends to display the features required in order to provide useful direct and indirect information for destination competitiveness analysis. The first can be

useful to identify the strengths and weaknesses of a destination tourist product, the latter to assess its performance with respect to competing destinations, and both can provide valuable information for developing future destination strategies.

2. Quantitative analysis of tourism destination: performance

The notion of destination competitiveness is central to tourism research, especially after the striking performance experienced by the tourism sector in terms of growth in the recent decades at any level, *i.e.* international, national, regional and local. Tourism destinations, having its own competitiveness set which depends on the characteristics of its tourism product compared with alternative tourism products supplied by other destinations, can be regarded as competitive units facing global competition (Bieger, 2002). Therefore, for destinations it is of utmost importance to identify their relative strengths and weaknesses since they are competing with each other for taking a place in the *consideration* or *awareness set* of their potential tourists (see Woodside and Lysonski, 1989 and Um and Crompton, 1990). As a consequence, measuring tourist destination competitiveness has become a principle task for destination managers and policy makers, as well as a significant part of tourism literature (e.g. Goodrich, 1977, Ahmed, 1991, Pearce, 1997).

Performance and competitiveness are assumed to be strictly linked in the international economics and business literature. Measures and/or indicators of tourism destination performance and/or competitiveness comprise both objective and subjective measures reflecting quantitative and qualitative information, respectively. The performance of tourist destinations can be measured quantitatively by analysing the contribution of tourism to overall economy, using variables like value added and employment. The ability of a destination to display a positive performance of these economic indicators, such as an increase in absolute values, rising percentages over total GDP or employment or positive growth rates, provides indirect evidence of destination overall competitiveness. Nonetheless, indicators referring to the tourism sector face some measuring problems related to the difficulty in distinguishing its contribution from other sectors' contribution because of the interrelated nature of tourism.

The most widely used quantitative indicators of a destination performance are several visitors' statistics such as the number of tourist arrivals, the length of overnight stays, the volume of tourists receipts and the level of expenditure per tourist. The performance of such indicators is generally evaluated by calculating percentages or transforming level values to percentage changes over the previous year. Again, positive and/or increasing values of such indicators are indicative of a

good performance of the destination and generally associated to a positive assessment for destination's competitiveness. In addition, these statistics are generally used by policymakers and destination managers to evaluate the successfulness of past strategies with respect to public and private sector tourism stakeholders (firms and organizations) and also to develop future strategies[1].

In Table 1 I present an example of the way quantitative data analysis is usually carried out by looking at several statistics about arrivals and stays in San Benedetto del Tronto in 2010 and 2011. Absolute numbers of tourist arrivals along with year-to-year growth rates from 2010 to 2011 and the average duration of stay in the two years are displayed.[2] Two main findings emerge from the analysis of quantitative data shown in Table1: a significant increase in the number of tourist arrival, and a large decrease in the average length of stay, where both results are much more evident for foreign than for domestic tourists. Indeed, despite the large increase in arrivals, especially for foreign tourists, the decrease in the average duration of stay, from 9.2 to 8.9 days for domestic and from 8.5 to 7.8 days for foreign tourists, respectively, represents the main cause of concern for local private and public stakeholders. Indeed, since the average duration of stay depends on the economic conditions in the countries of origin as well as on the price of the tourist product, neither the first, given the lasting unfavourable international economic conditions, nor the latter, given the downward pressure on prices determined by increased competition from newly established tourist destinations, are likely to provide good news for the local tourism sector in the years to come. Therefore the possibility to avoid a reduction in total stays is linked to the ability of the destination to go on compensating the decrease in the average length of stay with increasing arrivals.[3] However, because of the dependence of arrivals on the attributes affecting the tourist's choice of the destination, such a possibility is strictly related to its ability to continuously gaining competitiveness with respect to alternative national and Mediterranean sun-and-sea destinations, that is their traditional competitors.

[1]This is especially true when the performance of the tourism destination is compared to geographically close competing destinations.

[2]I am well aware that any analysis of the performance of a tourism destination cannot be based upon two years' values of visitors' statistics. Nonetheless, since my aim is just descriptive, in the sense of showing how these statistics are generally employed by forms and organizations involved in the tourism sector, I think that this should not be a great limitation for the analysis.

[3]The recent increase in arrivals experienced by many national sun-and-sea destinations exogenous factors that affect the destination country (weather conditions, political stability, etc). fact the increase in tourist arrivals could just be the results of a temporary exogenous reduction of supply of some Mediterranean seaside tourism destinations in countries such as Tunisia and Egypt because of the recent political instability.

Table 1 – *Tourists arrivals and stays in San Benedetto del Tronto in 2010 and 2011*.

	Domestic			Foreign			Total		
	2010	2011	Δ%	2010	2011	Δ%	2010	2011	Δ%
Arrivals	149.001	152.905	2,6	25.126	26.358	4,9	174.127	179.263	2,9
Stays	1.388.723	1.400.875	0,8	213.454	205.694	-3,6	1602.177	1.605.569	0,2
Aver. stay	9,3	9,1		8,5	7,8		9,2	8,9	

Data source: Osservatorio Regionale del Turismo, Regione Marche.

3. The composite nature of the tourism product and the evolution of preferences

The quantitative statistics usually employed as measures of the economic performance of the destination are to be interpreted with caution as indicators of destination competitiveness because of the composite nature of the tourism product. Indeed, the tourism product is a collection of services, mostly intangible and perishable, and facilities supplied by many individual providers with the aim to satisfy tourists' needs. For this reason the sector tourism comprise a broad range of different organizations and firms, both private (like hotel companies, airlines, travel agencies, etc., and various professional and industry organizations) and public (like government and local authorities).

The analytical framework provided by the traditional neoclassical theory of consumer's behaviour cannot be considered appropriate to deal with the consumer choice of the tourist given the specific features of the tourism product. Indeed, tourists' preferences rather than being expressed in terms of goods have to be expressed in terms of the characteristics or attributes generated by those goods (and services).

According to Lancaster's characteristics model (Lancaster, 1966, 1971) consumer utility is assumed to be derived from the characteristics or attributes produced by goods and services. Goods produce characteristics in fixed proportions, the relation between the goods and product's attributes being of technical nature.Therefore, the consumer maximizes

$$U\,(z) \tag{1}$$

subject to

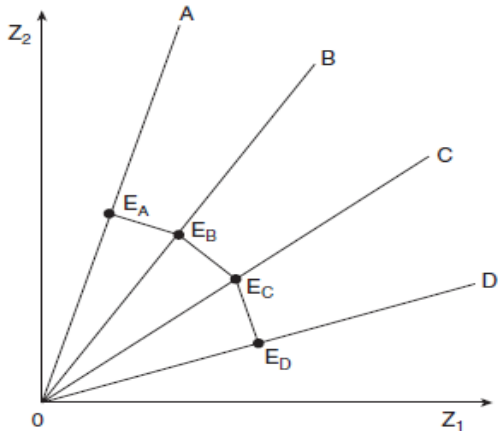
$$z = bx \tag{2}$$

$$E \geq px\,x \tag{3}$$

with z, x, $p_x \geq 0$ and where z is a vector of characteristics, b is the matrix of consumption technology coefficient transforming days in characteristics, x is a vector of days spent in each destination and p_x is a vector of prices per day visit in each destination.

Figure 1 illustrates the characteristic space when the consumer faces both budget and time constraints, with characteristics z_1 and z_2 displayed on the horizontal and vertical axis, respectively. A, B, C and D represent different destinations of a same type of tourism[4] which displays different combinations of the characteristics z_1 and z_2. The area formed by $0\text{-}E_A\text{-}E_B\text{-}E_C\text{-}E_D\text{-}0$ gives the consumer's opportunity set since each point E_A, E_B, E_C and E_D provide indirect information about the maximum number of days X_A, X_B, X_C and X_D that may be spent in each destination given the available expenditure for travelling purpose and the price per day in each destination.[5] Thus the line $E_A\text{-}E_B\text{-}E_C\text{-}E_D$ gives the efficiency frontier in terms of the combination of the characteristics z_1 and z_2.

Figure 1 – *Characteristic space.*



Note: Figure from Tussyadiah et al., (2006).

Given the tourist's objective to choose the bundle of characteristics that maximize his/her utility, the optimum of the consumer is located at the tangency point between the indifference curve and the characteristics frontier $E_A\text{-}E_B\text{-}E_C\text{-}E_D$. The preferences of the individual over the consumption of each type of characteristic are given by the utility function Then given tourist's preferences,

[4]A, B, C and D could also refer to different destinations characterized by different types of tourism.

[5]E_A, E_B, E_C and E_D provide direct information on the maximum amount of characteristic that may be consumed and indirect information about the number of days through the consumption technology matrix b.

specified over characteristics, the choice of a destination coincide with the choice of an optimal combination of desired destination's characteristics of the tourism product at that destination. maximizing the quantity of the "consumed" characteristics.

The tourist's choice of a destination is therefore based on the comparative evaluation of the different attributes or characteristics associated to the set of alternative destinations, in analogy to what research in consumer behaviour suggests about product choice criteria for that the choice decision what happens when purchasing any type of technological good. Take for example the case of the purchase of high-tech goods like cameras, mobile phones or laptop computers: the consumer's choice is based upon the comparison of a certain number of features, the so-called technical specifications, like pixel resolution, capacity, size and weight, battery, etc. among models that are otherwise similar for the price and other attributes. In sum, just as consumer's choice of a specific hi-tech good is mainly driven by its technical specifications, tourist's choice of destinations is driven by destinations' specific attributes.

To summarize, as the choice of a particular destination depends on how much tourism product' attributes match with tourist's preferences, the assessment of the different attributes or characteristics of the destination tourist product is considered essential to measure destination's competitiveness (Zairi, 1996, Kozak, 2004). These assessments have been mainly obtained by conducting surveys based on the tourists' level of satisfaction because by incorporating the tourists' point of view it is possible to obtain crucial direct information about the different attributes or characteristics of a destination and hence a destination's performance (Alegre and Garau, 2009).

Finally, as regards the consumer preferences the traditional theory assumes that they are exogenously given with indifference maps given once and for all. In this way the consumer is supposed to be aware of all consumption opportunities and to make the best choice out of them. Georgescu Rogen's (1936) approach to consumer theory, known as the theory of "directional choice", suggests to consider preferences to be defined only locally, with indifference surfaces evolving over time depending on the consumer's past experiences of consumption and current position in the choice space. "In the theory of directional choice, man's choice is rather like that of a worm which, from any position, chooses some direction and then moves along it" (Georgescu Rogen, 1968, p. 255). Hence, as suggested in Agliardi (1988) the directional choice theory can be used to explain how tourist's movements in the choice space are the result of the evolution of consumer preferences which, by experimenting different tourism products, is allowed to subsequently adapts his/her destination choice.

4. The search for information for an *experience good*

According to the recent advances in the economics of information literature tourism markets can be represented as imperfect markets, where participants act in a context of with asymmetric and incomplete information (Candela *et al*., 2012). Over the last 50 years tourism has continuously grown with the tourism flow, mostly originating from developed countries, now globally distributed all over the world. Such a rise in the extension of the zone covered by tourist supply make consumers confronts with an impressive amount of information as to the possible alternative destinations. Within this context of growing tourism supply consumers are unlikely to have complete information about the available alternatives. Indeed, although the Web makes any destination "searchable" and lowers the cost of gathering and sharing information, the huge amount of information available on Internet and the opportunity cost related to the online information search makes the incomplete information assumption still hold.

Tourism is also an example of a market characterized by asymmetric information about the quality of the tourism product among market participants. Indeed, while tourist can only have a sort of "average" information about the quality of the tourism product, tourism providers and intermediaries are likely to know the real quality of the products and services offered (or at least to have better knowledge than the counterpart). To traditional solutions like signalling, screening and legal protections, Internet has recently added as a remedy to attenuate the effects of asymmetric information in the tourism market by making readily available an immense amount of information about tourism destinations, products and services.

But also in the hypothesis that the tourist can fill the information gap in terms of completeness and asymmetry, the search for information is still called for because the quality of tourism products cannot be fully and accurately evaluated before purchase. Indeed, because of the intangible and service nature of many of the attributes of the tourism product its quality cannot be objectively assessed using readily available information until after consumption. Following Nelson's (1970) definition the tourism product is an "experience good", as opposed to search goods whose quality can be fully evaluated at relatively low cost prior to its purchase and consumption. Almost all the constituent parts of the tourism product are "experiences (Smith, 1994) because tourists take part to the production process, being production and consumption of the tourist product not separable. Furthermore, weather conditions at the destination are generally central to overall trip satisfaction, but they cannot be known in advance. For all these reasons the attributes associated with the tourist product quality are likely to be mostly discoverable after gaining experience with the product.

In terms of the search for information, dealing with an experience good means that one needs to compare the certainty utility of a safe and known tourist product (destination) with the expected utility of an uncertain tourist product (destination). But this means in turn that the search for information, in contrast to what happens with search goods, is likely to be particularly costly, since the search for information can coincide in the limit with the holiday price. Hence, given that the holiday price is generally quite high with respect to other forms of consumption and that the holiday frequency is quite low, generally each individual goes on vacation just a few times each year, the consumer is likely to associate a very high-risk to a tourist product or a destination quite far from his previous travel experience (Casarin, 2005). As a consequence, the consideration set (Hauser, 1978) for these high-risk perceivers tourists is likely to be formed by a few safe alternatives in terms of type of tourism and destinations, since they can prefer a lower, but known with certainty, satisfaction level, represented by a previous travel experience, rather facing the risk of being dissatisfied with a new travel experience.

5. Tourists satisfaction surveys and destination competitiveness

Competitiveness research has shifted its attention from quantitative to qualitative analysis because of the problems in interpreting quantitative information and also because the qualitative attributes of a destination are likely to essentially drive its quantitative performance. Indeed, tourist destination competitiveness is generally evaluated by analysing the findings of tourist satisfaction surveys which are mainly conducted through the questionnaire instrument (Clerides and Pashourtidou, 2007). The idea of tourist satisfaction surveys for assessing tourism destination competitiveness stems from recognizing that the success of a destination is implicitly linked to its ability to closely match better than other destinations tourist preferences and those (subjective) attributes of the tourism product considered to be important by tourists.

These qualitative data are generally collected by submitting a face-to-face questionnaires to a sample of tourists during or at the end of their vacation with the aim of detecting tourist satisfactions of several destination attributes, such as hospitality, infrastructure, nightlife and entertainment, shopping facilities, outdoor activities, safety, etc. Tourist satisfaction judgements matters because such beliefs are likely to positively affect future consumer behaviour, for example by increasing customer loyalty, influencing repurchase intentions and leading to positive word-of-mouth or complaint behaviour (see Dimitriades, 2006, and Faullant and Matzler, 2008).

Measurement of tourists' satisfaction levels can encounter a number of problems: the choice of the interview method, the sample design, the timing and placing are all highly critical issues in tourism satisfaction surveys that can cause the results to be unreliable (Casarin, 2005). In addition to such drawbacks, tourist satisfaction surveys can suffer from an additional shortcoming when the findings from such surveys are used to obtain information about a destination competitiveness.[6] An implicit assumption in order to have accurate comparisons between destinations' performances is that the sample be representative from the perspective of consumer behaviour. Specifically, in order to be able to provide valuable insights on the relative competitiveness of a destination, the sample of respondent should have direct knowledge, in terms of experience of other destinations, of the same type of tourism so that their information set can include destinations that are in competition each other. Otherwise, the findings from these surveys are unlikely to provide any accurate comparative information about the quality of attributes of the tourism destination product.

However, the implicit hypothesis at the basis of tourist satisfaction surveys for destination competitiveness measurement can be questioned on the ground of the changing structure of tourism demand. Consumers' behaviour in tourism has changed, calling for higher quality standards and differentiation of the tourism product. Higher quality expectations and attention to value for money, more frequent but shorter vacation breaks taken throughout the year, more selected choices for new destinations and new tourism products, also through an increase in use of technology and internet for booking, increased awareness for the environment and sustainable tourism, and specialized forms of tourism are all example of this changing behaviour. These recent trends in consumers' behaviour in tourism can be challenging for the possibility of using tourist satisfaction surveys for determining a destination competitiveness.

The consumers surveyed in tourists satisfaction surveys are generally obtained from a random sample within a population of tourists linked by the choice of the same destination. Thus, unless the destination is multi-tourism, the data collected in the survey refer to tourists that display similar preferences with respect to types of tourism and destination attributes. These features of tourists satisfaction surveys prove useful in order to assess the relative competitiveness of a tourist destination because the respondents are tourists which:

- are required to evaluate features (characteristics) of the tourist product such as accommodation, restaurants, transportation, natural environment, infrastructure, pedestrian and cycling facilities, entertainment, safety, hospitality and value for

[6] An exception is provided by those surveys that explicitly ask respondent to compare destinations' attributes (e.g. Goodrich, 1977, 1978, Javalgi *et al.* 1992, Dieke, 1993).

money; and

- have experience of the specific type of tourism as well as of alternative destinations.

The economic analysis of consumer behaviour and tourism product presented in the previous sections suggests that the sample population of the tourists satisfaction surveys shows the features required in order to provide useful information about destination competitiveness. Indeed, although consumers' behaviour tends to change continuously for some aspects, *i.e*. destination preferences, booking behaviour etc., there is no support to the hypothesis of a rapidly changing face of consumers' behaviour. If we consider the tourist's attitude towards risk in the case of an *experience good* and the tendency of individual preferences to evolve slowly with respect to different types of tourism, it is not surprise that previous travel experiences are likely to represent a significant factor in the destination selection process (Woodside and Lysonski, 1989) and to exert more influence on future travel intentions than information acquired from external sources (Mazursky 1989). Therefore, both the slowly evolving preferences evidenced by the "directional choice theory" and the satisfaction risk associated to the information search for an *experience good* suggest that tourists are more likely to change more frequently destination than type of tourism. As a consequence, travellers with different motivations will show not only different purchasing patterns, but also a low degree of substitutability to tourisms with different features (heritage and cultural resources rather than beaches, sun or ski slopes).

To summarize, tourist satisfaction surveys can be very useful to identify the strengths and weaknesses of a destination tourist product and assessing its performance with respect to competing destinations. Indeed, as tourists get experience about other destinations their assessments can be considered not only a direct evaluation of the quality and overall performance of the specific destination, but they can also provide an indirect (implicit) comparison between facilities, attractions and service standards of different competing destinations (Laws, 1995).

6. Conclusions

Although tourist satisfaction surveys have been developed to provide information about the level of tourist satisfaction, they can represent a valuable source of information about a destination's overall competitiveness. Indeed, the economic analysis of consumer behaviour and tourism product suggests that the sample population used in these surveys is likely to be composed by tourists displaying similar preferences as to the type of tourism as well as previous

experiences of other competing destinations and thus can provide crucial direct information about the quality of a destination's tourism product along with an indirect comparison with different destination competitors. In this way tourists' viewpoint obtained from satisfaction surveys can allow identification of the relative strengths and weaknesses of the destination and facilitate public- and private-sector stakeholders' implementation of policies so as to improve competitiveness of the destination as a whole.

References

AGLIARDI E. 1988. La Segmentazione delle Scelte Turistiche: la Teoria Neoclassica e la Scelta Direzionale. in CANDELA, G. (Ed.) *Contributi all'Analisi Economica del Turismo,* Bologna: Clueb.

AHMED Z.U. 1991. The influence of the components of a state's tourist image on product positioning and strategy. *Tourism Management*, Vol. 12, pp. 331-40.

ALEGRE J., GARAU J. 2009. Tourist satisfaction indices. A critical approach. *Investigaciones Regionales*, No. 14, pp. 5-26.

BIEGER T. 2002. *Management von Destinationen*, Munich: Oldenbourg.

CANDELA G., FIGINI P., CORTES-JIMENEZ I. 2012. *The Economics of Tourism Destinations.* Berlin: Springer-Verlag.

CASARIN F. 2005. La soddisfazione del turista tra ricerche quantitative e qualitative. *Sinergie*, No. 66, pp. 113-135.

CLERIDES S., PASHOURTIDOU N. 2007. Tourism in Cyprus: Recent Trends and Lessons from the Tourist Satisfaction Survey. *Cyprus Economic Policy Review*, Vol. 1, No. 2, pp. 51-72.

DIEKE P.U.C. 1993. Cross-National Comparison of Tourism Development: Lessons from Kenya and The Gambia. *The Journal of Tourism Studies*, Vol. 4, No. 1, pp. 2-18.

DIMITRIADES, Z.S. 2006. Customer satisfaction, loyalty and commitment in service organizations-Some evidence from Greece. *Management Research News*, Vol. 29, No. 12, pp. 782-800.

DWYER L., KIM C. 2003. Destination Competitiveness: Determinants and Indicators. *Current Issues in Tourism*, Vol. 6, No. 5, pp. 369-414.

FAULLANT R., MATZLER K. 2008. The impact of satisfaction and image on loyalty: the case of Alpineski resorts. *Managing Service Quality*, Vol. 18, No. 2, pp. 163-178.

GEORGESCU R.N. 1936. The pure theory of consumer's behavior. *Quarterly Journal of Economics*, Vol. 50, pp. 545-593.

GEORGESCU R., 1968. Utility. *The International Encyclopaedia of the Social*

Sciences, Vol. XVI, New York: Macmillan, pp. 236-267.
GOODRICH J.N. 1977. Differences in Perceived Similarity of Tourism Regions: A Spatial Analysis. *Journal of Travel Research*, Vol. 16, pp. 10-13.
GOODRICH J.N. 1978. The relationship between preferences for and perceptions of vacation destinations: application of a choice model. *Journal of Travel Research*, Vol. 17, No. 2, pp. 8-13.
HAUSER J.R. 1978. Testing the Accuracy, Usefulness and Significance of Probabilistic Models: An Information Theoretic Approach. *Operations Research,* Vol. 26, No. 3, pp. 406-421.
Javalgi R.G., THOMAS E.G., RAO S.R. 1992. US Pleasure Travellers' Perceptions of Selected European Destinations. *European Journal of Marketing*, Vol. 26, No. 7, pp. 45-64.
KOZAK M. 2003. Measuring comparative destination performance: a study in Spain and Turkey. *Journal of Tourism and Travel Marketing*, Vol. 13, No. 3, pp. 83-110.
KOZAK M., RIMMINGTON M. 1999. Measuring destination competitiveness: conceptual considerations and empirical findings. *International Journal of Hospitality Management*, Vol. 18, No. 3, pp. 273-283.
LANCASTER K.J. 1966. A New Approach to Consumer Theory. *Journal of Political Economy,* Vol. 74, No. 2, pp. 132-157.
LANCASTER K.J. 1971. *Consumer Demand: a New Approach.* New York: Columbia University Press.
LAWS, 1995. Laws, E. 1995. Tourist Destination Management: Issues. *Analysis and Policies*. New York: Routledge.
MAZURSKY D. 1989. Past Experience and Future Tourism Decisions. *Annals of Tourism Research*, Vol. 16, pp. 333-344.
NELSON P. 1970. Information and Consumer Behaviour. *Journal of Political Economy*, Vol. 78, 311-329.
OLIVER R.L. 1980. A Cognitive Model of the Antecedents and Consequences of Satisfaction Decisions. *Journal of Marketing Research*, Vol. 17, pp. 460-469.
OLIVER, R. 1997. *Satisfaction. A behavioural perspective on the consumer,* New York: McGraw-Hill.
PEARCE D.G. 1997. Competitive destination analysis in Southern Asia. *Journal of Travel Research,* Vol. 35, No.4, pp. 16-24.
SMITH S.L.J. 1994. The Tourims Product. *Annal of Tourism Research*, Vol.21, No. 3, pp. 582-595.
TUSSYADIAH I.P., TATSUHITO K., MORISUGI H. 2006.A Model of Multidestination Travel: Implications for Marketing Strategies. *Journal of Travel Research,* Vol. 44, pp. 407-417.

UM S., CROMPTON J.L. 1990. Attitude determinants in tourism destination choice. *Annals of Tourism Research*, Vol. 17, No. 3, pp. 432-448.

ZAIRI M. 1996. *Benchmarking for Best Practice: Continuous Learning through Sustainable Innovation.* Oxford: Butterworth-Heinemann.

WOODSIDE A.G., Lysonski S. 1989. A General Model of Traveler Destination Choice. *Journal of Travel Research*, Vol. 27, No. 4, pp. 8-14.

SUMMARY

Destination competitiveness and tourist satisfaction surveys: an economic analysis

Tourist satisfaction surveys are widely employed within tourist destinations to get the tourist viewpoint of the specific different attributes or characteristics and of the destination as a whole. Tourist assessments, represented by direct information given explicitly in tourist satisfaction surveys, are also interpreted as a basis to measures competitiveness of any given destination, since competitiveness is a key element of a destination strategy. The implicit assumption for such interpretation is that tourists perceptions will provide an implicit comparison between different attributes of competing tourist destinations based on their past experiences. In this paper we try to establish whether tourist satisfaction surveys are useful for assessing destination competitiveness through the lens of economics. We claim that tourists' viewpoint obtained from satisfaction surveys about a destination's competitiveness can allow identification of the relative strengths and weaknesses of the destination and facilitate public- and private-sector stakeholders' implementation of policies so as to improve competitiveness of the destination as a whole.

Marco GALLEGATI, Dipartimento di Scienze Economiche e Sociali, Facoltà di Economia “G. Fuà”, Università Politencica delle Marche, Ancona.

SOCIETÀ E RIVISTA ADERENTI AL SISTEMA ISDS
ISSN ASSEGNATO: 0035-6832

Direttore Responsabile: Dott. CLAUDIO CECCARELLI

Iscrizione della Rivista al Tribunale di Roma del 5 dicembre 1950 N. 1864

Associazione all'Unione Stampa Periodica Italiana

TRIMESTRALE

La copertina è stata ideata e realizzata da Pardini, Apostoli, Maggi p.a.m.@tin.it – *Roma*

Stampato da CLEUP sc
"Coop. Libraria Editrice Università di Padova"
Via G. Belzoni, 118/3 – Padova (Tel. 049/650261)
www.cleup.it

ATTIVITÀ DELLA SOCIETÀ

A) RIUNIONI SCIENTIFICHE

XXXVII La mobilità dei fattori produttivi nell'area del Mediterraneo (Palermo, 15-17 giugno 2000).
XXXVIII Qualità dell'informazione statistica e strategie di programmazione a livello locale (Arcavacata di Rende, 10-12 maggio 2001).
XXXIX L'Europa in trasformazione (Siena, 20-22 maggio 2002).
XL Implicazioni demografiche, economiche e sociali dello sviluppo sostenibile (Bari, 15-17 maggio 2003).
XLI Sviluppo economico e sociale e ulteriori ampliamenti dell'Unione Europea (Torino, 20-22 maggio 2004).
XLII Sistemi urbani e riorganizzazione del territorio (Lucca, 19-21 maggio 2005).
XLIII Mobilità delle risorse nel bacino del Mediterraneo e globalizzazione (Palermo, 25-27 maggio 2006).
XLIV Impresa, lavoro e territorio nel quadro dei processi di localizzazione e trasformazione economica (Teramo 24-26 maggio 2007).
XLV Geopolitica del Mediterraneo (Bari, 29-31 maggio 2008).
XLVI Povertà ed esclusione sociale (Firenze 28-30 maggio 2009).
XLVII Un mondo in movimento: approccio multidisciplinare ai fenomeni migratori (Milano 27-29 maggio 2010).
XLVIII 150 anni di Statistica per lo sviluppo del territorio: 1861-2011. (Roma 26-28 maggio 2011).
XLIX Mobilità e sviluppo: il ruolo del turismo. (San Benedetto del Tronto, 24-26 maggio 2012).

B) GIORNATE DI STUDIO

-Mercato del lavoro e migrazione straniera in Italia, Roma, 29-30-31 maggio 1996
-Occupazione e mercato del lavoro, Napoli, 13-14 dicembre 1996 (esaurito)
-L'educazione come processo permanente. Istruzione-formazione-riqualificazione, Milano, 28-29-30 maggio 1998
-Conti pubblici, conti nazionali e welfare state, Teramo, 16-17 ottobre 1998
-Teorie a confronto nella misurazione della povertà, Bologna, 16 aprile 1999
-La qualità dell'informazione statistica, Roma, 6-7 aprile 2000
-Valutazione delle politiche economiche con strumenti statistici. Problemi relativi al
-disavanzo dello Stato, Roma, 1 dicembre 2000
-Eterogeneità delle dinamiche demografiche dello sviluppo economico nel bacino del Mediterraneo, Foggia, 12-13 ottobre 2001
-Il nuovo Welfare tra riforme e trasformazioni socioeconomiche, Ferrara, 1-2 marzo 2002
-Statistica per l'analisi economica, Campobasso, 2-3 ottobre 2003
-Il ruolo della donna nella mobilità territoriale delle popolazioni, Catania, 1-2 aprile 2005