EVIDENCE-BASED POLICY-MAKING:

ACHIEVING DESTINATION

COMPETITIVENESS

IN MALTA

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ABSTRACT

This thesis explores how tourism policy, if based on evidence, can contribute to the objective of destination competitiveness. Evidence-based policy-making is informed by high-quality research formulated using rigorous, scientific methods. The thesis aims to show that policy analysis applied to the macro and micro levels can create evidence for use in policy formulation. The research is set within the Mediterranean context, with particular emphasis on Malta's competitiveness within the inclusive tour holiday market originating from the United Kingdom.

Using economic theory and econometrics, the thesis demonstrates the potential usefulness of econometric modelling in conducting such policy analysis. This is done by firstly estimating the effect of the Maltese government's policy to subsidise tour operators on a set of destinations' price and income elasticities, given that elasticities are deemed to be a good measure of destination competitiveness. These estimates are carried out through the application of the Almost Ideal Demand System model. Secondly, the price competitiveness of inclusive tour holidays is examined by applying the characteristics theory of value and the hedonic pricing model. The effect on package prices of inclusive tour holiday characteristics and of macroeconomic variables, including destinations' relative prices, is quantified. The effect of the subsidisation policy is also estimated.

The policy analysis results are then interpreted against the destination competitiveness frameworks. The implications for government policies and those of firms are discussed in relation to how destination competitiveness in the inclusive tour holiday market can accordingly be achieved through evidence-based policies.

The findings clearly indicate that destinations can benefit significantly in terms of competitiveness by adopting an evidence-based approach to tourism policy-making. It is shown that government and the private sector have a key role to play for destinations to achieve competitiveness through the policies they adopt, highlighting the importance of informed and strategic approaches to governance.

LIST OF PUBLISHED PAPERS

Publications

Mangion, M.L., Durbarry, R. and Sinclair, M.T. (2005), 'Tourism Competitiveness: Price and Quality'. *Tourism Economics*, 11(1), pp.45-68.

Mangion, M.L. and Vella, L. (2000), *The Economic Impact of Tourism in Malta*. Valletta: Malta Tourism Authority.

Conference and seminar presentations

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Mangion, M.L., Sinclair, M.T. and Durbarry, R. (2002) 'Economic Crisis and Tourism in Malta' in University of Nottingham, Travel and Tourism Resesarch Institute *Managing the Economic Crisis*. Nottingham, 17 December 2002.

Mangion, M.L. and Vella, L. (2001) 'Measuring Tourism Expenditure and Economic Impacts for Marketing Malta' in Canada Tourism Commission, United Nations, Eurostat and UN World Tourism Organisation, *Tourism Satellite Account – Credible Numbers for Good Business Decisions*. Vancouver, Canada, 8-10 May 2001.

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LIST OF ABBREVIATIONS

AIDS	Almost Ideal Demand System
COS	Central Office of Statistics
CPI	Consumer Price Index
FBR	Forward Buying Rate
HCEB	Hotels & Catering Establishments Board
HP	Hedonic Pricing
IMD	Institute for Management Development
IMF	International Monetary Fund
IPS	International Passenger Survey
Lnpmal84	The relative price of Malta using the favourable exchange rate and 1984 as the base year
Lnpcyp84	The relative price of Cyprus using the market exchange rate and 1984 as the base year
Lnpspa84	The relative price of Spain using the market exchange rate and 1984 as the base year
MGTB	Malta Government Tourist Board
MTA	Malta Tourism Authority
NSO	National Statistics Office – Malta
NTOM	National Tourism Organisation Malta
ONS	Office of National Statistics – UK
TOSS	Tour Operator Support Scheme
wc	Cyprus' budget share
WCY	World Competitiveness Yearbook
WDI	World Development Indicators
wm	Malta's budget share
ws	Spain's budget share

CHAPTER 1: INTRODUCTION

1.0 Introduction

Within the context of tourism, competitiveness is often a declared objective of destinations. Competitiveness is considered vital for destinations because it can help enhance socio-economic prosperity by yielding returns in periods of economic growth and helping to create opportunities during more difficult economic times. This highlights the need for governments to attain a good understanding of factors that influence their destination's competitiveness and to make the appropriate strategic choices required to achieve destination competitiveness.

Policy is one of the influential factors of destination competitiveness (Ritchie and Crouch, 2003; Dwyer and Kim, 2003; Crouch, 2005; Enright and Newton, 2005; Lee and King, 2009). Policy that is based on evidence allows governments to better understand the effect of policy on destination competitiveness and, even more importantly, provides the opportunity of basing strategic choices on well-researched and tested information.

Evidence-based policy-making is characterised by reference to and application of high-quality research formulated using rigorous, scientific methods (Davies, 2004; Dunworth, Hannaway, Holahan and Turner, 2008; Hall, Whipple and Jackson-Elmoore, 2008). This contrasts with policy that is devised on the basis of opinions or on studies of poor quality. The shaping contention here is in fact that

evidence-based policy-making will result in policies which are more effective in meeting the set objectives. There are, of course, various factors that complicate that outcome but these will be taken into consideration in this thesis when discussing the advancement of evidence-based policy-making within the context of governance of complex social systems. This implied shift from judgement-based or opinion-based policy-making to evidence-based policy-making may, if successful, help reduce the prevalent scepticism about the effectiveness of governments and the intended consequences and impacts of much government policy (Hall, 2008).

The need for improved policy-making of this kind is gaining increasing recognition, as indicated by a number of authors (Johnston, 2006; Brownson, Chriqui and Stamatakis, 2009). The following is a good example:

> "Governments and their critics have become more aware of and interested in the study of the process, outcomes, and impacts of tourism public policies. Hence, the evaluation of government decisions, actions, and programs, and therefore of tourism public policies, is receiving growing recognition."
>
> (Hall and Jenkins, 2004, p.536)

And yet, in spite of this increased interest in tourism public policy, and though policy-making has attracted the attention of many in the academic world, tourism policy analysis remains an understudied area:

> "Policy and especially its implementation, is a relatively understudied field compared to other aspects of tourism such as the marketing and the competitiveness of destinations. However the study of the development and

> application of policies for tourism and their implications can make important contributions to tourism research."
> (Farsari, Butler and Prastacos, 2007, p.74)

The gaps in literature that do exist are discernible in the scant research published about the effectiveness of tourism policy, the impact of past tourism policies and how tourism policy can be rendered more effective in achieving this much prized destination competitiveness. Accordingly, the central concern of this thesis is an investigation of how evidence-based policy-making can contribute to destination competitiveness. The aims and context of the research are outlined in the sections that follow.

1.1 Research objectives

This thesis, using Malta as a case study, explores evidence-based policy-making in tourism, particularly in relation to achieving destination competitiveness in the inclusive tour holiday market. It seeks to answer the research question: **How can an evidence-based tourism policy contribute to the achievement of destination competitiveness?**

On that basis, three research objectives underlie this thesis. First, the purpose of the research is to demonstrate that policy analysis at macro and micro level can create evidence for use in policy formulation. If policy is to be based on evidence, then evidence needs to be produced to feed into the policy. The evidence will be of two types: the first relating to an evaluation of a past tourism policy and the second relating to providing information for policy. Such

evidence, this thesis will show, can be provided through policy analysis which must relate to both the macro and micro contexts, given the nature of destination competitiveness. For this purpose, research will be presented focusing on macro and micro policy analysis.

The second research objective of this thesis is to present a test case — Malta's tourism industry and its macro and micro dimensions — demonstrating the effectiveness and value of econometric modelling, specifically the Almost Ideal Demand System (AIDS) model and the hedonic pricing (HP) model, in conducting such policy analysis. The AIDS model will be used for the analysis at the macro level, whilst the HP model will be applied to the micro context. Here it should be noted that, contrary to what might be thought, the literature, and particularly the tourism literature, is limited in the provision of empirical studies illustrating the usefulness of econometric models in improving policy-making.

The third objective of the research is to depict how such analysis, interpreted against destination competitiveness frameworks, can be utilized at both government and firm level to formulate evidence-based policies aimed at achieving destination competitiveness in the inclusive tour holiday market. The thesis will show that destination competitiveness is more of an achievable goal if policies are based on evidence.

To meet these objectives, the research is set within a specific context that is more fully described in the next section.

1.2 The context of this study

The research is set within the Mediterranean context, with particular consideration being given to Malta's perspective. For a country like Malta, destination competitiveness is an even bigger challenge, due to its small size (316 square kilometres) and few natural resources upon which it can base its competitiveness. Within this scenario, tourism policy takes on an even more important role in assisting the destination achieve competitiveness. Consequently, this study about Malta's destination competitiveness provides a valuable test case particularly for other island and small destinations, as it will indicate that policies adopted by small destinations operating within a much larger market can achieve a distinct level of redistribution within that market, positively impacting the destination's performance.

The interesting context Malta presents for tourism research is manifested by Malta-focused studies such as those undertaken by Bramwell (2006) on tourism growth limits; by Hoti, McAleer and Shareef (2007), who model international tourism and country risk spillover; by Graham and Dennis (2010), who discuss the impact of low-cost airline operations to Malta; and that by Chapman and Speake (2010) on regeneration in a mass-tourism context. With reference to the research being presented here, Malta presents a telling case study because of the structure of the tourism industry and the markets it operates in. Malta's tourism, 97% dependent on air travel, was mainly characterised up to 2006 by international tourism generated mostly through tour operators. Such a scenario, whereby international tourism flows in by air (as opposed to a

combination of air, sea, rail and road transport) and is generated through a predominant distribution channel (tour operators), helps towards sharper delineation of the policy analysis dealing with inclusive tour holidays.

The analysis presented in this thesis in fact relates specifically to the targeting of the inclusive tour holiday segment from the UK in Malta's tourism policy. In the late 1990s, according to the *ONS Travel Trends*, this segment accounted for about 54% of all UK outbound holiday trips. As travel became more affordable, particularly through the advent of low-fare airlines, and as access to independent travel increased and as internet-based word-of-mouth recommendations (e.g. through Tripadvisor.com) became more effective and trusted than travel agents, the number of inclusive tour holidays suffered a decline though outbound holidays from the UK increased. This has resulted in inclusive tour holidays accounting for around 38%, as opposed to the 54% share of the late 1990s, of all outbound holidays from the UK (ONS Travel Trends, 2009). Yet, in terms of the absolute volumes it generates — in 2008, about 18 million outbound trips from the UK; in 2009, about 11 million (less, as a result of the financial and economic crisis) — this segment remains significant, particularly for Mediterranean destinations such as Malta.

Whilst inclusive tour holidays account for 38% of UK outbound holidays, the Malta Tourism Authority's UK Market Profile Survey indicates that this segment of the market still accounts for some 57% of incoming travel from the UK to Malta. Admittedly this is a lower share than that registered up to 2005, when over 71% of British

tourists visiting Malta opted for inclusive tour holidays. This scenario has changed since the last quarter of 2006, when new routes from the UK to Malta started being operated by low-cost airlines. Consequently the share of inclusive tour holidays from the UK market declined to 64% in 2006, to 60% in 2007, to 57% in 2008 and 2009. And yet, even in the midst of that decline, the absolute figures still indicate that inclusive tour holidays remain important for Malta's tourism industry.

For tourism service providers such as airlines and hotels, this form of business, besides acting as another distribution channel, yields volume, contributing to significant load factors and occupancy rates and also transferring a level of risk onto the tour operators. For the traveller, inclusive tour holidays traditionally were cheaper than other forms of travel arrangements, providing easier access to destinations, flights, accommodation and excursions. In some cases this may still be the case, though low-fare airlines, online booking systems and dynamic packaging have facilitated own travel arrangements by a more internet- and travel-savvy consumer. However, the tour operators' market segment will remain "as long as tour operators can add value to their products, save time and money for their clients, and ensure their protection" (Čavlek, 2006, p.171). For these reasons, whilst recognising the decline in this sector, it is still important for destinations to adopt policies targeting this market.

The UK market, being Malta's main source market, has been, and still is, of critical importance to the Maltese tourism industry, generating 35% of all incoming tourism to Malta, equivalent to over 415,000

tourists from the UK (National Statistics Office, 2010). Over the years, given the importance of the UK source market and particularly of tour operator business for the Maltese tourism industry, the Maltese government adopted specific policies targeting this segment of the market. Such policies were aimed at increasing tourism flows to Malta through improved price competitiveness within the UK market. In particular, the Maltese government subsidised tour operators through favourable exchange-rate mechanisms between 1986 and 2000. These subsidy policies will be described in more detail in chapter 5. What is particularly interesting is the short-term and long-term effect of a subsidisation policy on the macroeconomic context. This is examined in this thesis (Chapter 6), along with an investigation as to whether prices of inclusive tour holidays were reduced as a result of the subsidisation policy, hence directly influencing price competitiveness (Chapter 7).

The micro context also provides government and the private sector with the opportunity to address competitiveness. The inclusive tour holiday packages offered by tour operators present the micro context considered in this thesis. An examination of the characteristics making up the holiday packages in terms of their influence on price is carried out as part of this research (see Chapter 7). Information about which characteristics influence price and about what quality levels tourists particularly value is crucial for achieving destination competitiveness. This thesis thus examines evidence-based policy-making within both the macro and micro contexts of destination competitiveness for Malta focusing on the inclusive tour holiday market.

1.3 The significance of this study

Evidence-based policy-making is a theme present in the policy literature and in the literature of subjects such as education and health. However, it is missing in the tourism literature. The reason for this may be due to the nature of tourism studies, which draws from other disciplines (Airey, 2008): often, the debate will have evolved in the other disciplines, with tourism then being cited in further applications. Tourism, as will be shown through the research presented in this thesis, can provide a good test case that contributes to broader interdisciplinary debate on evidence-based policy-making.

The need for illustration of the value of econometric models as a means to improving policies is referred to by Cho and Rust (2008), who provide a clear-cut demonstration with an application to replacement policy at an auto rental company. They undertake this application, as opposed to an application related to the public sector, in awareness that "the best chance to interest public policymakers in the value of econometric models in the long run is to start by providing clear-cut demonstrations of the usefulness of econometric models in improving policymaking in private sector applications in the short run" (Cho and Rust, 2008, p.244).

Cho and Rust's approach responds to difficulties with identifying the policy's real objectives and outcomes of interest which they consider as being "typically subjective quantities" (2008, p.243). Contrastingly, such subjectivity is not as present in the particular government policy evaluated as part of the research presented in this

thesis. The significance of the study thus lies in the illustration of the benefits of econometrics for public policy-making.

Moreover, the increasing importance that is being attached to effective policy-making and its role in achieving destination competitiveness, as reflected in writings such as that by Crouch and Ritchie (2006), demonstrates the need for additional research in this area. The thesis not only presents such research in relation to policy as an influential factor on destination competitiveness, but also seeks to apply the conceptual models referred to by Crouch and Ritchie.

The further relevance of this study stems from the importance global institutions, governments and the private sector attach to achieving destination competitiveness. In a particularly telling example, the European Commission, in its communication COM(2010) 352, 'Europe, the world's No.1 tourist destination – a new political framework for tourism in Europe' (2010), makes frequent reference to its objective of increasing Europe's competitiveness or that of European small and medium tourism enterprises. And hardly surprisingly, at a national level too (as indicated by OECD reviews of national tourism policies, by the World Economic Forum's *Travel and Tourism Competitiveness Report* and by UNWTO reports), competitiveness is a prime aim of destinations, conferring added resonance on studies like the one proposed here.

In addition, the context to which the research is applied is significant. Though the Mediterranean plays a key role in international tourism and though most Mediterranean countries are economically highly

dependent on tourism and therefore pro-active in tourism policy-making, "this remains an understudied topic especially when considering the importance of the Mediterranean in international tourism" (Farsari, Butler and Prastacos, 2007, p.59). Whilst the research is conducted from Malta's perspective, the analysis considers the wider context of competitors in the Mediterranean.

The research context of an island destination amplifies that significance, particularly for other island destinations. Islands have specificities arising from their geographical limitations, often being market followers as opposed to being market leaders, and yet generally being highly dependent on tourism. Such a scenario presents an interesting research context as evidenced by the increasing literature on island destinations. Indeed, if the difficulties of other island destinations are similar to those I encountered during my work experience as a tourism researcher and as a professional formulating policy for political approval within the Maltese public sector, then the findings of this thesis may be of some interest to these other destinations.

On that point, I might perhaps be permitted to say here that my career history, as I moved from carrying out tourism research for the Malta Tourism Authority to formulating tourism policy within the ministry responsible for tourism in Malta, made me keenly aware of the need for clearly estimating, as a first step in the policy-making process, what the effect of past tourism policies was. Tourism statistics and survey-based research, whilst certainly useful, did not provide the depth of information required for policy-making.

Secondly, the need for identifying cause and effect relationships between policy and performance emerged in a way that could not be ignored. This could only be done through econometrics, as other methods could only lead to speculative results. Thirdly, a better understanding of how prices can be influenced through policy to make a destination more competitive was needed. It was clear that a multidisciplinary approach was required, bringing together, through the use of econometrics, the areas of policy-making, applied economics and tourism studies. It was reassuring to then find out that these needs were not solely mine, but that internationally there was a growing interest in the study of policies and in evidence-based policy-making. For public and private sector policy-makers, studies such as this therefore carry potential benefits by illustrating how policy analysis conducted for both the macro and micro contexts provide a practical perspective that can present a series of policy recommendations aimed at achieving destination competitiveness.

1.4 The contribution of this thesis

This thesis adopts a multidisciplinary approach combining the study of policy, tourism and econometrics. Such an approach makes a contribution to the literature, which generally focuses solely on either tourism economics or policy. Research on evidence-based policy-making in tourism is absent from the policy literature, as is research about how evidence-based policy can contribute to achieving destination competitiveness absent from the tourism literature. This thesis seeks to occupy a place within that gap, particularly through using econometrics for tourism policy analysis at the macro and micro

levels. Whilst the literature debates and recognises the value of econometrics for this purpose, hardly any demonstrable applications are presented in the tourism literature.

The empirical econometric analyses in themselves will be of some interest, as they demonstrate how the AIDS and HP models can be adapted for policy analysis. The tourism policy under evaluation will be included as a specific variable in the AIDS model and its effect on tourism demand sensitivities will be estimated. Such an application has not been presented in tourism applications of the AIDS model. The application of the HP model will make a further contribution through the inclusion of the destination's relative price and other macroeconomic variables.

Most econometric analyses present the results and state that such results are of relevance to policy-makers. This thesis goes further by interpreting the results forthcoming from the econometric models against the conceptual models of destination competitiveness, presenting an application of these frameworks and policy recommendations based on evidence.

The research presented here will quantify the impact of policy on destination competitiveness and demonstrate how tourism policies aimed at destination competitiveness can be more effective if based on evidence provided through econometric analysis.

These contributions will be more apparent as the thesis develops and will be outlined in the concluding chapter.

1.5 Structure of the thesis

In order to expound the research carried out, the remainder of the thesis is set out as follows. The next chapter, Chapter 2, presents a review of the literature related to the fields of policy and the use of econometric analysis, tourism policy and destination competitiveness. The policy literature that is examined focuses on policy analysis and evidence-based policy. This is followed by an analytical review of the tourism policy literature with particular reference to the literature on destination competitiveness. Chapter 3 then delves into the economic theories underlying the econometric models that are applied to the research presented here. It presents the theoretical framework of the econometric models and reviews past applications of the econometric models to tourism.

Chapter 4 explains the methodology that is applied in conducting the research presented in the thesis. It discusses epistemology issues of relevance to the research and then provides justifications for the adopted methodology and for the models chosen for the policy analysis.

Chapter 5 provides information on the Maltese context as a tourism destination and reviews its singularities and general points of interest as a case study. It provides a descriptive analysis of Malta's tourism policies and the sector's performance from 1958 to 2009.

Chapters 6 and 7 present the results of the econometric models through which the policy analyses were carried out. These chapters

will illustrate the usefulness of applying econometric models in policy analysis. Chapter 6 focuses on estimating the effect of the Maltese government's subsidisation policy on tourism demand sensitivities at a macro level. It will quantitatively examine how demand elasticities for Malta and other destinations were affected in the short run and in the long run, highlighting the impact of the Maltese government's policy on price competitiveness on the destination's relative price. This is particularly relevant given that price plays an unparalleled role in achieving destination competitiveness and will remain a key factor for the inclusive tour market (Stabler, Papatheodorou and Sinclair, 2010). To carry out this policy evaluation, the Almost Ideal Demand System (AIDS) model will be applied to the macroeconomic context.

Chapter 7 presents the second set of econometric policy analysis, examining price competitiveness at the microeconomic level. Given that prices are also determined by the value that consumers place on individual attributes making up the product, the analysis identifies what tourists value in inclusive tour holiday packages. Insights into what could make an inclusive tour holiday package more price competitive need to be sought to inform policy. The policy would need to address such tourist valuations if it is to lead to a more competitive product being offered by tour operators. The econometric analysis will therefore identify the facilities and services that tourists value in a holiday package. The analysis will also explore the impact of macroeconomic factors, particularly of relative prices of destinations on the price of the inclusive tour holiday. To complement the macro policy evaluation, the effect of the Maltese government's

subsidy to tour operators on the package price will also be estimated. The Hedonic Pricing (HP) model will be applied for this analysis.

Chapter 8 seeks to integrate the literature review and the results of the econometric modelling through a discussion on evidence-based policy-making and on the application of econometrics to the analysis of policy and destination competitiveness. The discussion focuses on the findings' implications for destination competitiveness policies by interpreting the results against the seminal works, reviewed in the next chapter, of Dwyer and Kim (2003) and Ritchie and Crouch (2003). This is followed by the concluding chapter, Chapter 9, which outlines the conclusions from the research, presents some reflections that are prompted by the findings and provides recommendations for future research.

Through the above structured approach to the analysis of the Maltese and Mediterranean contexts related to tourism competitiveness, it is hoped that this thesis will thereby be able to provide some cogent reflections on the benefits of evidence-based policy-making and on the place of econometrics in such an exercise.

CHAPTER 2: POLICY AND DESTINATION COMPETITIVENESS

2.0 Introduction

Advocating evidence-based policy-making in tourism through the use of econometrics requires an interdisciplinary approach bringing together the three fields of policy, tourism and econometrics. In view of this, this chapter aims to provide a review of the more significant literature on policy-making. Specifically, it reviews literature relating to (i) policy analysis and evidence-based policy; (ii) tourism policy and destination competitiveness; and (iii) the relevance of econometrics for policy. Chapter 3 will then delve into the literature on the economic theories and econometric models applied in the empirical research presented in this thesis.

2.1 Policy

The policy literature provides various definitions of what is meant by the term 'policy', reflecting the lack of a consistent conceptualisation of the term (see Miyakawa, 2000 and Hill, 2005). There appears to be an evolution in the definitions for the term 'policy' with most of the debate on what constitutes policy happening in the 1970s. Whilst definitions vary, the key words - 'actions', 'decisions' and 'goals' - appear in most definitions for the term 'policy'. Easton (1953) incorporated decisions, actions and values, stating that "a policy…consists of a web of decisions and actions that

allocate…values" (Hill, 2005, p.7 quoting from Easton, 1953, p.130). The concept of 'values' in policy was reiterated by Kroll, who defined public policy as the "structure or confluence of values and behaviour involving a governmental prescription" (1962, p.363). Policy was then defined as a direction: "a course of action or inaction rather than specific decisions or actions" (Hill, 2005, p.7 quoting Heclo, 1972, p.85).

The policy process, the actors that play a part in that process and the aim of achieving results then began to feature in definitions for 'policy'. James Anderson defined policy as "a purposive course of action followed by an actor or set of actors in dealing with a problem or matter of concern" (1997, p.5), focusing on what is done as opposed to what is intended. Jenkins (1997) further developed his definition and adapted G. K. Roberts' (1971) definition, reformulating it as follows:

> "A set of interrelated decisions taken by a political actor or group of actors concerning the selection of goals and the means of achieving them within a specified situation where these decisions should, in principle, be within the power of these actors to achieve."
>
> (Jenkins, 1997, p.30)

This definition points to the adoption of a course of action and the means of implementing it but does not build implementation into the policy itself. Whilst recognising that policy is more than a single decision, it incorporates the possibility of inaction and links policy decisions to available resources and a specific political scenario. The latter element is lent quite some importance in books on policy-making, particularly the context of the political system influencing the

decisions adopted by policy-makers. Whist this is undeniably important, it is outside the scope of this thesis.

What is within the scope of this thesis is that which Thomas R Dye, an eminent political scientist, refers to in his definition on public policy - "what governments do, why they do it, and what differences it makes" (Dye, 2005, p.1). This thesis is interested, more specifically, in the latter. Three main elements demand attention there: the actions, the rationale behind such actions and the result of such actions.

With regard to the rationale for actions – 'why they do it' – a key justification for government intervention and hence for public policy has been market failure. Weimer and Vining (2005) categorise the different types of market failure into (i) traditional market failures, namely those related to public goods, externalities (missing markets), (ii) natural monopoly and information asymmetry; and (iii) into other limitations of the competitive framework, namely thin markets, preference problems, uncertainty problems, intertemporal problems, adjustment costs and macroeconomic dynamics. Faced by such market failures and hence by perceived policy problems, governments, through policies, can free markets through deregulation, legalisation or privatisation. They can facilitate markets through allocating existing goods or creating new marketable goods, and can stimulate markets (Weimer and Vining, 2005). Subsidies and taxes are often used by governments to induce behaviour through altering the relative prices of goods, to correct market failures or achieve redistribution.

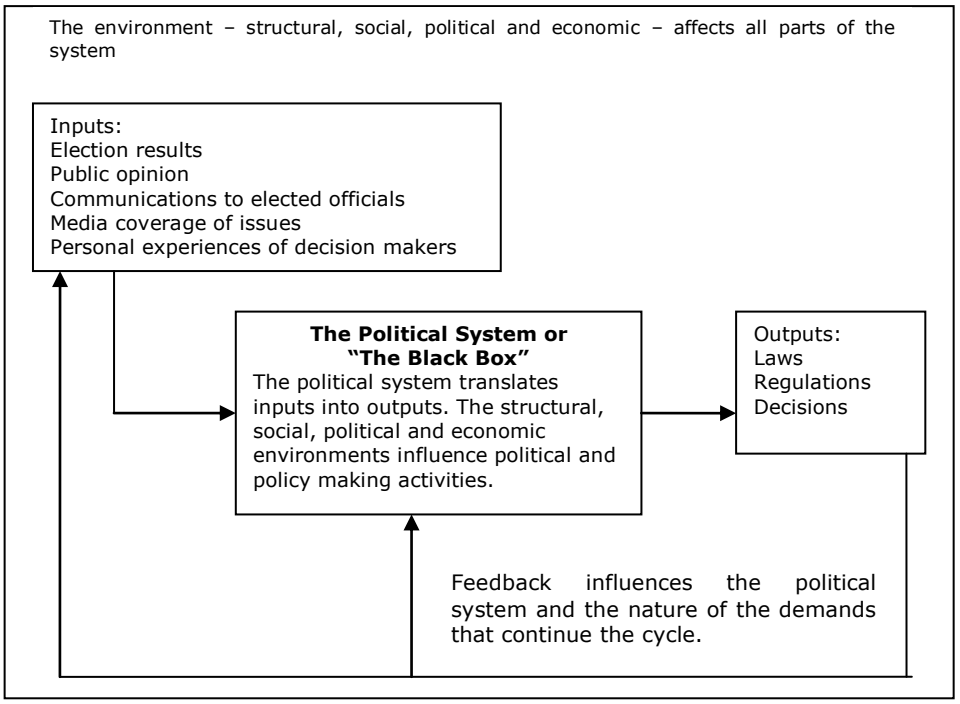
With regard to 'what differences it makes', this implies the study of the process through which those results could be delivered and an approach which allows one to identify the 'differences', hence policy analysis. In view of this, what follows is a literature review on the policy process.

2.1.1 The policy process

The policy process is always complex (Lester and Stewart, 2000; Miyakawa, 2000; Hill, 2005). To assist in understanding it, a number of scholars have developed models of the policy process. Major contributions have been made to the understanding of the policy process through the development of Easton's systems model, the stages model, Kingdon's streams metaphor, Sabatier's advocacy coalition framework, Baumgartner and Jones' punctuated equilibrium, and network theory. These are very briefly described next.

Easton (1965) developed a systems model whereby the public policy process is a product of a system, influenced by and influencing the environment in which it operates, receiving inputs and responding with outputs. The inputs are the various issues, pressures, information and the ways in which actors in the system react. The outputs are the policy decisions to act or not to act. The feedback received provides further input, such that the cycle turns back on and regenerates itself. Figure 2.1 depicts this systems model.

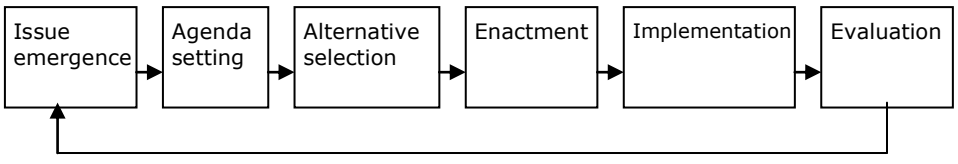
Figure 2.1 A Systems Model of Politics and Policy



Source: Reproduced from Birkland (2005, p.202)

Related to Easton's systems model is the stages model (Jenkins, 1978; Hogwood and Gunn, 1984; Lester and Stewart, 2000; Heineman, Bluhm, Peterson and Kearny, 2002), whereby policy making is portrayed as taking place step-by-step, as depicted in Figure 2.2, starting off from issue emergence and progressing to the next steps till evaluation.

Figure 2.2 The Stages Model of Policy Making



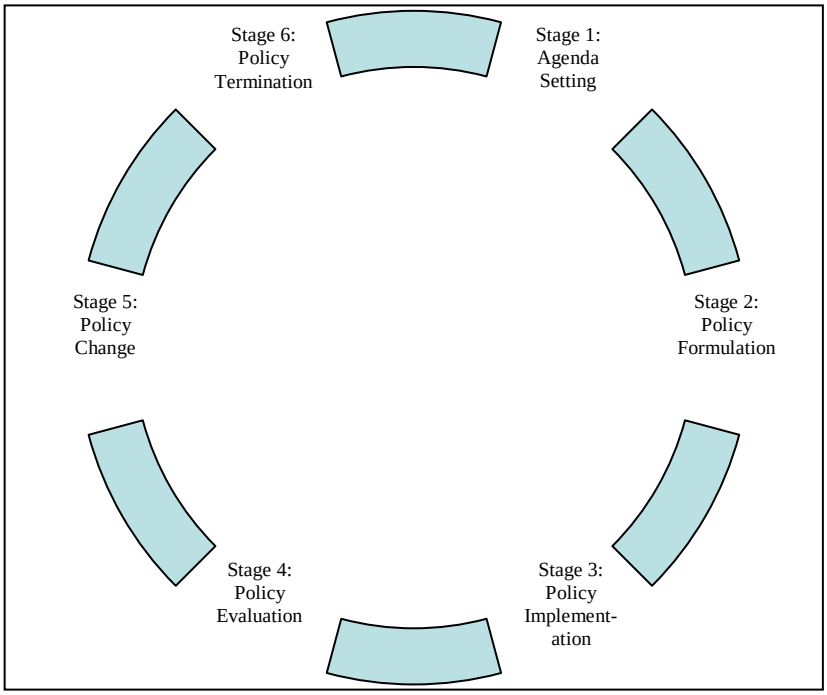
Source: Reproduced from Birkland (2005, p.225)

Lester and Stewart adopts a similar stages-based approach but presents the stages as a cycle (Figure 2.3) and describes the policy process

> "as a "conveyor belt" in which issues are first recognised as a problem, alternative courses of action are considered, and policies are adopted, implemented by agency personnel, evaluated, changed and finally terminated on the basis of their success (actual or perceived) or lack thereof."
>
> (Lester and Stewart, 2000, p.5)

The results of the evaluation stage feed back into the process.

Figure 2.3 The Policy Cycle



Source: Reproduced from Lester and Stewart (2000, p.5)

Whilst describing, as in Figures 2.2 and 2.3, the policy process as a series of discrete stages resulting in a framework for classifying the activities which occur during the public policy-making process, critics of the stages model of policy-making (see, for instance, Parsons,

1995; John, 1998; Hill, 2005) argue that it can be potentially misleading since "stages are not insulated from each other and there may be a succession of feedback loops between them" (Hill, 2005, p.21). Whilst this criticism is justified, the stages model does simplify the policy process and hence has its merits.

Another model describing the policy process is known as Kingdon's Streams Metaphor, which is based on the interaction of three streams, namely the problem stream, the policy stream and the politics stream. The problem stream considers the attributes of a problem and whether it is worthy of government intervention. The policy stream provides alternative policy approaches and potential solutions to a problem. The politics stream takes into account the state of politics and public opinion. Kingdon (1995) argues that issues gain agenda status and alternative solutions are selected when the three streams are brought together, providing a window of opportunity and increasing the possibilities of a policy being adopted.

Sabatier and Jenkins-Smith, in 1993, developed the Advocacy Coalition Framework (ACF), whereby the policy process, from policy inception through to implementation, involves an "advocacy coalition" consisting of "actors from a variety of institutions who share a set of policy beliefs" (Sabatier and Jenkins-Smith, 1999, p.126). The ACF is influenced by relatively stable parameters (e.g. basic legal structure, fundamental cultural values, social structure, distribution of natural resources, basic attributes of a problem area) and also by dynamic parameters (e.g. changes in public opinion, changes in socioeconomic conditions and technology, policy decisions and impacts from other

subsystems), with the interaction between the two promoting or inhibiting policymaking.

Baumgartner and Jones (1993) apply the concept of punctuated equilibrium to the policy process. As reported by Birkland, they argue that

> "the balance of political power between groups of interests remains stable over long periods of time, punctuated by relatively sudden shifts in public understanding of problems and in the balance of power between the groups seeking to fight entrenched interests."
>
> (Birkland, 2005, p.228)

A policy monopoly, defined as a fairly concentrated, closed system of the most significant actors in policy making, underlies Baumgartner and Jones' concept of punctuated equilibrium in the policy process.

The notion of interacting players is implied in the latter two models of the policy process. The governance model currently prevailing in policy-making brings to the fore this notion through policy networks. Governance has a number of meanings (Kooiman, 2003; Hall, 2008) bringing along changes in the public sector such that it minimises the role of the formal governmental actors and gives a greater role to the private sector and to non-governmental organisations (Pike Rodriguez-Pose and Tomaney, 2006). As this concept of governance, as opposed to more traditional forms of policymaking, gains ground, policy networks become more important in comprehending the policy process. Policy networks are formed through formal and informal social relationships and shape collaborative action between government, industry and civil society (Atkinson and Coleman, 1992;

Howlett and Ramesh, 1995; Rhodes, 1997; Scott, Baggio and Cooper, 2008), seeking to chart the position and activities of government to achieve a set of common goals.

There appears to be general agreement that the policy process is complex and this is evidenced through the various models, concisely outlined here, that attempt to describe this process. In spite of the variations in these models, one common factor seems to emerge - the policy analytical procedure. It is recognised, echoing Dye (2005), that policies should make a difference, implying that the outcomes of policies or programmes should be evaluated, examined to assess the extent to which they are achieving what they were intended to achieve (effectiveness) and whether they are doing so at an acceptable cost (efficiency). This points to the premise that analysis should inform policy which should be based on evidence. The next sections will focus on the concept of evidence-based policy and on policy analysis.

2.1.2 Evidence-based policy-making

The concept of evidence-based policy-making has, during recent years, been given more prominence in the literature (Cable, 2004; Thorns, 2006; Johnston, 2006; Godfrey, 2006; Minogue, 2008; Head, 2008; Nilsson, Jordan, Turnpenny, Hertin, Nykvist and Russel, 2008). As Head notes,

> "the rise and promotion of 'evidence-based' orientations within government agencies is consistent with the public sector's increased interest in efficiency and effectiveness."
>
> (Head, 2008, p.2)

It is also consistent with the emphasis on rational problem-solving, the increased complexity of policy problems (Nilsson, Jordan, Turnpenny, Hertin, Nykvist and Russel, 2008) and the policy-makers' "*demand* for lessons learnt about the effects of earlier policies" (Johnston, 2006, p.330, quoting Gordillo and Andersson, 2004, p.305), utilising knowledge about what works and why. A comparative analysis of use and non-use of policy appraisal tools in public policy-making by the UK, Germany, Sweden and the EU was conducted by Nilsson, Jordan, Turnpenny, Hertin, Nykvist and Russel, who indicate that

> "the political drive for more evidence-based policy-making is often held to be a characteristic feature of Anglo-Saxon (and especially the United Kingdom and the United States) policy systems…. However, calls for more evidence-based policy are equally evident in other industrialised countries."
>
> (Nilsson et al, 2008, p.336)

Evidence-based policy is defined by Davies as a

> "rigorous approach that gathers, critically appraises and uses high quality research evidence to inform policy making and profession practice."
>
> (Davies, 2004, p.3)

There lies a distinction between types of evidence and what constitutes research evidence. Systematic reviews, single studies, pilot studies, experts' evidence, and internet evidence are all presented as types of evidence. Impact evidence, implementation evidence, descriptive analytical evidence, public attitudes and understanding, statistical modelling, economic evidence and ethical

evidence are classified as research evidence. Davies compares evidence-based policy to

> "opinion-based policy, which relies heavily on either the selective use of evidence (e.g. on single studies irrespective of quality) or on the untested views of individuals or groups, often inspired by ideological standpoints, prejudices, or speculative conjecture."
>
> (Davies, 2004, p.3)

Another definition for evidence-based policy is that provided by Dunworth, Hannaway, Holahan and Turner, who state that it

> "is a rigorous approach that draws on careful data collection, experimentation, and both quantitative and qualitative analysis to answer three questions: What exactly is the problem? What are the possible ways to address the problem? And what are the probable impacts of each?"
>
> (Dunworth et al, 2008, p.1)

Additionally, Hall, Whipple and Jackson-Elmoore (2008) explain how evidence-based policy-making is intended to provide a means for creating legislation (within the context of family law) independent of politics, based on the most rigorous scientific evidence.

Whilst such definitions imply that only rigorous scientific research can be classified as evidence, Solesbury (2001) argues that it is not just research which counts as evidence but also experience, shared norms and values. Davies (2004) also recognises that other factors influence the decision-making process. These include values and ideologies, available resources, habits and tradition, lobbyists, pressure groups and media, pragmatics and contingencies of everyday political life. He further notes that evidence-based policy-making is challenged on the

grounds that policy-making involves factors such as the experience, expertise and judgement of decision makers. He therefore argues that evidence-based policy

> "is to ensure that policy making *integrates* the experience, expertise and judgement of decision makers with the best available external evidence from systematic research."
>
> (Davies, 2004, p.5)

Similarly, Thorns combines both aspects, stating that evidence

> "includes rigorous new research carried out by experts through to community and stakeholder consultations around specific areas of policy development."
>
> (Thorns, 2006, p.23)

Head (2008), building on such arguments, goes further by incorporating the 'three lenses of evidence-based policy', namely rigorous scientific and technical analysis, practical and professional management experience, and political judgement. He explains that traditionally the knowledge generated by applied research was the foundation for evidence-based policy. He argues that there are additional forms of policy-relevant knowledge which can inform and influence policy. The relational approach to policy development, incorporating networks, brings

> "to the negotiation table a diversity of stakeholder 'evidence', i.e. relevant information, interpretations and priorities."
>
> (Head, 2008, p.1)

Whilst Head, very convincingly, presents the case for weaving strands of information from these three lenses (as he calls them) for policy-making, explaining each of them, he does not discard the importance and contribution rigorous and systematic research can make to evidence-based policy. He considers 'evidence' as central to the design, implementation and evaluation of policies and programmes.

The literature indicates that evidence-based policy-making has featured in a series of major policy sectors, including health care policy (Béhague and Storeng, 2008; Hewison, 2008; Brownson, Chriqui and Stamatakis, 2009), social policy (Hall, Whipple and Jackson-Elmoore, 2008; Minogue, 2008), illicit drug policy (Godfrey, 2006), youth justice (Wilcox, 2003), housing policy (Thorns, 2006; Newman and Goldman, 2009), labour market programmes (Johnston, 2006), industrial relations (Farrell and Morris, 2009) and education policy (Machin, 2008). A review of this literature indicates that evidence-based policy-making results in positive consequences.

Evidence-based policy spurs the creation of new research. Thorns (2006), outlining developments in New Zealand's housing policy, explains how evidence-based policy formulation had a number of significant impacts on the creation of new research, evaluation and policy development capacity. Béhague and Storeng (2008) recognise the importance of creating institutional environments that actively promote the development of new research models for investigating complex and context-specific interventions. Such research is not to be conducted in isolation. As Godfrey (2006) argues, economic

evaluation techniques provide a valuable framework to explore the different impacts of drug policy choices but emphasises that such applications need to be made with reference to context and value systems.

Such research needs to be of high quality, requiring data which may not always be available. Newman and Goldman present an application to housing policy for people with severe and persistent mental illness and state that although past and accumulated bodies of research are helpful in the formulation of strategy,

> "the knowledge needed to translate these ideas into evidence-based policy and practice does not exist. Building this evidence base will require solid, rigorous research."
> (Newman and Goldman, 2009, p.313)

They thus call for research of the highest standards in order to build an evidence base. The provision of high quality research and/or the need for data is a recurrent message by authors on evidence-based policy. For example, Johnston (2006), who delves into the impacts of active labour market programmes, highlights that the measurement of some impact concepts will be difficult if statistics, administrative data and macroeconomic models are not available. Also, Brownson, Chriqui and Stamatakis (2009) argue for both quantitative and qualitative evidence, stating that there are distinct advantages in utilising both forms of evidence.

The limited use of evidence and ways of applying evidence to policy-making is another theme commonly discussed in the literature. In their assessment Davies, Nutley and Smith (2000) concluded that

there was little suggestion of evidence informing policy. In spite of there being many powerful techniques of policy analysis, such as cost-benefit analysis, decision-tree methods, simulations and models, experiments, the Delphi technique, linear programming, risk assessment and game theory, their use is often limited (Lester and Stewart, 2000; Heineman, Bluhm, Peterson and Kearny, 2002). Related to this situation, some years later, Nilsson, Jordan, Turnpenny, Hertin, Nykvist and Russel (2008) focus specifically on the use and non-use of policy appraisal tools in public policy-making and find that use is differentiated and on the whole very limited, particularly the more advanced tools. Additionally, Farrell and Morris highlight this "little evidence of policy being heavily influenced by academic research or otherwise" (2009, p.77) in their review of critiques of evidence-based policy-making. Possible reasons cited for the limited use of research techniques have included vulnerability to other forces, such as information overload, reinforcement of choices already made, politicisation of research, lack of understanding of political considerations, provision of information on policy but little on implementation, the values of participants, data and methodological problems, difficulties in defining the criteria for success and cost limitations (Lester and Stewart, 2000; Heineman, Bluhm, Peterson and Kearny, 2002). Furthermore, speed, superficiality, spin, secrecy and scientific ignorance are presented by Cable (2004) as possible reasons for this limited use of evidence. Similarly, Johnston (2006) discusses the use of evaluation data and argues that political considerations, other types of information, lack of confidence in evaluation results and the legislative and policy-making environments may have been responsible for the limited use of such data.

Recognising the value of evidence-based policy-making, a number of authors make recommendations for improving evidence use. Nutley, Davies and Walter (2002) mention four requirements: agreement on what counts as evidence in what circumstances; a strategic approach to the creation of evidence in priority areas, with systematic efforts to accumulate robust bodies of knowledge; effective dissemination of evidence to where it is most needed; the development of effective means of providing wide access to knowledge initiatives to ensure the integration of evidence into policy and encouraging the utilisation of evidence in practice. Davies (2004) also presents a number of mechanisms, some of which echo those suggested by Nutley, Davies and Walter (2002) that need to be in place for evidence-based policy-making to occur. These mechanisms include integrating research into professional competence, ownership of the evidence, getting appropriate buy-in, shared notions of evidence, incentives to use evidence, and availability of sound evidence.

The review presented on evidence-based policy-making indicates a distinct gap in the literature. Articles on the subject are often descriptive in nature, outlining how policies have been formulated and/or how and to what extent evidence has been used. However, hardly any literature was identified which, with a view to evidence-based policy-making, scientifically analyses or evaluates policy or its implementation. (One exception is Farrell and Morris (2009), who using a case study relating to the policy for performance-related pay for teachers, survey the extent to which evidence-based approach was adopted for policy implementation.) The next section will

therefore briefly review the literature on policy analysis, since this has the potential to raise 'sound evidence' that can support evidence-based policy-making.

2.1.3 Policy analysis

Policy analysis has been the subject of many articles in the policy literature, reflecting the widespread interest in firstly the process through which policies are adopted, secondly the content of policy and thirdly the resulting impact of the adopted policies. Some definitions of 'policy analysis' focus on the first two elements. For example, Barrett and Fudge (1981) do not make reference to the effect of policy but state that policy analysis aims at understanding and explaining policy content, policy decisions and the way in which policy decisions are made. On the other hand, other definitions of 'policy analysis' reflect all three elements. For example, Dye (2005) defines policy analysis as the description and explanation of the causes and consequences of government activity, once again emphasising 'what difference it makes', and considers policy analysis as more concerned with understanding and explaining policy issues.

These differing interpretations for 'policy analysis' have led to a distinction being made within policy analysis. Gordon, Lewis and Young (1977, 1997), Hogwood and Gunn (1984) and Hill (2005) distinguish between different kinds of policy analysis by referring to the 'analysis of policy' and to the 'analysis for policy'. Whilst 'analysis of policy' is analytical and descriptive, outlining how policies were determined and their content, 'analysis for policy' is prescriptive,

looking at process and policy advocacy, information for policy, policy monitoring and evaluation. Table 2.1 provides a brief explanation of the terminology used to describe the different kinds of policy analysis.

Table 2.1 Different kinds of policy analysis

	Term	Explanation
Analysis for policy	Policy advocacy	The direct advocacy of a single policy or a group of related policies
	Process advocacy	Improvements in the nature of the policy-making systems through the reallocation of functions and tasks, and through efforts to enhance the basis for policy choice through the development of planning systems and new approaches to option appraisal
	Information for policy	Research to provide the policymaker with information and advice; assumes a case for action to introduce a new policy or revise an existing one.
	Policy monitoring and evaluation	Post hoc analysis of policies and programmes; provides direct results to policymakers about the impact and effectiveness of specific policies. Post hoc review of policy impact may be used for feasibility analysis in future policy design.
Analysis of policy	Analysis of policy determination	Processes operating on the construction of public policy, based on models of policy system.
	Analysis of policy content	Studies carried out on the origin, intentions and operation of specific policies.

Source: Adapted from Hill (2005, p.5)

Within the analysis for policy, two main areas, namely 'policy evaluation' and 'information for policy', are of particular relevance to this thesis. These two aspects of analysis for policy highlight the importance of research for the formulation of policies and post hoc analysis for the further development or review of policies. In view of this, the next section will review the literature on policy evaluation.

2.1.4 Policy evaluation

Policy evaluation has frequently featured in policy models (some were outlined in section 2.1.1) and is considered an element in the 'analysis for policy' (Table 2.1). In its simplest form, policy evaluation is concerned with learning about the consequences of public policy (Lester and Stewart, 2000). On policy evaluation, Weiss (1972) noted that the notion of judging merit is present in most of the uses of the word. This notion is retained in subsequent definitions of evaluation propounded by evaluation academics such as Scriven: "the process of determining the merit, worth or value" (1991, p.139). In a series of definitions, this 'merit, worth or value' is set within the context of determining whether goals have been met (Koenig, 1986; De Graaf, Jordan, Degraaf, 1999 as quoted by Yen, 2005), "assessing where we are, where we want to be, and how we can reach our desired goals" (Henderson and Bialeschki, 2002, p.5 quoted in Yen, 2005, p.23).

Influential interpretations of the theoretical concepts of evaluation were examined by Briedenhann and Butts (2005). They describe Scriven's (1991) emphasis on evaluation being about valuing; Weiss' (1978) argument that evaluation provides evidence for judgement; Patton's (1997) concept of evaluation as a 'reality testing' exercise; and Pawson and Tilley's (1997) complementary term "realistic evaluation". They also outline Wholey's (1986) theory of evaluation that focuses on management and policymakers and Fetterman's (2001) empowerment approach to evaluation, advocating "the use of evaluation concepts, techniques and findings to foster improvement and self-determination" and emphasising that "the assessment of a

programme's value and worth is not the endpoint of the evaluation…but part of an ongoing process of programme improvement" (Briedenhann and Butts, 2005, p.224 quoting Fetterman, 2001, p.3).

Another debate in the evaluation literature is that relating to the use of theory in evaluation. Scriven (1991) completely discards the use of theory and argues that it is not essential for evaluations. On the other hand, others, such as Pawson and Tilley (1997), argue that evaluation should be theory-led. House and Howe (1999) adopt the middle approach, recognising that practice and theory inform each other.

Briedenhann and Butts (2005) also analyse the theories of evaluation practice, using Shadish, Cook and Leviton's (1991) three-stage categorisation. Table 2.2 summarises such theories, outlining differences on knowledge construction, values in evaluation, evaluation practice and uses of evaluation. Evaluation theorists, it emerges, differ on issues of practice as much as they do on issues of knowledge construction, values or usage.

Table 2.2. Theories Underlying Evaluation Doctrines

	Stage 1 – Positivists	Stage 2 - Alternative evaluation approaches	Stage 3 – Integrating concepts, methods and practices	4th generation
	Campbell (1978); Scriven (1991)	Stake (1978); Weiss (1978); Wholey (1983)	Cronbach (1982); Rossi and Freeman (1985)	Lincoln and Guba (1985); Fetterman (2001)
Knowledge construction	Evaluation is a science in which priority is given to truth. No way of constructing knowledge is perfect; seeks truth through scientific methods of quantification and experimentation. Use of findings justified if rigorous tests withstood.	Evaluators should work with users of findings to generate useful information. Qualitative/ quantitative debate, moved toward methodological pluralism.	Multiple epistemologies, methods and priorities, no one answer to constructing knowledge; advocate methodological pluralism in which choices are dependent on info needed and no one method can produce a complete unbiased answer; strike balance between validity of evaluation findings and their usefulness to the decision makers and stakeholders.	No such thing as "objective reality" but depends on one's understanding and life circumstances.
Values in evaluation	Debate on whether evaluation should be value free.	Descriptive valuing; stakeholder input.	Differ in approaches to valuing. From descriptive values to needs assessment, context dependent.	Shared construction.
Evaluation practice	Outcome based practices and distance from stakeholders; evaluation checklist: function, process, context, resources.	Work closely with stakeholders.	Work closely with stakeholders.	Where realities of multiple stakeholders are accommodated. Facilitate dialogue and negotiate so that a shared construction of value and significance of evaluand can be reached.

	Stage 1 – Positivists	Stage 2 - Alternative evaluation approaches	Stage 3 – Integrating concepts, methods and practices	4th generation
Uses of evaluation	Instrumental – decisions based on evaluation results; Conceptual – influence way people think about an issue; Persuasive – argue for a decision; No emphasis on use though Scriven wrote on formative and summative evaluation.	Emphasise use of findings. Determine information needs of stakeholders and users. Enlightenment/ incremental use (Patton (1999) – utilisation focused evaluation)	Integrate and promote instrumental and enlightenment use of evaluation findings.	Internalise evaluation.

Source: Compiled from information provided by Briedenhann and Butts (2005)

There are several types of policy evaluation. Lester & Stewart (2000) refer to Bingham and Felbinger (1989), who identified four types of policy evaluations, namely process evaluation, impact evaluation, policy evaluation, metaevaluations. Process evaluation focuses on the means by which a policy is delivered, thus highlighting management issues. Impact evaluation concentrates on the policy's end results. Policy evaluation is concerned with the impact of the policy on the original problem it was intended to address. Meta-evaluations are syntheses of evaluation research findings seeking common results and trends. Davies (2004), in his discourse on 'Is Evidence-Based Government Possible?', presented the more common types of evaluation adopted in the UK, namely impact evaluation, implementation evaluation, economic evaluation, and the use of descriptive and inductive statistics for evaluation purposes. Whilst the merits and uses of other types of evaluation are recognised, the research presented in this thesis focuses on policy analysis conducted through econometric modelling, which is central to economic analysis

and which tends towards the positivist evaluation doctrine. The next section will discuss the use of econometrics for policy analysis.

2.1.5 Econometric policy analysis

Policy analysis, whether required for post hoc analysis or to introduce a new policy or revise an existing one, necessitates the use of appropriate analytical tools, particularly so if an evidence-based approach to policy-making is adopted. The value of such policy analysis, as noted by Schmidt, is that

> "it is now widely recognised that advancing the state of knowledge on which programs have worked in the past, and which have not, enables policy makers and administrators to make informed predictions about outcomes of future interventions, and to design their policies accordingly."
> (Schmidt, 2007, p.8)

Most, if not all policies, require economic analysis which can be strengthened through the use of econometrics. The potential use of econometrics for policy-making is expounded by J.J. Heckman, the Nobel Laureate. As Heckman explains,

> "econometrics is a branch of economics that unites economic theory with statistical methods to interpret economic data and to design and evaluate social policies."
> (Heckman, 2000, p.3)

In his Nobel lecture delivered on 8 December 2000, Heckman further emphasises the two conceptually distinct evaluation questions. First, "what is the effect of a program in place on participants and non-participants compared to no program at all or some alternative

program?" (Heckman, 2000, p.6) – referred to as the 'treatment effect' problem and, secondly, "what is the likely effect of a new program or an old program applied to a new environment?" (Heckman, 2000, p.6).

Much research is available on the causal effects of programmes, whereby

> "the central problem studied in this literature is that of evaluating the effect of the exposure of a set of units to a program, or treatment, on some outcome…..The treatments can be job search assistance programs, educational programs, vouchers, laws or regulations, medical drugs, environmental exposure, or technologies."
>
> (Imbens and Wooldridge, 2009, p.6)

The dominant framework for programme evaluation is currently the Rubin Causal Model, which presents a potential outcomes framework, with binary, multivalued discrete or continuous treatments. Imbens and Wooldridge (2009) limit their review mainly to settings with binary treatments, though reference is also made to the literature dealing with multivalued discrete and continuous treatments, which is not as common. Notwithstanding the volume of literature on programme evaluation, most of this is concerned with understanding programme participation/take-up or non-participation/no take-up. Little attention appears to be given to the programme's or policy's effect on economic indicators, such as price or elasticities. This is a gap which this thesis seeks to contribute to by providing an application to tourism, which also seems missing from the evaluation literature.

Yet, on the aspect of policy evaluation and economics, Schmidt states that the

> "analysis of causality, in particular the assessment of policy interventions with respect to their effects, is one of three fundamental tasks of empirical research in economics, and perhaps its hardest intellectual challenge. The two other tasks are descriptive analysis and forecasting. The specific objective of evaluation studies in economics is the isolation of the effects of the policy intervention under study to the best extent possible from the impact of all other aspects of the economic environment."
>
> (Schmidt, 2007, p.4)

The emphasis is hence placed on the value of 'cause and effect' assessments both for designing and evaluating policies.

This debate on the relevance of econometric models for policy analysis and decisions spans over seventy years, with contributions being made by, amongst others, Tinbergen (1936), Frisch (1950), Tinbergen (1952), Lucas (1976), Chow (1980), von Natzmer (1985), Taylor (1993), Zalm (1998), Hendry and Mizon (2000), Heckman (2001), Don (2004), Rust (2007), Heckman and Vytlacil (2007), Schmidt (2007), and Cho and Rust (2008). Two main themes characterise these articles: first, the emphasis on the proper formulation of the econometric model such that it can guide policy-making, and secondly, the applicability of such econometric models for policy analysis.

The first theme is fundamental to this debate as weak model formulations can mislead, as recognised by Hendry and Mizon, who emphasise that

> "the policy implications derived from any estimated macroeconometric system depend on the formulation of its equations, the methodology used for the empirical modelling and evaluation, the approach to policy analysis, and the forecast performance."
>
> (Hendry and Mizon, 2000, p.138)

Over twenty years earlier, Lucas (1976) in his seminal critique on 'Econometric Policy Evaluation', had highlighted the flaws of large scale macroeconomic models, which at the time sought to predict the effects of a change in economic policy entirely on the basis of relationships observed in aggregated historical data. Lucas argued that models were

> "not conducted within the framework of the theory of economic policy, and the unquestioned success of the forecasters should not be construed as evidence for the soundness or reliability of the structure proposed in that theory."
>
> (Lucas, 1976, p.23)

His writings were influential enough to encourage the development of macroeconomic models to be built on microfoundations based on rational choice and which take into account economic fundamentals such as preferences and budget constraints. Subsequently, a series of articles were published on the inclusion of rational expectations in the models (e.g. Chow, 1980; von Natzmer 1985; Hendry and Mizon, 2000). Furthermore, Lucas established an important criterion for the use of econometrics in policy-making, namely that the applied econometric model should be grounded in economic theory. Later chapters will return to Lucas' argument. The debate on the interface between econometrics and economic theory continues, as evidenced by the February 2007 special issue of *The Journal of Econometrics*

edited by Aliprantis, Barnett, Cornet and Durlauf, where articles ranged from a discussion on model uncertainty and policy evaluation (Brock, Durlauf and West, 2007) to matching the theory with the evidence from the data (Kapetanios, Pagan and Scott, 2007).

The risks associated with policy-making based on incorrect model formulation and hence the applicability of econometric models for policy-making were recognised and highlighted from the very start of this debate on the use of econometrics in policy-making. Frisch (1950) and Tinbergen (1952) discussed how econometric models could be used to help policy-making. These pioneers in the field noted difficulties in applying this in practice, particularly due to elements such as the reliability of econometric models for the purpose of providing policy advice. The issues raised by Frisch and Tinbergen are still being discussed in the more recent literature. For example, Don in his paper on 'How econometric models help policy makers: theory and practice', questions the reliability of econometric models, concluding that

> "any real world macroeconomic model used to support policy choice can claim only limited reliability. It is necessarily incomplete, sometimes ill suited for the problem at hand and often only locally valid….Yet the model can be very helpful in assessing the likely consequences of different policy options, provided it is used by knowledgeable experts, who are well aware of the limitations of the model at hand and can contribute creative ideas on handling any shortcomings of the model in a particular policy analysis."
>
> (Don, 2004, p.192)

Whilst recognising the limitations of econometric models and agreeing with Frisch's and Tinbergen's concerns, Don proposes that the modelling should be the result of an iterative trial-and-error

procedure having the policy-makers and the model experts interfacing. His suggestion could possibly help not only the improvement of the econometric model and resulting policy analysis but also increase the usability of the econometric modelling for policy-making, a point which will be touched upon in the discussion and concluding chapters.

As the above paragraphs indicate, the potential of econometrics for policy-making has been recognised as has the risk involved in utilising incorrect econometric models. The debate has now moved from whether econometrics can assist policy-making on to illustrating how econometric modelling can in fact be useful for policy-making. Cho and Rust (2008) demonstrate how econometrics can be useful for private policy-making where the profit-making objective is clear. They make reference to Rust (2007) on public policy-making. Rust (2007) discontentedly concludes that the prospect that econometric models will impact public policy-making is bleak, particularly where political considerations dominate scientific advice. Rust (2007) makes this point as he presents the case relating to social security, where it may be difficult to assess the results of a policy on social welfare. It is doubtful, and still needs to be seen, though, whether this conclusion can justify a generalisation across all areas of policy-making. Cho and Rust (2008), advocating the value of econometrics for policy-making, yet aware of the current limited use of econometrics for this purpose, argue that the best chance of getting the public sector interested in the results of econometric models is to commence from showing how such models can be useful for private sector policy-making.

The article by Cho and Rust (2008) shows that econometric modelling is useful for the private sector for policy-making. Similarly, this thesis aims to demonstrate, through a case study, that econometric modelling can be used for policy-making by both the public and private sector, at least in the field of tourism, and specifically to guide policy on destination competitiveness. Prior to discussing the use of econometrics for tourism policy analysis, a review of the literature on tourism policy will next be presented.

2.2 Tourism policy

One of the primary critiques of policy theory, as also shown in the literature review on policy, is that

> "political scientists who study public policy tend to emphasise the processes by which policies are made and implemented rather than the substantive content and impacts of policies themselves."
> (James and Jorgensen, 2009, p.142 quoting Weimer, 1998, p.182)

This is more so in the case of tourism policy literature, where, as indicated by Kerr,

> "the mainstream of tourism policy literature is developed insufficiently in terms of frameworks, approaches and theories."
> (Kerr, 2003, p.23)

Hall and Jenkins also identify this gap in the literature, stating that

> "the subject of tourism has had little direct impact on public policy with extremely few articles on tourism actually appearing in policy studies journals".
>
> (Hall and Jenkins, 2004, p.530)

In fact, sourcing articles which focus on the analysis of tourism policy content and the result of such policies has proven difficult. This is not to say that the tourism literature does not include articles on policy. It does (see Sessa, 1976; Baum, 1994; Fayos-Solà, 1996; Meethan, 1998; Hope and Klemm, 2001; Wade, Mwasaga and Eagles, 2001; Seckelmann, 2002; Veal, 2002; Ivars Baidal, 2004; Vernon, Essex, Pinder and Curry, 2005; Soshiroda, 2005; Bramwell, 2006; Dredge, 2006; Pforr, 2006; Bramwell and Meyer, 2007; Farsari, Butler and Prastacos, 2007; Stevenson, Airey and Miller, 2008; Airey and Chong, 2009; Stevenson, Airey and Miller, 2009; Krutwaysho and Bramwell, 2010). However, generally the focus is either on providing a descriptive analysis of the historical development of destinations and their tourism policies, or related to planning techniques, or related to the concept of sustainability, physical planning, environmental and social considerations, or centred on an aspect of the policy process such as stakeholder involvement. If present in the literature, any evaluation of tourism policy is generally descriptive and at best uses the classical indicators of tourism performance, such as tourist arrivals, guestnights and earnings for evaluation of policy. Such an evaluation of a given tourism policy may be inconclusive as the impact of the policy may not necessarily be the direct result of the policy in question. An improvement on this was made by Logar (2010), who using a set of indicators and qualitative interviews with stakeholders, assesses Croatia's policy instruments against three criteria, namely effectiveness, acceptability and feasibility. Though

this may be considered as a development in tourism policy analysis, yet the results may not be wholly related to the specific policy measure.

Reviews of national tourism policies have been regularly undertaken both by academics and by international organisations such as the OECD, and point to an evolution in tourism policy. Baum (1994) assessed the content of national tourism policies through a survey carried out in 1988 among national tourism organisations of developed and developing countries. He indicated that economic factors, including generation of foreign exchange, were the prime focus of tourism policy. Later, Akehurst, Bland and Nevin (1993) found that policy objectives in the then European Community member states concentrated on attracting more higher-spending tourists, improvements in product quality and a reduction in seasonality. They also highlighted that the National Tourism Organisation stood out as the most important instrument for tourism policy implementation (Akehurst, Bland and Nevin, 1993).

Fayos-Solá (1996) reviewed the development of tourism policy and outlined its evolution. He explained that initially the tourism policy's objective was to stimulate mass tourism to generate tourist volumes and revenues. This was complemented by tourism organisations' strategies focusing on promotional activities. The onset of economic difficulties and the recession of the early 1980s, together with the visible effects of mass tourism, prompted a different approach to tourism policy that took into account the social, economic and environmental impacts of tourism. A further development took place

in tourism policies in the mid-1980s when the focus shifted to achieving competitiveness and establishing a framework for entrepreneurship and for business to achieve quality. Hence, as Fayos-Solà stated, the aim of tourism policies shifted "from pure promotion to product development to the current goal of maintaining competitiveness" (1996, p.405). In view of this development, Fayos-Solà (1996), whilst recognising the role of the public sector in policy implementation, argued for a more balanced partnership between the public, private and voluntary sectors.

The importance of stakeholder involvement, partnering and building of networks continues to be recognised as a contributor to achieving the high level objectives of today's tourism policies, namely competitiveness and sustainability. Given the cross-cutting nature of tourism activity, and echoing the Riva del Garda Action Statement for Enhancing Competitiveness and Sustainability in Tourism (OECD, 2008a), a "whole of government" approach to managing tourism is advocated by the *OECD's Tourism Trends and Policies 2010.* This implies horizontal and vertical linkages within the economy and an integrated approach across a destination's government departments. Similarly, the European Commission's Communication COM(2010) 352 'Europe, the world's No.1 tourist destination – a new political framework for tourism in Europe' seeks to strengthen stakeholder involvement. It outlines possible actions which could take place between member states, the tourism industry, the Commission and other stakeholders to instigate and encourage stakeholder involvement. It is interesting to note that in parallel, the more recent tourism policy literature discusses policy networks, governance,

relational approaches and social interactions among players in the policy-making process (for example, Church in Lew, Hall and Williams, 2004; Hall and Jenkins in Lew, Hall and Williams, 2004; Bramwell and Meyer, 2007; Scott, Baggio and Cooper, 2008; Stevenson, Airey and Miller, 2008). This literature will be reviewed in the next section, which outlines advances in tourism policy-making.

2.2.1 Definitions of tourism policy and developments in tourism policy-making

This review of the literature on tourism policy-making will start off with a review of the definitions of 'tourism policy'. Whilst the debate on what is 'policy' dates back to at least the 1950s, as outlined at the beginning of this chapter, contrary to what one might expect, the discussion about defining 'tourism policy' emerged only some twenty years after. The *Annals of Tourism Research*, a topmost journal in tourism, published its first article on tourism policy, that by Alberto Sessa, in 1976, in its third volume. Sessa (1976), then, defined and explored the need for tourism policy. Emphasising that a tourism policy is a "tourism economic policy" (Sessa, 1976, p.237), he acknowledged the impact, and hence the importance, of social and cultural factors on tourism policy. He defined tourism policy as

> "a necessary intermediate stage in which numerous hypothetical objectives are worked out that can serve as guidelines for the concrete action ultimately decided upon…such a policy must be *rational, global and economic*."
> (Sessa, 1976, p.238)

Since 1976, no agreement on the definition of tourism policy has been achieved, reflecting also the lack of agreement on a single definition for 'policy', as referred to in section 2.1. As Mihalic states, "there is no agreement even on the definition of tourism policy or of appropriate policy tools" (2009, p.157). However, a number of definitions have been presented, including that which builds on Dye's (2005) definition of policy — tourism public policy is whatever governments choose to do or not to do with respect to tourism (Hall, 1994; Hall and Jenkins, 1995; Hall, 2008). This definition refers just to government's actions or non-actions with respect to tourism. Other definitions explain in some more detail what tourism policy is. For example, Ritchie and Crouch defined tourism policy as

> "a set of regulations, rules, guidelines, directives and development/promotion objectives and strategies that provide a framework within which the collective and individual decisions directly affecting tourism development and the daily activities within a destination are taken."
> (Ritchie and Crouch, 2003, p.148)

This definition presents tourism policy as a framework which incorporates regulatory tools and development and marketing objectives which contribute to the advancement of the destination. Particular focus is placed on tourism development. Three years later, Goeldner and Ritchie (2006) included temporal considerations in this definition by the inclusion of the term 'long-term' with reference to tourism development. Biederman, Lai, Laitamaki, Messerli, Nyheim, and Plog (2007) provide another definition which also outlines what the objective of tourism policy should be:

> "A tourism policy defines the direction or course of action that a particular country, region, locality or an individual destination plans to take when developing or promoting tourism. The key principle for any tourism policy is that it should ensure that the nation (region or locality) would benefit to the maximum extent possible from the economic and social contributions of tourism. The ultimate objective of a tourism policy is to improve the progress of the nation (region or locality) and the lives of its citizens."
>
> (Biederman et al, 2007 quoted in Edgell, DelMastro Allen, Smith and Swanson, 2008, p.7)

This definition not only refers to tourism development and promotion, but also provides the raison d'être and objective for tourism, i.e. to maximise economic and social benefits for the destination and its people.

A broader definition for tourism policy is that provided by Edgell, DelMastro Allen, Smith and Swanson who, building on the previous definitions, define tourism policy as

> "a progressive course of actions, guidelines, directives, principles and procedures set in an ethical framework that is issues-focused and best represents the intent of a community (or nation) to effectively meet its planning, development, product, service, marketing, and sustainability goals and objectives for the future growth of tourism."
>
> (Edgell et al, 2008, p.7)

This definition, through the introduction of the concept of sustainability, also takes into account long-term considerations. However this is not limited to 'long-term tourism development' but extended to goals and objectives for future tourism growth. Furthermore, this definition differs from the previous ones in that it acknowledges the holistic role of marketing, product development and hospitality services. It also presents tourism policy as a dynamic

process allowing for adjustments and refinements as situations change.

Some elements are common to these definitions on tourism policy. Tourism policy is generally presented as a framework which directs decisions and actions relating to development and promotion. Some of the definitions, though not all, emphasise that these frameworks should aim at economic and social improvement.

The UNWTO, recognising the lacuna in a commonly agreed to definition, in 2008 embarked on formulating a document with the aim of initiating the harmonisation of concepts relating to tourism policy in its support to European Member States. The definition for 'policy', as recommended in the UNWTO document 'Developing a Tourism Policy Plan: Strategies for Competitiveness and Governance in Europe – Executive Summary', is:

> "Tourism policy is comprised of all the actions carried out under the coordination of public administrations with the objective of achieving previously defined aims in the processes of analysis, attraction, reception and evaluation of the impacts of tourism flows in a tourism system or destination."
>
> (UNWTO, 2008, p.1)

This definition implies that tourism policy is a set of actions carried out to achieve objectives laid out through processes - of particular interest for this thesis is the reference to 'processes of analysis'. Furthermore, it is worth noting that the phrase 'carried out under the co-ordination of public administrations' is used as opposed to the

phrase 'carried out by public administrations', possibly in recognition of the shift to governance.

Tourism policy has traditionally been studied and assessed as a sectoral policy seeking to enhance the aggregate functioning of the sector. Whilst competitiveness remains a fundamental objective of tourism policy, tourism activity is often seen as an instrument for development with further social and environmental contributions. As a transversal public policy, it has objectives in the areas of stability, efficiency in the use of resources, the provision of public goods and services through production, financing and regulation actions, and even the redistribution of added values. The fundamental objectives of tourism policy are the planning, promotion and macro-management of tourism in collaboration with the different departments and levels of Government, the private sector and civil society, for the improvement of the economic, social, cultural and environmental conditions of all the stakeholders and actors of the system or destination (UNWTO, 2008). The objectives outlined in the UNWTO document highlight the reasons – mainly market failure - for governments to adopt policies.

Within this context of addressing market failure, seven areas of public sector involvement in tourism have been identified: coordinating, planning, legislation and regulation, entrepreneur, and stimulation (IUOTO, forerunner of UNWTO, 1974 as referenced in Cooper and Hall, 2008), social tourism and public interest protection (Hall, 2000 as referenced in Cooper and Hall, 2008). In recent years, due to the focus on governance (Church in Lew, Hall and Williams, 2004; Hall,

2005; Cooper and Hall, 2008; Hall, 2008) a substantial transformation of the perceived role of government in tourism has taken place, resulting in the increased importance of government's coordination role, and consequently resulting in a major development in tourism policy-making. The role of government in tourism has thus changed over time and as Cooper and Hall outline, it "changes from jurisdiction to jurisdiction and through the various scales at which governance occurs" (2008, p.148).

Governance is defined as

> "the exercise of authority and institutional legitimacy – economic, political and administrative – in order to manage the affairs of a country at all its levels."
>
> (UNWTO, 2008, p.2)

This general definition of 'governance', whilst bringing to the forefront the importance of the various levels, emphasises as government's responsibility that of the 'exercise of authority and institutional legitimacy'. This implies government-led partnerships among all actors, a theme that will be touched upon particularly in Chapters 8 and 9.

In the past co-ordination was, in the tourism field, mainly limited to that within and between the different levels of government. It also involved a governmental facilitating role in bringing various tourism stakeholders together for common goals and to develop effective tourism strategies. In line with the general definition of governance, governance in tourism

> "covers institutions, processes and mechanisms through which citizens and groups articulate their interests, exercise their legal rights, learn about their obligations and settle their differences in the field of tourism."
>
> (UNWTO, 2008, p.2)

This implies that the design, implementation and monitoring of public policies and strategies is carried out through horizontal and vertical coordination of government at various levels, the private sector and non-governmental organisations as well as the wider population. This points to the creation of policy networks – another major development in tourism policy-making. This approach is considered more appropriate than the more traditional top-down approach, which due to resistance from stakeholders resulted in obstacles to implementation.

Given these developments, network analysis in tourism and the relational approach in tourism policy making, as noted earlier, has been the subject of the more recent tourism policy literature (Scott, Baggio and Cooper, 2008). Network analysis in tourism focuses on two main areas, firstly adopting a more decentralised approach to tourism management and policy-making and secondly having the private sector and other stakeholders playing a more important role in the policy-making process.

The approaches to tourism policy-making have not been widely discussed in the tourism policy literature, though more recently there seems to be a growing body of research on this matter. Stevenson, Airey and Miller (2008), reviewing existing literature, briefly discuss institutional, stakeholder and network theory before presenting a

case study on tourism policy-making in Leeds (United Kingdom). One other contribution to the literature on tourism and public policy theory has been that by Kerr (2003). Building on public policy research, he applies the approaches and theories that have been applied in the wider field of policy-making (including the advocacy coalition framework, the multiple streams framework and the punctuated equilibrium framework) to tourism, where relevant. In line with the approaches adopted by John (1998), Dredge and Jenkins (2003), Pforr (2005) and Bramwell and Meyer (2007), Kerr (2003) concludes that

> "no single perspective was likely to yield holistically adequate analysis, instead synthesising them and applying to tourism, heterogenically, a fusion of approaches is the most suitable way forward."
>
> (Kerr, 2003, p.46)

Within this context, characterised by shifts from 'governing' to 'governance', improving economic competitiveness still remains a key objective for destinations. What follows is therefore a review of the literature on competitiveness, focusing on destination competitiveness and how policy contributes to this particular objective.

2.2.2 Competitiveness and destination competitiveness

Competitiveness is a major concern for all economic sectors, both at a macroeconomic level for global institutions and governments and at a microeconomic level for firms. It is often placed on the tourism policy agendas of national tourism organisations and the subject of

discussions by researchers. Decisive contributions to the concept of competitiveness have been made throughout the years: Adam Smith identified land, labour, capital and natural resources as factors of production and emphasised the importance of being the lowest-cost producer; David Ricardo developed the law of comparative advantage; Marxist economists emphasised the impact of the socio-political environment on economic development; Max Weber established the relationship between values, religious belief and economic performance of nations; Joseph Schumpeter emphasised the role of the entrepreneur; Alfred Sloan and Peter Drucker developed the concept of management as a key input factor for competitiveness; Robert Solow highlighted the importance of education, technological innovation and increased know-how; Nicholas Negroponte and other modern economists refined the concept of "knowledge" as an input factor; and Michael Porter developed the model of the competitiveness diamond by integrating all these ideas. The World Economic Forum has over the years, as stated in the *Global Competitiveness Report 2009-2010*, recognised the importance of understanding the factors influencing competitiveness and which enable economies to achieve sustained economic growth and long-term prosperity. Sala-i-Martin, Blanke, Drzeniek Hanouz, Geiger and Mia define competitiveness as "the set of institutions, policies and factors that determine the level of productivity of a country" (2009, p.4).

Despite all the discussions on competitiveness, there is no single widely accepted definition, as the concept is considered to be a very broad and complex one, particularly since it is a relative concept (i.e.

compared to what) and a multi-dimensional one (i.e. what are the salient attributes or qualities of competitiveness), as outlined by Dwyer and Kim (2004). Garelli (2004) defines the competitiveness of nations as a

> "field of economic knowledge, which analyses the facts and policies that shape the ability of a nation to create and maintain an environment that sustains more value creation for its enterprises and more prosperity for its people."
> (Garelli, 2004, p.713)

This definition refers to the role policies play in supporting the environment in which businesses operate and people live. In spite of the definition of competitiveness of nations as a field of economic knowledge analysing facts and policies, the literature generally lacks economic models to evaluate competitiveness and few studies integrate policy and strategy development in economic models or make a link with the concept of competitiveness. The literature is often more useful for ex-post rationalisation than for ex-ante prediction (Enright and Newton, 2004).

Most of the literature identifies the drivers for competitiveness ranging from core resources to supporting resources, from the competitive (micro) environment to the global (macro) environment, from comparative advantage based on resource endowments to competitive advantage based on resource deployment. Porter (2003) develops the competitiveness diamond model which integrates four key determinants of competitiveness, with policy also influencing competitiveness. He postulates that national wealth is not set by factor endowments, but created by strategic choices. Porter's

framework suggests that success in international competition in a given industry depends on the relative strength of an economy in a set of business-related features or "drivers" of competitiveness, namely factor conditions, demand conditions, related and supporting industries, and firm strategy, structure and rivalry. Porter's framework has been applied to a variety of industries but tourism activity and destinations have not to date been the direct focus of Porter's work, in spite of the important role which tourism related firms play in this economic activity and Porter's emphasis on the firm's competitiveness and on microeconomic policies.

A quick review of the literature however immediately indicates that destination competitiveness forms a significant part of tourism literature and is a major preoccupation for destination management organisations and tourism practitioners. Tourism researchers, including Crouch and Ritchie (1999); Ritchie and Crouch (2000); Dwyer and Kim (2003); Enright and Newton (2004, 2005); Crouch and Ritchie, in Dwyer and Forsyth ed. (2006); Lee and King (2009) have developed or extended similar frameworks to that of Porter and applied the framework to tourism. A number of other authors have made contributions to the discussion on destination competitiveness, seeking to provide an understanding or practical research in the field (to name a few: Dwyer, Forsyth and Rao, 2000; Mihalic, 2000; Mangion, Durbarry and Sinclair, (2005); Mazanec, Wöber and Zins, (2007); Gomezelj and Mihalic, (2008); Lee and King, (2009); Croes and Rivera, (2010).

Dwyer, Forsyth and Rao define competitiveness as a

> "general concept that encompasses price differentials coupled with exchange rate movements, productivity levels of various components of the tourist industry and qualitative factors affecting the attractiveness or otherwise of a destination."
>
> (Dwyer, Forsyth and Rao, 2000, p.9)

Ritchie and Crouch (2003) present a definition for destination competitiveness which makes reference to the economic, social and environmental objectives of a destination, implying cause and effect by referring to tourist expenditure and volumes, tourists' satisfaction and residents' well-being as well as conservation and sustainable development principles.

> "What makes a tourism destination truly competitive is its ability to increase tourism expenditure, to increasingly attract visitors while providing them with satisfying, memorable experiences, and to do so in a profitable way, while enhancing the well-being of destination residents and preserving the natural capital of the destination for future generations."
>
> (Ritchie and Crouch, 2003, p.2)

These definitions again highlight the complexity of the concept of destination competitiveness which is wide ranging, an aspect which is reflected in the varied focus of literature on the topic. The literature on destination competitiveness that is reviewed here may be sub-divided into:

1. that presenting frameworks which identify and list the range of factors influencing destination competitiveness;
2. that which seeks to assess the relative importance of the factors influencing destination competitiveness – of relevance to this research is the relative importance of tourism policy as a factor influencing destination competitiveness;

3. that which seeks to measure destination competitiveness and develop indicators (qualitative or quantitative) of national competitiveness;
4. that which presents measures of tourism price competitiveness or qualitative factors affecting the attractiveness of a destination.

2.2.2.1 The frameworks for destination competitiveness

One of the frameworks which is often quoted and applied to a variety of industries (but has not been applied to tourism) and often acts as the foundation for other frameworks for competitiveness is that developed by Porter (2003). Porter's concept emphasises the importance of competitiveness at the microeconomic level, whilst acknowledging the role of the macroeconomic environment as that which creates the broader conditions which are necessary but are not sufficient. This is because

> "wealth is actually created in the microeconomic level of the economy, rooted in the sophistication of company strategies and operating practices as well as in the quality of the microeconomic business environment in which a nation's firms compete."
>
> (Porter, 2003, p.23)

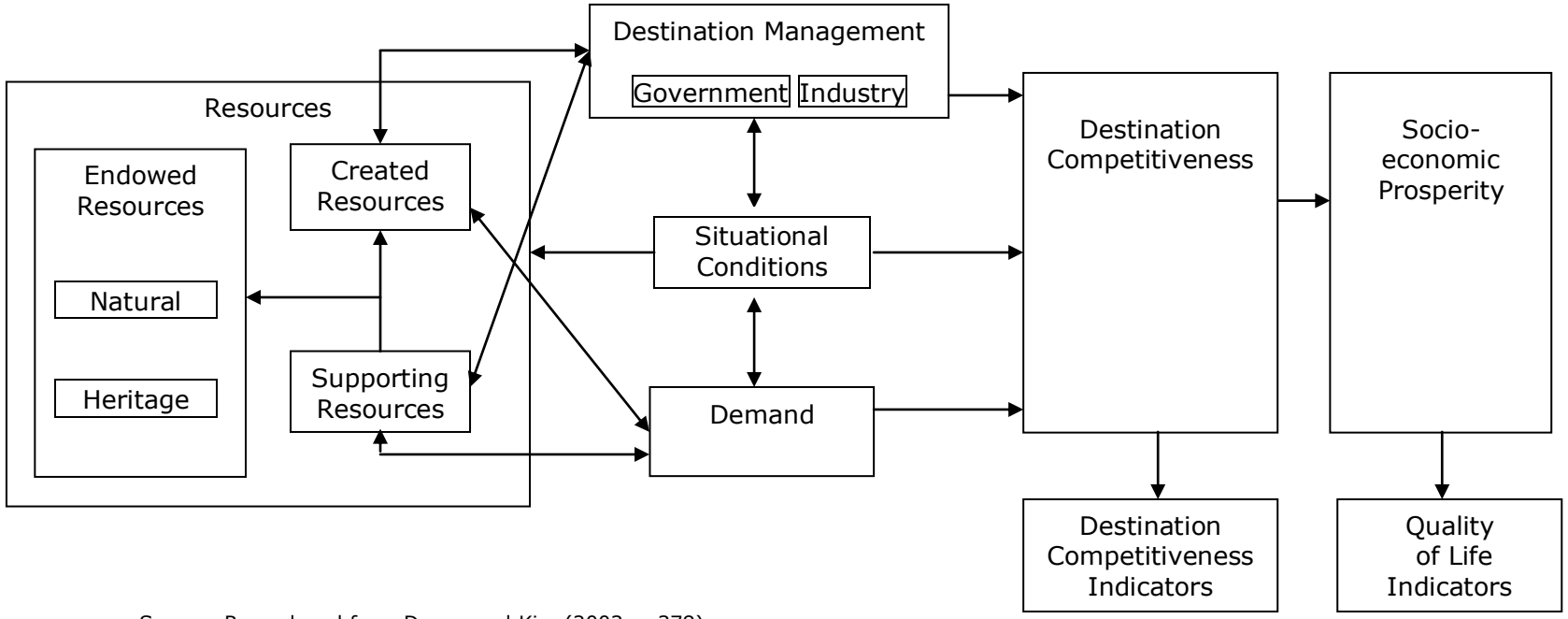
This implies that countries must adopt policies that not only eliminate obstacles to productivity but also develop strategies at the microeconomic level. At this level,

> "companies must shift from competing on comparative advantages (low-cost labour or natural resources) to competing on competitive advantages arising from unique products and processes."
>
> (Porter, 2003, p.25)

Given that the tourism industry is characterised by a series of small and medium enterprises which provide the facilities and services for tourists, Porter's argument is even more important, applicable and relevant. Tourism-related firms can compete on the basis of the resources available and by keeping the prices of their products low relative to those of their competitors in other countries, earning them comparative advantage. Or they can compete by using the resources available effectively over the long term, by, for example, providing tourism-related services which are unique and offering a niche experience, building on competitive advantage. Competition also occurs via improvements in the quality of goods and services, resulting from innovations involving, for instance, superior skills and technology which are key determinants of nations' relative economic performance, providing the firm with competitive advantage (Porter and Ketels, 2003; Crouch and Ritchie in Dwyer and Forsyth ed., 2006).

These various elements are incorporated in the destination competitiveness frameworks, particularly those developed by Dwyer and Kim (2003) and by Ritchie and Crouch (2003). Focus here will first be made on the framework presented by Dwyer and Kim (2003) as it seems to be the more comprehensive, building on most of the other proposed frameworks.

Figure 2.4 Dwyer and Kim's destination competitiveness framework



Source: Reproduced from Dwyer and Kim (2003, p.378)

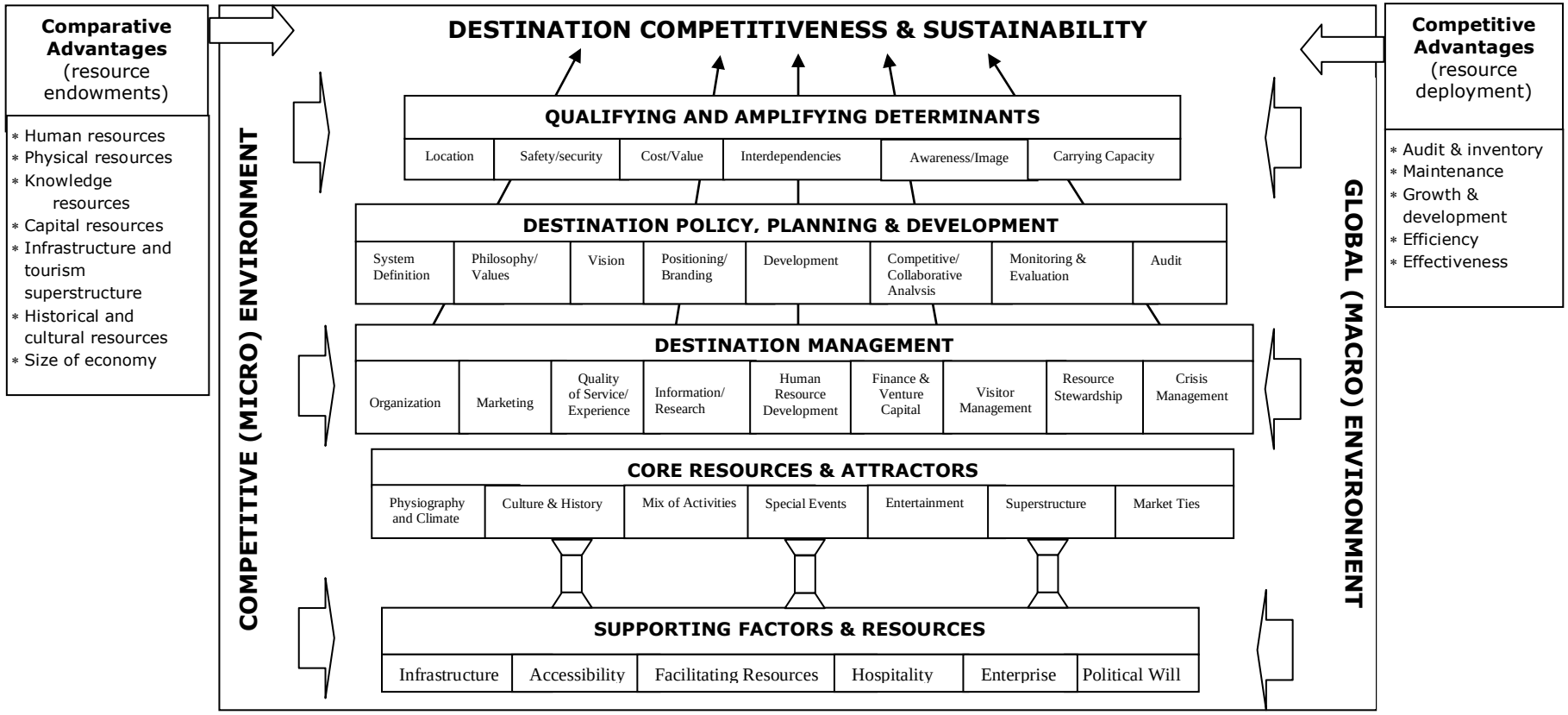
Dwyer and Kim display the main elements of destination competitiveness, including destination policy, as falling into several major categories, bringing together the main elements of national and firm competitiveness for destinations. The resources, indicated in the first larger box in Figure 2.4, provide the basis for destination competitiveness, referring to the various characteristics of a destination that make it attractive to visit and to the foundations for a successful tourism industry. Destination management factors enhance the appeal of the core resources, strengthen the quality of the supporting factors, adapting to the situational conditions. This is done through the five major elements incorporated in 'destination management', namely destination policy, planning and development, destination management organisation, destination marketing management, human resource development and environmental management. 'Demand conditions' comprises three elements: awareness, perception and preferences. Situational conditions are forces in the wider environment that influence the potential of destination competitiveness. Destination competitiveness is an intermediate goal leading toward the fundamental aim of socio-economic well-being for residents – a goal which is in line with sustainability principles, hence linking the concept of competitiveness to sustainability, adopting a long term perspective. This echoes Garelli's definition of competitiveness. The two objectives of competitiveness and socio-economic prosperity are each associated with a set of indicators (Dwyer and Kim, 2003).

Ritchie and Crouch's (2003) conceptual model of destination competitiveness, presented in Figure 2.5 identifies the attributes of

destination competitiveness. The left-hand and right-hand boxes of the model emphasise comparative advantage (endowed resources) and competitive advantage (resource deployment). The main box of the model illustrates the factors, which within the macro and micro environment, affect destination competitiveness.

The contribution destination policy, planning and development make to destination competitiveness and sustainability are thus also recognised by Ritchie and Crouch's model, which lists eight elements within this category. It is interesting to note that apart from elements that one easily associates with policy and development (e.g. system definition, vision, values, positioning/branding), this model refers to competitive/collaborative analysis and monitoring and evaluation as important elements that contribute to destination competitiveness.

Figure 2.5: General Conceptual Model of Destination Competitiveness



Source: Reproduced from Ritchie and Crouch (2003, p.63)

To summarise, Porter, Dwyer and Kim, Ritchie and Crouch all agree that policy is an influential factor of destination competitiveness, as also reiterated by Forsyth and Dwyer (2009). Whilst these competitiveness models have identified the influential factors, as Crouch and Ritchie state, "research to examine the relative importance of these factors of destination competitiveness" (in Dywer and Forsyth, 2006, p.430) is required. Some literature on this does exist and is reviewed next.

2.2.2.2 The importance of tourism policy for destination competitiveness

Building on the Dwyer and Kim and Ritchie and Crouch models for destination competitiveness, (to which reference will again be made in Chapter 8) some researchers have attempted to assess the relative importance of the identified factors. Some studies are worth mentioning here, namely that by Enright and Newton (2004, 2005), that by Lee and King (2009) and that by Crouch (2010).

In their 2004 article, Enright and Newton adopt a two-stage approach exploring the importance of each attractor and of each business-related factor and the destination's relative competitiveness on each factor. The survey results are applied to an importance performance analysis, a technique which is mainly applied in the marketing literature on destination image and attractiveness. They then extended their study to explore whether the ranking of relative importance was universal across destinations (Enright and Newton, 2005). The authors show that government policy ranked fourth from

37 business factors across all the three surveyed destinations in the Asian Pacific region. Whilst the same result is obtained across destinations for government policy and a degree of agreement among the business-related factors, the study's results indicate that the ratings for the relative importance of the tourism attractors are close but not invariant even for close competitors.

Lee and King (2009), using the Delphi technique, evaluate the importance of each of the factors with a view to provide a guiding framework for the future development of hot springs tourism in Taiwan. They rate the determinants of destination competitiveness for tourism destination resources and attractors, for tourism destination strategies, and for tourism destination environments. With respect to the tourism destination strategies, the authors concluded that

> "close coordination and collaboration across and within government and industry is the most effective and rational way…The application of sustainability principles at the enterprise level and within government policies and plans is essential."
>
> (Lee and King, 2009, p.252)

Using the judgments of experienced destination managers and tourism researchers, Crouch (2010) estimated the relative importance of the competitiveness attributes identified in the Ritchie and Crouch model (2003). Whilst, as expected, the core resources and attractors rank highest in terms of importance, given that they form the basis for attractiveness, it is worth noting that destination policy, planning and development factors are regarded to be hierarchically related to the destination management factors.

Certainly the above are worthwhile contributions. However, what is lacking in the destination competitiveness frameworks and the subsequent research on relative importance of the attributes and determinants, is a methodology by which a nation could assess its resources and hence take immediate action or adapt policy, where needed, to ensure that the result is destination competitiveness and socio-economic prosperity. Some noteworthy attempts though have been made to measure destination competitiveness and particularly conduct comparisons across destinations. These are reviewed next.

2.2.2.3 Measuring destination competitiveness

The need for measures of competitiveness has been felt both within academia and international institutions. A number of studies are being carried out by international institutions or associations with the objective of creating an ongoing record for measuring destinations' competitiveness and a measure which can be understood and used by governments and industry for trend analysis and for policy assessment. Some of these measures have adopted a multidimensional approach given that competitiveness in tourism relates to several different issues ranging from price and value-for-money issues to industry profitability to innovation levels.

In 2003, the Christel de Haan Tourism and Travel Research Institute (currently the DeHaan Institute) within the University of Nottingham developed the *Competitiveness Monitor*, providing a set of indicators for the World Travel and Tourism Council (WTTC). A number of elements which contribute to destination competitiveness were

included in this monitor through allowance for indexes for price (measuring the relative cost of travel to the countries, using room rates, purchasing power parity, and taxes on goods and services), human tourism, infrastructure, environment, technology, human resources, openness and social considerations. The Monitor used a system of 'traffic light' indicators (green, amber and red to indicate above-average, average and below-average performance, respectively) to draw attention to relative positions for the level of competitiveness of a destination. This in itself, at the time, was innovative as it focused on tourism destinations, rather than an economy's competitiveness which is what the Institute for Management Development's (IMD) World Competitiveness Index and the World Economic Forum's *Global Competitiveness Report* did at the time.

The World Competitiveness Index of the Institute for Management Development (Lausanne), using statistical and survey data, has since 1989 provided a competitiveness rating for countries. The *World Competitiveness Yearbook* (WCY) 2010 ranked 58 countries using 327 criteria. The WCY, focusing on four factors which are deemed to define a country's overall competitiveness, namely economic performance, government efficiency, business efficiency and infrastructure, looks at the relationship between a country's national environment and the wealth creation process, providing a competitiveness profile for countries (Garelli, 2004).

The Global Competitiveness Report 2009-2010 of the World Economic Forum presented a Global Competitiveness Index for 133 economies,

based on over 100 indicators which are grouped under the 12 pillars of competitiveness (institutions, infrastructure, macroeconomic stability, health and primary education, higher education and training, goods market efficiency, labour market efficiency, financial market sophistication, technological readiness, market size, business sophistication, innovation). These 12 pillars are weighted on the basis of the stage of development of the county. This index is formulated using publicly available data and an expert opinion survey. One of the advantages of such a methodology is that it can be applied to many countries whilst obtaining not only unique measures but also taking into account the informed judgements of economic players (Porter 2003).

These studies provide objective benchmarking and trends for countries, but in the case of the latter two they do not necessarily provide a yardstick for measuring the competitiveness of those countries' individual economic sectors. It is not immediately evident, for example, how competitive a country is as a tourism destination.

The World Economic Forum, recognising this gap and the role tourism plays in economies, started presenting a number of competitiveness reports for specific sectors. Since the year 2007, the World Economic Forum annually publishes *The Travel and Tourism Competitiveness Report*. Using the same methodology applied to the Global Competitiveness Index, the 12 pillars of competitiveness are grouped under 3 categories, namely the regulatory framework, the business environment and infrastructure and the human, cultural and natural resources, to produce the Travel and Tourism Competitiveness Index.

These studies have the advantage of being quite comprehensive while still being relatively simple and easy to understand, and they also have the capability of including a large sample of countries. On the other hand, they may not necessarily provide the opportunity to assess the impact of a particular policy on competitiveness. Alternative methods for measuring destination competitiveness are applied and published in the tourism literature.

Studies such as those conducted by Murphy, Pritchard and Smith (2000) and Kozak (2002) seek to provide a measure for tourist destination competitiveness through surveys conducted among tourists themselves. As part of a larger project, Kozak (2002) provides benchmarking for the destinations of Mallorca and Mugla, also through a visitors' survey wherein respondents who had visited both destinations were requested to compare a number of products and services. Similarly, Murphy, Pritchard and Smith (2000) use visitor survey data but focus on how the tourist rates "the complex amalgam of elements and experiences" (Murphy, Pritchard and Smith, 2000, p.43) which make up the destination product which is key to destination competitiveness. Identifying two components of the destination product, namely environment and infrastructure, the researchers assessed how tourists perceive quality, value and their intent to return. Tourists are well placed to evaluate elements of destination attractiveness including the services they consume. In their choice of destination, they are influenced by their perception of the destination's attractiveness which will then affect their level of satisfaction. Cracolici and Nijkamp (2009) advocate assessing competitiveness through gauging the relative attractiveness of

competing destinations on the basis of tourists' perceptions and satisfaction. Two problems in this kind of approach perhaps exist: the casualness of respondents (tourists who are on some time away) and the *je ne sais quoi* factor that certain destinations have and others do not. In addition, this methodology does not allow for the determination of cause and effect of policy decisions.

Gooroochurn and Sugiyarto (2005) discuss the *Competitiveness Monitor* and applying confirmatory factor analysis, determine the weights of the main indicators for a sample of 93 countries, and then develop country clusters of similar competitive strengths. Mazanec, Wöber and Zins, critical of this approach, argue that

> "there is a fundamental problem inherent in such an attempt to capture competitiveness, as causes and effects of competitiveness are mixed up to achieve a purely descriptive classification."
>
> (Mazanec, Wöber and Zins, 2007, p.87)

Rooting their work in the *Competitiveness Monitor* and in Gooroochurn and Sugiyarto (2005), Mazanec, Wöber and Zins (2007) attempt to transform the *Competitiveness Monitor* into an explanatory model by using a structural equation model with formative indicators, resulting in further explanations for destination competitiveness.

Destination competitiveness has also often been measured through indicators of tourism price competitiveness. This is not surprising given that price is an essential component in the overall destination competitiveness (Forsyth and Dwyer, 2009). In view of this, what

follows is a short review of the tourism literature which seeks to present measures of price competitiveness for destination competitiveness.

2.2.2.4 Measuring price competitiveness through indices

As pointed out by Forsyth and Dwyer (2009), there is widely accepted evidence that price is one of the most important factors influencing a potential tourist's decisions relating to travel and choice of destination. Destinations, therefore, have to pay particular attention to their price competitiveness since international travelers are sensitive to price.

Tourism prices are a composite of various factors reflecting the nature of tourism. The price of tourism incorporates travel costs (for example, airfare, airport charges, ticket taxes) as well as the various elements of that in which the tourist engages when at the destination. Ideally, measures of price competitiveness would take all this in account (Forsyth and Dwyer, 2009). However, given the diversity existing in tourism, this may not always be possible. Attempts have been made at constructing indices of price competitiveness of tourism destinations. Yet, there is no single, comprehensive measure of tourism price competitiveness.

The WTTC's *Competitiveness Monitor* developed a Tourism Price Competitiveness Index computed by using a hotel price index and the purchasing power parity index. The WEF Travel and Tourism Competitiveness Index uses four measures for price competitiveness:

ticket taxes and airport charges, national purchasing power parity prices, fuel price levels and a hotel price index. These indices reflect the complexity of identifying a price for tourism.

Dwyer, Forsyth and Rao (2000) construct indices of price competitiveness which compare the prices in 19 different countries (using Australia as a base country) of the goods and services that tourists actually buy, taking account of both travel cost to and from the destinations and ground costs within the destination, illustrating the origin markets for which the destination is or is not price competitive. Such a price competitiveness index for destinations, besides measuring trends, provides information on absolute and relative prices in different tourism destinations. The index also highlights those sectors which may be causing changes in overall price competitiveness through changes in prices of particular goods and services and changes in exchange rates. This provides very useful information for policy-makers who could adopt appropriate policies to address the change in price and hence influence destination competitiveness. This research is extended by the authors to

> "determine the underlying sources of price competitiveness or their relative influence on destination price competitiveness over time."
>
> (Dwyer, Forsyth and Rao, 2002, p.328)

Their method allows for the determinants of tourism price competitiveness such as exchange rate and price changes to be highlighted and their influence on the indices. It also allows for

comparison of a destination's tourism price competitiveness relative to domestic tourism in origin markets and for its overall price competitiveness relative to major competitors. Forsyth and Dwyer (2009) propose other measures of changes in price competitiveness, including a Tourism Trade Weighted Index based on the Trade Weighted Index of Exchange Rates, and the Aviation Trade Weighted Index.

As Dwyer, Forsyth and Rao (2002) state

> "information about the sources of changing tourism price competitiveness is of value to private and public sector stakeholders in the industry"
>
> (Dwyer, Forsyth and Rao, 2002, p.335)

particularly given that destination competitiveness is sensitive to government policy, through both general and specific policies (Forsyth and Dwyer in WEF, 2009).

In view of this it is quite surprising that few articles, in the tourism literature, assess the impact of generic or specific tourism policies on destination competitiveness or on price competitiveness. Admittedly, no one single approach can fully assess or assist in the formulation of a tourism policy. However, econometrics can be a useful tool in tourism policy analysis, and one would have thought that it would be more widely used and more avidly received.

2.3 Conclusion

The aim of this chapter was to review the literature on the main areas of relevance to the present study, namely policy analysis, evidence-based policy-making, the potential of econometrics for policy analysis, tourism policy and destination competitiveness. Clearly the policy process is a complex one. To assist in understanding it, scholars have developed models of the policy process. A key component of the policy process is policy analysis, with the literature distinguishing between 'analysis of policy', which covers analysis of policy determination and policy content, and 'analysis for policy' which include information for policy, monitoring and evaluation of policy.

Many academics and practitioners note that appropriate policy measures need to be underpinned by analytical research, highlighting that policy should be evidence-based. However, evidence-based policy making is not as common as it should be and certainly absent in the tourism policy literature, a gap which this thesis aims to contribute to.

Few articles in the policy or tourism literature discuss the impacts of tourism policy and, if they do, are simply limited to a descriptive approach of how tourism has developed, with little or no analytical assessment identifying causality. Even fewer articles relate tourism to the public policy theory. On the other hand, various articles indicate that the research presented is relevant to tourism policy. However,

generally, no discussion follows on how the findings can be translated into policy or how the research can inform tourism policy.

The literature clearly shows that a key objective of tourism policy is competitiveness - a broad concept and an objective which tourism destinations seek to attain. As depicted in Dwyer and Kim's (2003) and Ritchie and Crouch's (2003) destination competitiveness frameworks, the factors determining destination competitiveness are multi-dimensional ranging from inherited resources to tourism policy and strategy. Destinations, through comparative analysis or benchmarking exercises, seek to measure the performance of their destination, the relevant policies and strategies. After policy formulation and implementation, this is often done through a series of indicators, with little thought being given to evidence-based policy-making or rigorous scientific evaluation.

If both at the national level and at firm level strategic choices have to be made, tools that indicate what strategic choices need to be made are required. Such strategic choices, by governments and the private sector, aimed at influencing tourism demand in favour of one's destination can be guided by evidence forthcoming from the results of econometric models if these are adapted to policy analysis. This will be demonstrated by the empirical research presented in this thesis. The next chapter will delve into the literature on tourism demand and the economic theories and econometric models applied in this research.

CHAPTER 3: ANALYSIS FOR TOURISM POLICY THROUGH ECONOMETRICS

3.0 Introduction

The literature, as reviewed in Chapter 2, has established that policy is important for destination competitiveness. It has also recognised the relevance of econometric policy analysis. Despite this and though the need for tourism policy analysis has been identified, few examples demonstrating methodological approaches to analysing tourism policy in terms of destination competitiveness are available.

This chapter will briefly review the main economic approaches and models that have to date been applied for tourism policy analysis. It will then focus the review on specific economic theories (consumer behaviour theory and the characteristics theory of value) and related econometric models (AIDS and HP models) that are considered appropriate for competitiveness analysis and which in the empirical research are then applied in the construction of evidence for policy aimed at achieving destination competitiveness.

3.1 Analysis for policy in the tourism context

Analysis for policy, as referred to by Hill (2005), has been strongly advocated in the tourism literature (Hall and Jenkins, 1995; Hall, 2000) as well as by international organisations. For example, the Issues Paper presented at the High Level Meeting of the OECD

Tourism Committee in October 2008, emphasising the significance of policy analysis through various tools, recognised that

> "monitoring policies, evaluating instruments and measuring performance with multiple instruments are…important. Only efficient policies and instruments contribute to a higher competitiveness of a given tourism economy."
>
> (OECD, 2008b, p.4)

The resulting statement from this high level meeting, known as the Riva del Garda Action Statement for Enhancing Competitiveness and Sustainability in Tourism, and which was also published in the *OECD Tourism Trends and Policies 2010,* called for

> "implementing evaluation and performance assessment of government policies and programmes affecting tourism development."
>
> (OECD, 2008a, p.3)

Whilst one wonders why tourism policy analysis is still limited in the tourism literature, it is at the same time understandable. As mentioned in the introductory chapter, tourism studies draw from other more established disciplines, such as geography and economics. Once theories and methodologies are established in these more established disciplines, then such theories tend to be applied to tourism. In addition, as stated in the *OECD Tourism Trends and Policies 2010*,

> "the measurement and evaluation of policy outcomes in tourism is still in its infancy because measurement tools and performance measures are still under development."
>
> (OECD, 2010, p.75)

Though not without debate, the value of econometrics as a tool for policy analysis has long been recognised (as outlined in Chapter 2, Section 2.1.5 ranging from Tinbergen, 1936; Lucas, 1976; Heckman, 2001; Schmidt, 2007 to Cho and Rust, 2008). Whilst the tourism literature is not at all limited in the use of econometrics, there exists a gap in analysing tourism policies through econometrics. Dye (2005) argued that greater attention should be given to the study of public policy to understand the causes and consequences of policy decisions and to ensure that the appropriate policies are adopted to achieve the set goals. Econometrics has the potential to contribute to this in the field of tourism - to study the effect of past policies, point to possible policies and predict outcomes of future policies. As Song and Li state,

> "as far as tourism demand is concerned, econometric analysis has its empirical usefulness in interpreting the change of tourism demand from an economist's perspective, proving policy recommendations as well as evaluating the effectiveness of the existing tourism policies."
>
> (Song and Li, 2008, p.211)

If this approach were more widely applied to tourism, it would contribute to an evidence-based approach to policy-making in tourism.

An important consideration for tourism policy is tourism demand as it is one measurement for assessing the success of a tourism policy aimed at destination competitiveness. Tourism demand analysis is a major theme in tourism research, as evidenced through the reviews on tourism demand modelling presented by Johnson and Ashworth (1990), Crouch (1994a, 1994b), Witt and Witt (1995), Lim (1997), Li, Song and Witt (2005), Song and Li (2008). According to Li, Song and

Witt (2005), during the period 1960 to 2000, 420 studies on tourism demand modelling and forecasting were published. Song and Li (2008) review a further 121 studies on the topic which were published between the year 2000 and 2007. These studies present a number of techniques, both quantitative and qualitative. Econometrics has been applied in a number of these studies to understand tourism demand. Some have applied system of equations models: vector autoregressive (VAR) model (Song, Witt and Li, 2003; De Mello and Nell, 2005; Song and Witt, 2006); cointegration and error correction (ECM) model (Song, Witt and Jensen, 2003; Dritsakis, 2004); almost ideal demand systems (AIDS) model (Papatheodorou, 1999; De Mello, Pack and Sinclair, 2002; Divisekera, 2003; Durbarry and Sinclair, 2003; Li, Song and Witt, 2004; Han, Durbarry and Sinclair, 2006). Others used single-equation models such as a panel data model (Ledesma-Rodríguez, Navarro-Ibáñez and Pérez-Rodríguez, 2001; Naudé and Saayman, 2005; Garín-Muñoz, 2007); structural time-series model (Kulendran and Witt, 2003; Blake, Durbarry, Eugenio-Martin, Gooroochurn, Hay, Lennon, Sinclair, Sugiyarto and Yeoman, 2006); or time-varying parameter (TVP) model (Song and Wong, 2003; Li, Wong, Song and Witt, 2006) besides other techniques. These studies have sought to provide a better understanding of tourism demand through modelling and forecasting. Yet, tourism policy, rarely, if ever, features as a determining factor or as a variable influencing tourism demand.

Similarly, in the practitioners' world, much effort by governments and international organisations has gone into developing Tourism Satellite Accounts (TSA), which whilst affording governments a better

understanding of economic dynamics of tourism and industry to understand tourism-related purchases (Miller in WEF, 2009), remain essentially a statistical accounting method measuring the contribution of tourism to an economy (OECD, 2010). TSA tend to be very limited in measuring the impact brought about by tourism policies on tourism demand and on key parameters such as gross value added and employment.

The Computable General Equilibrium model is more appropriate for such policy analysis and particularly for modelling the economic impact of tourism, as depicted in empirical work found in the literature (Blake, Durbarry, Eugenio-Martin, Gooroochurn, Hay, Lennon, Sinclair, Sugiyarto and Yeoman, 2006; Blake, Gillham and Sinclair, in Dwyer and Forsyth, 2006). CGE has its benefits in that it is sufficiently flexible to conduct 'what-if' simulations, examining the economic effects of existing policies of tourism or proposed alternatives; providing a theoretical viewpoint or an applied quantitative estimate; examining fiscal policies or planning regulations; and examining the effects of tourism policy or the effects of other policies on tourism.

Analysis for policy in tourism seems to have been applied mainly through the use of Computable General Equilibrium (CGE) modelling. Evaluation for policy making is an interesting theme within tourism economics as evidenced by the section wholly dedicated to this topic in the *International Handbook on the Economics of Tourism*, edited by Dwyer and Forsyth (2009). The articles presented in this section reflect that the measurement of the size, contribution and impacts on

the economy of tourism have been the main focus and area of interest in analysis for tourism policy-making. However, CGE modelling does little to assess a destination's competitiveness vis-à-vis other destinations.

Other econometric models have been applied in tourism to assess destination competitiveness. Yet, here again, policy does not feature often in such models. Whilst some studies provided inter-country patterns of competitiveness performance (Alavi and Yasin, 2000; Dwyer, Forsyth and Rao, 2000; Mangion, Durbarry and Sinclair, 2005; Mazanec, Wöber and Zins, 2007), others have focused on the specific factors that determine tourism competitiveness (Dwyer, Mellor, Livaic, Edwards and Kim, 2004; Enright and Newton, 2005; Gooroochurn and Sugiyarto, 2005). Missing from studies which seek to measure destination competitiveness are, according to Mazanec, Wöber and Zins (2007), the 'cause and effect elements'. Exceptions are the studies presented by Mangion, Durbarry and Sinclair (2005) and Mazanec, Wöber and Zins (2007). Mangion, Durbarry and Sinclair's (2005) article seeks to evaluate the competitiveness of destinations in the Mediterranean through the use of econometric models – an approach which as stated by Mazanec, Wöber and Zins "involves principled reasoning and cause-effect relationships" (2007, p.87).

Evidently, econometrics has been widely applied to tourism, including to either assess or forecast tourism demand, or to examine competitiveness performance — with a common conclusion being that the findings are of relevance for policy. What is missing in the

literature, however and in spite of the potential of econometrics for this purpose, is the application of econometrics to evaluate tourism policy in terms of its effect on destination competitiveness or to formulate tourism policy with the aim of achieving competitiveness. As will be further discussed in the course of this thesis, this would be useful for both the public and private sectors as it has the potential to "highlight opportunities for tourism development and to develop strategies to combat potential threats for future visitation" (Lee and King, 2009, p.244 citing Dwyer, Mellor, Livaic, Edwards and Kim, 2004).

On the basis of this raison d'être for econometric policy analysis, the econometric models applied and presented in this thesis aim at presenting analysis for policy, i.e. policy evaluation (post-hoc analysis) and information for policy (research to direct policy), using Hill's (2005) explanation of the different kinds of policy analysis (refer to Chapter 2, Table 2.1). The post-hoc analysis estimates the effect of the specific policy on tourism performance measured through tourism demand, the resulting extent of the market's responsiveness to demand determinants and the resulting extent of influence of complementary or substitute destinations. For this purpose, the AIDS model is applied. The AIDS model is a system of equations demand model which allows for the estimation of price and income elasticities, which when applied in a tourism context, measures destinations' relative price competitiveness.

Secondly, the research directing policy aims at noting those elements within a tour operator package which influences destination

competitiveness through pricing and the components of the offer presented in tour operator packages. The Hedonic Pricing (HP) model is here used to identify the relevant characteristics and measure the significant effects on package holiday prices. The results obtained from this model not only throw light on that which can make a holiday package more price competitive but also point to the characteristics which will enhance a holiday package. The effect of relative prices on prices will be examined along with the effect of the tourism policy measure on package prices.

Further elaboration on justifications will be provided for the choice of models in the next chapter. At this stage, it is important to point out that these two econometric models (AIDS and HP models) were chosen not only because they allow comparability across destinations and provide insights into factors that affect competitiveness but also because they are grounded in economic theory.

In view of the above and since achieving destination competitiveness implies results in terms of tourism demand, what follows in the next section is an outline of the literature considering tourism demand and its determinants. This is then followed by a description of the economic theories underlying the econometric models applied in the empirical research demonstrating analysis for tourism policy through econometrics.

3.1.1 Tourism demand and its determinants

Tourism demand may be defined and measured in a number of ways using tourist arrivals/departures, tourist expenditure/receipts, length of stay, nights spent at tourist accommodation and other measures. For this reason it is essential that, at the outset, a definition for *tourism demand* is considered. This leads to what unit of measurement is to be used to quantify such a demand and changes in the level of demand.

> "Tourism demand for a particular destination may be defined as the quantity of the tourism product (that is, a combination of tourism goods and services) that consumers are willing to purchase during a specified period under a given set of conditions."
>
> (Song, Witt and Li, 2009, p.2)

In measuring demand, reference is made to the concept of "quantity". For any other good (e.g. personal computers), the quantity demanded would reflect a physical quantity (e.g. number of personal computers). However, applying such a quantitative measure to tourism demand is not as straightforward and may prove to be difficult to define. This is because the demand for tourism is a combination of demands for a series of services which support tourism activity. It encompasses the combined demand for transportation (between the origin and destination, as well as within the destination), accommodation, food and beverage services, tour operation and travel agency services, recreation, entertainment, guiding services, shopping and other travel-related services. Most of these goods and services are privately produced and dispensed. Another aspect of tourism demand is the demand for domestic

tourism goods and services (Divisekera, 2010). Furthermore, tourism demand also incorporates a series of demands for "public goods generally available for free use, such that one person's use does not reduce or exclude use by another person" (Morley, 1992, p.252). Such public goods may include security, infrastructure, natural resources and scenic views. For tourism demand to be measured, the quantities demanded of these various services have to be taken into account. Due to this collective nature of demand for tourism, a common base for measurement is required, implying the need to identify an indicator to act as this common base.

This indicator has to relate to a particular time span. As indicated by Song, Witt and Li's (2009) above definition, the element of time, "during a specified period", and the flow "for a particular destination" from the source market have to be defined. Tourism demand may be examined for individual or groups of countries, regions and areas (e.g. Malta, Balearics, Mediterranean), for different types of tourists (e.g. by age group), for types of tourism product (e.g. conference and incentive travel, nature appreciation tours, sports events), for specific components of tourism services (e.g. air transport, accommodation, attractions), for different seasons (e.g. tour operator seasons: summer and winter), for different time periods (e.g. monthly, annually).

Most of the literature (reviewed by Johnson and Ashworth, 1990; Crouch, 1994a; Crouch, 1994b; Sinclair and Stabler, 1997; Lim, 1997; Li, Song and Witt, 2005, Song and Li, 2008) focuses on demand for tourism on a national level using time-series data, often

on an annual basis, applying the number of tourist arrivals or departures flowing from an origin country to a foreign destination country as the measure for international tourism demand.

This quantitative measure – the number of tourists[1] - is the more commonly used indicator, particularly due to ease of measurement or estimation. Other indicators sometimes used include the number of 'trips' or 'guestnights', total 'expenditure' or 'revenue'. Though 'tourist expenditure' is less frequently used than 'tourist arrivals', it is felt that tourist expenditure is a more appropriate indicator. It measures not only flows but also earnings from tourism, which is one of the major reasons for which economies engage in tourism as a result of the financial stimulus it provides to the economy. Total tourism expenditure thus incorporates the activities tourists are engaged in, willing to pay for, and actually consume, rendering it of relevance to tourism demand analysis. Sometimes, due to unavailability of expenditure data or of proper time-series, this indicator is frequently not applied to demand analysis. The value of tourist expenditure, expressed as seasonal or monthly frequencies, as a measure for tourism demand is increasingly recognised and applied, as in Cortés-Jimenez, Durbarry and Pulina (2009) and in Cortés-Jimenez and Blake (2010).

How tourism demand should be measured is the specific theme explored and tested in Song, Li, Witt and Fei (2010). By comparing tourist arrivals and tourist expenditure, in both aggregate and per

[1] The World Tourism Organisation defines a tourist as "any person who travels to and stays in places outside his/her usual environment for not more than one consecutive year for leisure, business and other purposes not related to the exercise of an activity remunerated from within the place visited".

capita forms, in the context of econometric modelling and forecasting, they conclude that aggregates should be used and that the choice of demand measure should depend on what the tourism policy objective is, paying attention to "the particular measure of tourism demand of interest and its corresponding economic determinants" (Song, Li, Witt and Fei, 2010, p.79).

Of relevance to demand analysis are measures of elasticity which quantify the changes in the level of demand (whatever the indicator used to measure this) resulting from a change in a particular explanatory variable. For example, *price elasticity* refers to the percentage change in the quantity demanded of a particular good as a result of a 1% change in price of that good. *Cross-price elasticity* is defined as the percentage change in quantity demanded as a result of a 1% change in the price of a substitute or complementary good. The percentage change in the quantity demanded as a result of a 1% change in income is referred to as *income elasticity*. Reference to elasticity estimates will again be made in the exposition on economic theory and demand modelling. At this stage, it will suffice to mention that two types of price elasticity can be calculated through models based on consumer demand theory: uncompensated and compensated price elasticity.

> "The uncompensated price elasticities indicate how a percentage change in the price of one good affects the quantity demanded of that good and each of the other goods. The compensated price elasticities measure these effects assuming that real expenditure is held constant."
>
> (White, 1985, p.533)

The concept of *elasticity* directs the argument to the elements which influence tourism demand, such as price and income. Tourism demand is influenced by people's preferences, their expenditure budgets, the relative prices of tourism and other goods or services. If the price of tourism decreases, the level of tourism demand would normally be expected to increase. This leads to prices affecting a person's budget allocation. The size of the budget itself does not only depend on price, however. It depends on the number of hours spent in paid work per time period, the income per hour and the taxation rate. As a result of the substitution effect, it is expected that an increase in effective remuneration per hour encourages a person to substitute higher paid work and higher consumption for unpaid time. A person can use higher earnings from a given amount of paid work time to purchase more goods while simultaneously taking more unpaid time. This is referred to as 'the income effect'. The growth in tourism activity that has taken place in the last decades is due to these elements of increased leisure time, increased accessibility to a number of destinations, more affordable transport means and a series of motivational reasons, such as people's desire to seek new experiences and get away from daily routine.

The influence of these elements affects the level of tourism activity in a destination. This, if considered to be just like any other product, goes through a product life-cycle. Butler (1980), as referred to in Rodríguez, Parra-López and Yanes-Estévez (2008), describes a number of stages which may characterise the development of the destination: discovery; development; consolidation; stagnation and then decline, which may be followed by rejuvenation as a result of

the destination's investment or new policies. This life-cycle theory, referred to again in Chapter 5, applied to tourism assumes that the destination concerned "has entered the mass market and is no longer the exclusive privilege of the rich" (Ayres, 1998, p.358). At this stage, consumer choice plays an important role in determining demand for a destination. This choice is driven not only by price but also by fashion and trends initiated by travel writers, advertising agencies, and tour operators and by word-of-mouth advertising.

3.1.1.1 Determinants of tourism demand

Reviews such as those published by Crouch (1994a, 1995), Lim (1997), Sinclair and Stabler (1997), Song and Li (2008) indicate that the primary focus of the literature on tourism demand was initially on the identification of the factors which determine tourism demand, neglecting, to a certain extent, economic theory. Crouch (1994a), in conducting a very comprehensive review of the literature on international tourism demand determinants, refers to the variety of potential demand determinants, which have been taxonomised by various authors (Noval, 1978; Vanhove, 1980; Mikulicz, 1983) into different classifications, some of which are analogous. The more recent classification presented by Dwyer, Forsyth and Rao (2000) categorises the determinants of demand into:

- *socio-economic and demographic factors* (such as population, income in the source country, leisure time, education and occupation);

- *qualitative factors* which reflect changing fashion and tastes (tourist appeal, image, quality of tourist services, destination marketing and promotion, cultural links);
- *price factors*, which include the cost of transport to and from the destination and the cost of staying in the destination (accommodation, food and beverage, entertainment, touring, etc).

Though policy can impact tourism demand either directly or through its impact on the listed determining factors, it is surprising that it is not included in the economic and non-economic factors referred to in such classifications.

Empirical econometric demand studies primarily model the economic determinants of demand. A variety of economic determinants have been identified including income in the source country, relative prices, exchange rates, transport costs, promotional expenditure by the destination country in the source market, and specific events such as special mega-events and political unrest (Song and Witt, 2000; Song and Turner, 2006; Blake and Cortés-Jiménez, 2007; Cortés-Jiménez and Blake, 2010). Tastes and preferences, though not strictly economic influences, have also been included as determinants in economic studies on tourism demand. Other factors such as geographical proximity of markets, the level of development, tourism infrastructure, common border and language have also been included (Seetanah, Durbarry and Ragodoo, 2010). In line with classical economic theory, which places income and price factors as the most influential determinants of tourism demand, Song and Li's review demonstrated that

> "As far as the influencing factors are concerned, recent econometric studies of tourism demand have shown that tourists' income, tourism prices in a destination relative to those in the origin country, tourism prices in the competing destinations (i.e. substitute prices) and exchange rates are the most important determinants of tourism demand."
>
> (Song and Li, 2008, p.211)

What follows is an explanation of how each of these variables influences tourism demand together with an analysis of the literature which has included such determinants in demand models.

Income

The income variable features in most of the studies on demand analysis due to its effect on the ability to pay for travel. Crouch (1994a), who conducted a series of tourism demand literature reviews, estimates that 89% of the 85 articles he reviewed include income as an independent variable in the tourism demand models. This is confirmed by Lim (1997) and by Li, Song and Witt (2005) in their reviews. As indicated by Sinclair, Blake and Sugiyarto (2003) and Lim (2006), the income variable is often included in demand models in its per capita form. Demand theory implies that as per capita income increases, people will tend to travel more. Other studies have used total disposable income or total national income (Gross National Product, GNP). Various empirical studies have indicated that the responsiveness of tourism demand to income is generally positive (for necessities or luxuries) and highly elastic (typically higher than one), putting tourism products in the luxury category. Income elasticity will however be negative for inferior goods and services forming part of the tourism product. This follows a priori expectations based on the law of demand and on the realisation

that income is necessary for travel. The majority of the tourism demand studies have taken into consideration solely current income simply reflecting consumer behaviour which is neither backward nor forward-looking (Stabler, Papatheodorou and Sinclair, 2010). However, this necessitates information concerning income changes over time and on how people formulate their expectations (Stabler, Papatheodorou and Sinclair, 2010).

Relative prices and tourism prices: transport costs, cost of living, exchange rates

Economic theory postulates that price is highly influential on demand, implying that the price variable must be included in tourism demand studies. In general and in accordance with the law of demand, price for any normal good is inversely related to the quantity demanded and the higher the price, the lower is the quantity demanded. Tourism demand not only depends on its own price but also on that of other goods and services. Though tourism can be a substitute or a complement to other goods, with the result that the price of other goods and services influences tourism demand, this is often ignored in empirical tourism demand studies (Stabler, Papatheodorou and Sinclair, 2010) with Divisekera (2010) being an exception. Furthermore, the demand for a destination is influenced by the price of other destinations, which may be either complementary or substitute destinations. Many studies either ignore the fact that consumers choose between a range of tourism products and destinations, or if included do not provide a rationale for the range selected (Stabler, Papatheodorou and Sinclair, 2010). This is however

incorporated in consumer behaviour theory and in applied system of equations models.

A measure for the price of tourism is not straightforward as there are three aspects of price: transportation cost, cost of living at the destination and exchange rates or real effective exchange rates. The cost of transport, particularly in the past and prior to the revolution in transport brought about by low-cost air travel, was a major component in travel expenditure and influenced the consumer's decision to travel and the choice of destination. Half the demand studies published prior to 1997 included travel costs as explanatory variables (Crouch, 1994a; Lim, 1997). The theoretical justification for including transport costs as a demand determinant is undeniable but due to lack of available data and multicollinearity in ordinary least squares regression, this variable is often excluded (Li, Song and Witt, 2005; Lim, 2006). The various means of transport and the complex fare structures create difficulties for adopting an exact measure to reflect transport costs. However, Song and Witt (2000) state that representative air fares between origin and destination for air travel, and representative petrol costs and/or ferry fares for surface travel may act as an approximate measure of transport cost. Obtaining a measure for air transport costs for destinations having a high share of incoming package travel provides additional complications. This is because total package costs would need to be split between airfares and accommodation, besides other services. Whilst not underestimating the fact that transport cost from and to a destination is a demand determinant, Stabler, Papatheodorou and Sinclair (2010) indicate that it is not surprising that generally transport price

variables were insignificant when included in tourism demand studies. They advise more caution in including transport as a possible determinant of tourism demand, suggesting more detailed theoretical and empirical investigation.

The cost of living at the destination is another determinant of tourism demand. Often, in the absence of a Tourism Price Index (TPI), the Consumer Price Index (CPI) is used as a proxy for the tourists' cost of living in the destination. The exchange rate between the source market and the destination is a variable that, though not common practice, has sometimes been used separately in tourism demand functions (Sinclair, Blake and Sugiyarto, 2003) because, it is argued, tourists are more aware of the exchange rate than of the destination's cost of living. Potential travellers may have informed or incorrect perceptions, which may influence their choice of destination. However, as Lee, Var and Blaine point out "it is unclear whether the inclusion of exchange rates is statistically significant in describing international tourism demand" (1996, p.533).

Martin and Witt (1987) showed that an exchange rate-adjusted CPI is a reasonable proxy for the TPI, but exchange rates alone are not good enough proxies for relative prices. A quick review of the literature indicates that the exchange rate-adjusted CPI is the most common proxy for tourism price applied in demand models (e.g. Garín-Muñoz, 2007; Ouerfelli, 2008; Guizzardi and Mazzocchi, 2010).

Prices of substitutes also act as demand determinants. The desire for substitutes does not solely depend on price competition but also on

the characteristics of quality, innovation and reliability, and on the elements which differentiate one destination from another (Ayres, 1998). In most tourism demand studies, substitute prices are restricted to tourists' destination living costs. Substitute travel costs are often excluded from demand functions, though theoretical justification exists for its inclusion.

Marketing expenditure

Promotional expenditure, particularly that incurred by national tourism organisations and which is destination specific, can be considered as a determinant for tourism demand. However, possibly due to the unavailability of the required data, this variable has been included in few tourism demand functions. Only 8 out of the 124 published tourism studies reviewed by Lim (2006) included marketing expenditures as an independent variable. The influence of marketing on tourism flows necessitates consideration of the *relative* impact of advertising by the destination country and that by competitor countries in the same source market (Johnson and Ashworth, 1990) and the finding that

> "effectiveness of advertising varies between origin countries, appearing to decrease as a function of distance between the origin and destination."
>
> (Crouch, 1994b, p.15)

Special events and dummy variables

Tourism demand is further determined by specific one-off events. These events may include major attractions, natural catastrophes, political unrest, international crises, terrorist attacks and developments, such as membership into the European Union and

adoption of the Euro. These specific events and seasonal effects are generally included in a tourism demand econometric function through the use of dummy variables as in Cortés-Jiménez, Durbarry, and Pulina (2009) and in Cortés-Jiménez and Blake (2010). This indicates the flexibility dummy variables provide in modelling some of the unquantifiable factors which influence demand.

Tastes and preferences

Consumers' tastes and preferences are generally influenced by socio-economic factors such as age and education, and change as a result of innovation, consumer awareness, advertising and fashion. The inclusion of this determinant in a tourism demand function is often done through a time trend variable. This however leads to some interpretation problems of the results, as it is not clear which time-dependent effects the time trend is capturing. Consequently, the prevailing approach in econometric demand modelling is not to include a time trend as an explanatory variable.

Lagged variables

As Song and Witt (2000) stated, tourist expectations (generated through, for example, word of mouth advertising, previous visits), habit persistence and supply constraints (such as limits on air seat capacities or shortage of accommodation) also influence tourism demand and are reflected in tourism demand functions by lagged dependent variables. The inclusion of lagged variables may be appropriate in tourism demand functions because the purchase of a visit to a destination is made prior to consumption. The choice and

decision is made not at the time of consumption but at the time of booking.

The time trend, dummy and lagged variables may be considered as a means to modelling some of the non-quantifiable determinants of demand. These would otherwise be incorporated in the disturbance term that captures all other factors which may influence the quantity of the tourism product demanded.

The determinants of demand reviewed above have been identified in the literature through classical economic theory, the law of demand and empirical tourism demand studies. Particularly through the econometric approach of single-equation models, they have helped explain and measure the relationship between tourism demand and its determining factors. Microeconomic theory of consumer behaviour, including the decision-making process, macroeconomic literature relating to consumption, and intertemporal demand were thereafter integrated in the literature. Since then the theory of consumer behaviour has led to further developments in tourism demand analysis and applied econometrics. This theory is discussed next.

3.1.2 Consumer behaviour theory and the AIDS model

Comparisons of one destination's tourism demand with that of other destinations are important if one is to assess the competitiveness of a destination; that is because, self-evidently, a destination is competitive relative to its competitors and so the substitutability between destinations is worth examining. Econometric analysis

intended for a better understanding of destination competitiveness needs to reflect destination substitutability.

It is the theory of consumer behaviour that acknowledges such substitutability. It recognises that the consumer is faced with various options but choices are limited by prices and income. An econometric model that is grounded in this economic theory is the AIDS model, which as stated by Song and Li (2008), is suitable for destination competitiveness analysis. The theory of consumer behaviour is described in the next section followed by a review of the literature on the AIDS model.

3.1.2.1 The theory of consumer behaviour

The theory of consumer behaviour, which evolved from the work of Samuelson (1938), Lancaster (1996), Deaton and Muellbauer (1980), amongst others, aims to explain how a rational consumer, aiming to maximise utility, chooses what to consume when faced with a set of prices and limited income. The consumer, consequently, allocates expenditure in such a way as to maximise utility. The relationship between price changes and consumer demand, and therefore substitution and income effects, underlie this theory.

The set of opportunities available to the consumer is the starting point for consumer demand analysis. Based on the ordinal utility approach, the theory of consumer behaviour implies that the axioms of choice are fulfilled (Deaton and Muellbauer, 1980). These four axioms of choice relate to:

i. a preference ordering;

ii. the utility function;

iii. utility maximisation and

iv. indifference curves.

A consumer's preference ordering is based on reflexivity (i.e. each bundle of goods/services is as good as itself), completeness (or comparability) and transitivity (i.e. consistency of choice). These axioms and that of continuity (i.e. small differences matter only a little) lead to the utility function, which is maximised if the axiom of non-satiation is fulfilled. Convexity points to indifference curves being convex to the origin, setting limits on the choice of goods.

The theory placed importance on the choices available to the consumer but a notable contribution to consumer behaviour theory was made in 1980 by Deaton and Muellbauer. Greater emphasis on the limits to choice rather than on the choices themselves was made as "the part played by preferences in determining behaviour tends to be overestimated" (Deaton and Muellbauer, 1980, p.3). The strength of their argument lay in that variations in behaviour are traceable to variations in opportunities, which are directly observable and consequently can be modelled.

The following concepts, as explained in Deaton and Muellbauer (1980), are fundamental to consumer behaviour theory:

1. *Limits to choice*: a consumer is faced with a set of opportunities and has to choose, as he/she cannot satisfy all his/her wants due to constraints imposed by available budgets;

2. *Preferences*: a consumer has a set of preferences which he/she exercises when making a choice;
3. *Utility function*: the choices a consumer makes and the resulting preferences are such that utility is maximised;
4. *Properties of demand*: adding up, homogeneity, symmetry and negativity, each of which places particular restrictions on consumer demand:

   a) Adding up

   A consumer will always adopt criteria of some sort for deciding how much of each good to purchase when faced with given prices and total outlay. This assumes a simple linear budget constraint expressed as

   $$x = \Sigma_k \, p_k \, q_k \qquad (3.1)$$

   whereby the total expenditure x is equal to the summation of the multiplication of the price *p* and quantities *q* purchased for each good and service *k*. This implies the relationship wherein the quantity purchased is a function of total expenditure and prices, known as the Marshallian demand function

   $$q_i = g_i \, (x, p) \qquad (3.2)$$

   where q_i the quantity purchased for individual *i* is a function (*g*) of total expenditure *x* and prices *p.* The budget limitation places a constraint, referred to as the adding-up restriction, on the demand function, g_i (for the individual *i*):

   $$x = \Sigma_k \, p_k \, g_k \, (x, p) \qquad (3.3)$$

   The consumer seeks to maximise utility and minimise cost, implying that quantities purchased are a function of utility and prices. This relationship is referred to as the Hicksian or compensated demand function:

$$q_i = h\ (u, p) \qquad (3.4)$$

where q_i refers to the quantities purchased by individual *i*, u to utility and p to prices.

The adding up property requires that the total value of Hicksian and Marshallian demand functions is total expenditure:

$$\Sigma\ p_k\, g_k\ (x, p) = x = \Sigma\ p_k\, h_k\ (u, p) \qquad (3.5)$$

implying that the sum of individual expenditures is equal to total expenditure.

b) Homogeneity

Irrespective of the units in which prices and expenditure are expressed, a proportional change in expenditure and all prices has no effect on quantities purchased or the budget allocation. This implies that prices and outlay have no influence on the consumer's choice except for determining the budget constraint. Therefore, for any number θ and for all *i* from 1 to n,

$$g_i\ (\theta x, \theta p) = g_i\ (x, p) \qquad (3.6)$$

This constraint is known as the homogeneity restriction (i.e. prices are homogeneous of degree zero). This is however violated if the quality of a good is judged by its absolute price, as in the case of Veblen goods. If however, quality is judged by a good's relative price, the homogeneity restriction is still maintained.

$$h_i\ (u,\theta p) = h_i\ (u, p) = g_i\ (\theta x, \theta p) = g_i\ (x, p) \qquad (3.7)$$

Whilst the adding up and homogeneity restrictions are a consequence of a linear budget constraint being specified, the

properties of symmetry and negativity are a result of consistent preferences on the part of the consumer.

c) Symmetry

Another basic property of demand functions is that of symmetry. The cross-price derivates of the Hicksian demands are symmetric, for all $i \neq j$

$$\partial h_i (u, p) / \partial p_j = \partial h_j (u, p) / \partial p_i \qquad (3.8)$$

meaning that the consumers' choices are consistent.

d) Negativity

The fourth property of a demand function is based on the law of demand: a compensated demand function can never slope upwards, implying that if a good's price falls and utility is held constant, demand for that good must increase or at least remain unchanged. The price derivative resulting from a demand function identifies the nature of the good, it being a normal good, an inferior good or a Giffen good. If the price derivative between two goods is positive, then the two goods are substitutes; if negative, then the goods are complements.

When utility maximisation is assumed, the resulting demand functions are expected to add up, be homogeneous of degree zero, have symmetric and negative semi-definitive compensated price responses. If these properties are tested empirically and hold, then a preference ordering, which is a consequence of utility maximisation, would have been defined.

In addition, the consumer's decision is based on perfect information which, it is assumed, he/she has, and which allows him/her to adapt to changing prices. Consumer behaviour theory also takes into account intertemporal demand and the interdependence of interrelated commodities, and incorporating the concepts of separability and stepwise budgeting. These concepts are explained through an application to the tourism context.

Consumer behaviour theory in the tourism context

Applied to a tourism context, consumer behaviour theory implies that a consumer is faced with opportunities for choice among a number of destinations. Due to budget constraints, the rational consumer allocates his/her budget based on the restrictions outlined above. Consequently a preference ordering for the destinations would have been made and the consumer would thus ensure maximisation of utility. Behaviour may also be explained by household characteristics, according to Deaton and Muellbauer (1980). This is of particular relevance to tourism due to the fact that generally tourists travel as households or in groups (e.g. couples, family with young children), which influences the decision-making process. Equivalence scales assist in deriving comparisons of welfare or real income across households of different sizes and compositions, mirroring what is observable in day-to-day life. The use of equivalence scales assumes that the only differences in tastes between households arise from variations in observable characteristics.

A further opportunity facing consumers is whether to purchase now or later. This reflects liquidity constraints for the consumer and assumes

that consumers are neither forward nor backward looking - an erroneous assumption.

> "The [intertemporal choice] theory can take account of the fact that demand decisions are often made in the context of imperfect information, unforeseen events, expectations about the future and liquidity constraints which limit current consumption. The theory of intertemporal choice allows consumption to depend on any combination of current, future and/or past income, so that the assumption that it depends solely on current income becomes a special case within a more general model."
>
> (Stabler, Papatheodorou and Sinclair, 2010, p.51)

In tourism demand analysis, this opportunity of intertemporal decisions facing consumers is of even greater relevance. The choice of taking a holiday may be made well in advance to the actual consumption of that holiday, implying that a demand decision may be based on past or future income or expectations, affecting not only consumption but also its timing. Lagged variables - rather than, or in addition to, current values - may therefore be more appropriate for such consumption patterns.

This leads to the concept of separability. At any given time, the consumer deals with current assets, current and future income allocated over durable and non-durable goods for current and future periods. Furthermore, he/she allocates time between work and leisure, in the present and in the future. This is clearly observed through the decision to travel. It is assumed that the decision on the allocation of total current expenditure into various broad categories of goods can be made separately from the decision of how to arrange the intertemporal flow of expenditure. Preferences for current goods need to be separable from the allocation of leisure and of

consumption in other periods if demands are functions only of current prices and total expenditure on these goods.

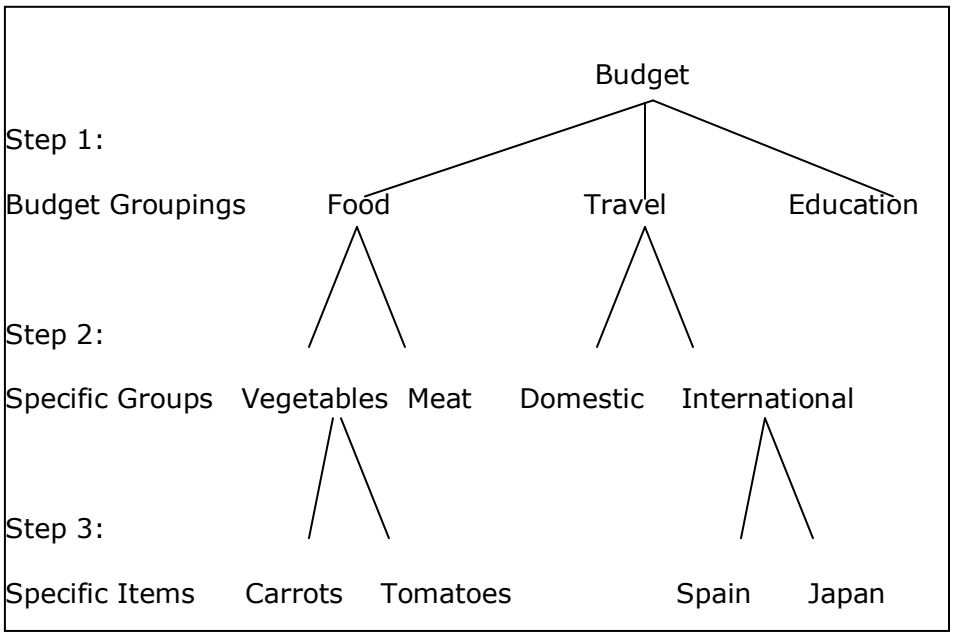
Sadoulet and Janvry describe the idea of separability as "intuitively appealing" (1995, p.5). Commodities and services which interact closely to yield utility are grouped together, whilst those which interact simply through the budget constraint may be considered as separate groups. If relative prices are largely independent of the pattern of demand, at least in the long run, then close substitutes in production are to be grouped together. However, the structuring of commodities may not be done only through an external factor such as the constancy of relative prices. To define commodity groupings, the separability of preferences may be used: preferences within groups can be described independently of the quantities in other groups. Each group can have a sub-utility function and the values of each sub-utility (e.g. food, education, travel) combine to give total utility as follows:

$u = v(q_1, q_2, q_3, q_4, q_5, q_6) = f\,[v_F\,(q_1, q_2),\, v_E\,(q_3, q_4),\, v_T\,(q_5, q_6)]$ (3.9)

where $q_1, q_2, q_3, q_4, q_5, q_6$ relate to different quantities of goods, $v_F\,(q_1, q_2)$=sub-utility function of food items, $v_E\,(q_3, q_4)$=sub-utility function of education items, $v_T\,(q_5, q_6)$=sub-utility function of travel, for example.

This is linked to the concept of stepwise budgeting in relation to choices made by the consumer, depicted in Figure 3.1.

Figure 3.1: Separability and step-wise budgeting



Source: Own compilation adapting example from Deaton and Muellbauer (1980)

The consumer allocates total expenditure in stages: at the first or higher stage, expenditure is allocated to broad groups of goods. These budget categories may include, among others, groupings such as food, education and travel. At this stage, allocation is possible given knowledge of total expenditure and appropriately defined group prices. The next or lower stage of budgeting involves that the income allocated to each grouping is sub-divided among specific groups within that budget category and then to individual items within that group. Individual expenditures must be functions of group expenditure and prices within that group only. The results of stage-budgeting must be identical to what would occur if the allocation were made in one step with complete information. A preference ordering is here implied and when "the conditional ordering on goods in the group is independent of consumption levels outside the group, the group is said to be separable" (Deaton and Muellbauer, 1980, p.127).

It is this theory of consumer behaviour further developed by Deaton and Muellbauer (1980) that is particularly relevant to any study on tourism demand. Deaton and Muellbauer in their book *Economics and Consumer Behaviour* (1980) provide a detailed explanation of how demand theory was applied in different models: Stone's approach, the linear expenditure system, the Rotterdam model. These models however, had a number of limitations when applied to empirical data. These limitations were overcome when Deaton and Muellbauer developed the then innovative theoretical Almost Ideal Demand System (AIDS) model, which in comparison to the Rotterdam or translog models, possessed all the desirable properties simultaneously (Deaton and Muellbauer, 1980). The AIDS model is now considered to be the most flexible form for representing consumer preferences (Stabler, Papatheodorou and Sinclair, 2010).

3.1.2.2 The AIDS model

The framework set out by consumer behaviour theory is mirrored by the AIDS model, developed by Deaton and Muellbauer (1980). This model assumes that individuals, faced with a large number of alternatives and a limited budget which has to be allocated according to his/her wants, would have adopted a stage budget approach and taken decisions based on the axioms of choice. It provides estimates of expenditure, analyses the effects of relative prices in different destinations on budget shares, estimates own-price, cross-price and income tourism demand elasticities (Cortés-Jiménez, Durbarry and Pulina, 2009). It allows testing for the imposed restrictions on the parameters of the demand functions, with the end result being that it

provides additional information regarding price- and cross-elasticities and considers the opportunities facing the consumer. As Stabler, Papatheodorou and Sinclair explain, this in itself is an advantage of such models, as "most of the charges of biases in the results" (2010, p.66) are avoided. This model can also allow for intertemporal decision-making. It allows wider application possibilities such as tourism demand studies for neighbouring destinations (de Mello and Sinclair, 2000), for countries undergoing economic transition, and for assessing own and/or competitors' prices.

On the other hand, it has some limitations. As Stabler, Papatheodorou and Sinclair (2010) state, it assumes that consumption and paid work decisions are made separately, but in reality they may be made simultaneously. Another disadvantage is that the AIDS model cannot take into account special variables for particular destinations, because the same variables for each destination need to be used throughout each equation within the system. In addition, the lag structure has to be standardised. In deciding whether to use AIDS to model tourism demand, these points need to be borne in mind. Yet, the AIDS model, being a system of equations model, is increasingly being preferred to single-equation demand models and applied for empirical tourism demand studies.

The strengths of the AIDS model vis-à-vis single-equation demand models

Whilst the single-equation approach is attractive in its simplicity, and straightforward to apply, particularly for studies involving just one destination, its widespread use (Quayson and Var, 1982; Stronge and

Redman, 1982; Uysal and Crompton, 1984; Witt and Martin, 1987; to mention a few) derives from its computational convenience and ease of interpretation rather than due to the superiority of the model itself. Fujii, Khaled and Mak (1985), Syriopoulos and Sinclair (1993), Ong (1995), Song and Witt (2000), Stabler, Papatheodorou and Sinclair (2010) provide strong criticism of the application and limitations of the single-equation tourism demand model. The inclusion of inappropriate variables or the omission of appropriate ones in the tourism demand function can occasion spurious results, leading to misinformation, and inappropriate conclusions and policy recommendations. Additionally, the single-equation demand model lacks the theoretical basis (Cortés- Jiménez, Durbarry and Pulina, 2009) to provide the possibility of testing hypotheses from consumer theory. In contrast, the AIDS model is grounded in the theory of consumer behaviour which guides the model's specification.

The use of single-equation models for tourism demand analysis has often been justified on the basis that the explanatory variables are predetermined. This is a weak argument as little reference to theory is made and no mention of consumer's choices is implied. This further justifies the need for strong theoretical underpinnings for tourism demand analysis. With the developments in demand modelling, single-equation demand models, are in today's context, hardly ground-breaking, adding only a further application of a non-theoretically based model.

The single-equation demand model also neglects the possible interdependencies which may exist among destinations. On the other

hand, system-of-demand models provide estimates of cross-elasticities to allow for the essential feature of consumer demand theory, i.e. the interdependence of interrelated commodities (de Mello and Sinclair, 2000; Cortés-Jiménez, Durbarry and Pulina, 2009). In line with this, as advocated by Song and Witt (2000) and Cortés-Jiménez and Blake (2010), the AIDS model explains the sensitivity of tourism demand across a range of origin and destination countries to changes in the underlying determinants. Cross-elasticity measures are even more important for travel demand than for other goods and services, Taplin (1980) argued. This is because the consumer tends to ignore substitutes for items consumed daily, but takes the opposite approach, assessing the relative merits of different destinations when deciding on a vacation. The result is that in aggregate, cross-elasticities for competing destinations are relatively high, whereas the cross-elasticities for travel and its main complement (accommodation) tend to be negative. If cross-price elasticity shows complementarity, then combining marketing campaigns could be beneficial.

Estimations of expenditure elasticities are also important for destination competitiveness and business strategy, as emphasized by Stabler, Papatheodorou and Sinclair (2010). Low-expenditure elasticity values may imply that increases in expenditure may in the long run go to other destinations, pointing to the need to make one's destination more desirable for tourists. On the other hand, high-expenditure elasticity estimates which are greater than one may be a cause for concern for countries with high inflation rates and/or depreciating exchange rates. In such situations, this could be an

opportunity for destinations to increase tourism receipts. This type of information for a particular set of destinations may be obtained through the system of equations models, as will be shown in Chapter 6.

The strength of the AIDS model is further evident as it is used by Lewbel and Pendakur to develop the Exact Affine Stone Index (EASI) Implicit Marshallian Demand system, whereby "error terms can equal unobserved preference heterogeneity or random utility parameters" (2009, p.829). Whilst this model has its theoretical advantages, as the authors conclude, the model parameter estimates are not affected, indicating that the AIDS model remains an appropriate demand model.

AIDS – the econometric model

Deaton and Muellbauer (1980) developed the AIDS model by extending the Working-Leser model, which relates the value shares to the log of the expenditure,

$$w_i = \alpha_i + \beta_i \log x \qquad (3.10)$$

where w_i is the value shares; α_i and β_i are coefficients to be estimated and log x is the log of the expenditure; to include price effects, such that

$$w_i = \alpha_i + \Sigma_j \gamma_{ij} \log p_j + \beta_i \log\left(\frac{x}{P}\right) \qquad (3.11)$$

where, when applied to tourism, w_i is the share of the budget of the residents in the source market j allocated to tourism in destination i;

α_i, γ_{ij} and β_i are coefficients to be estimated;

p_j is the price level in origin j;

x is the budget for tourism expenditure by residents of origin j;

P is a price index taking account of prices in the destination areas and can be defined by:

$$\log P = \alpha_0 + \Sigma\alpha_k \log p_k + \tfrac{1}{2} \Sigma_k \Sigma_l \gamma_{kl} \log p_k \log p_l \qquad (3.12)$$

and the parameters γ are defined by:

$$\gamma_{ij} = \tfrac{1}{2} (\gamma^*_{ij} + \gamma^*_{ji}) = \gamma_{ji} \qquad (3.13)$$

The AIDS model as defined by Deaton and Muellbauer (1980) is as set out by (3.11) to (3.13). Equation 3.11 provides a first-order approximation to the general unknown relation between $w_{i,}$ log x and the log p's. The model is based on the logarithm of price-independent generalised linearity (PIGLOG) set of preferences which allows for an exact aggregation among consumers without imposing identical preferences, as shown by Muellbauer (1976). PIGLOG defines the minimum expenditure necessary for a given level of utility *u* given prices *p*.

The AIDS model, being based on utility maximisation, automatically implies satisfying the adding-up restriction[2], for all j,

$$\Sigma_k \alpha_k = 1, \quad \Sigma_k \beta_k = 0, \quad \Sigma_k \gamma_{kj} = 0 \qquad (3.14)$$

while allowing the possibility of testing for the conditions of homogeneity[3], for all j, requiring $\Sigma_k \gamma_{jk} = 0$ and by applying the homogeneity restricted form of the model

$$w_i = \alpha_i^* + \Sigma^{n-1}_{j=1} \gamma_{ij} \log (p_j/p_n) + \beta_i \log (x/P^*) \qquad (3.15)$$

The possibility of testing for symmetry is also available[4]

$$\gamma_{ij} = \gamma_{ji} \qquad (3.16)$$

[2] Adding up implies that all budget shares sum to unity.
[3] The homogeneity condition sets that a proportional change in all prices and expenditure has no effect on the quantities purchased.
[4] The symmetry constraint implies that consumers' choices are consistent.

It is assumed that a rise in prices results in a fall in demand - the negativity restriction — requiring negative own-price elasticities for all destinations. The restrictions set by consumer theory may be used as prior constraints in the process of estimating all coefficients. The β parameters indicate whether destinations are considered to be luxuries or necessities. With $\beta_I > 0$, w_i increases with x implying that the destination is a luxury. If $\beta_I < 0$, w_i decreases with x indicating a necessity. The γ_{ij} parameters measure the change in the i^{th} budget share following a unit proportional change in p_j with (x/P) held constant. Thus the AIDS model provides important information about tourism demand through the estimates of sensitivity of each destination's share of total expenditure to a number of independent variables, particularly prices and expenditure (as in the original model proposed by Deaton and Muellbauer, 1980) in the destination and its competitors. It permits the estimation of expenditure, own- and cross-price elasticities, pointing to the superiority of the AIDS model. Cross-price elasticities show the degree of competitiveness among destinations, whether destinations are substitutes or complementary – essential information for policy formulation, implying the practical use of this model.

3.1.2.3 Empirical studies using AIDS model for tourism demand analysis

A number of empirical studies focusing on tourism demand have been conducted using the AIDS model. Yet none have incorporated policy in the modelling. A review of these models was conducted by Li, Song and Witt (2005). This review is here extended to include some

recently published literature on the AIDS model and presents some comparative analysis of these empirical studies.

Data

Generally all the studies reviewed by Li, Song and Witt (2005) used annual data. Since then, three contributions have been made aiming to capture seasonal variations. Cortés-Jiménez, Durbarry and Pulina (2009) analysed monthly time series data and included dummy variables in the model to capture seasonality, whereas Cortés-Jimenez and Blake (2010) used quarterly data arguing that much detail is missed when data is aggregated for tourism demand models. Divisekera (2010) also applied quarterly data for leisure and non-leisure domestic tourism in Australia.

Origin and destination country pairs

Most of the empirical studies evaluated a selection of or a single source market's tourism expenditure to a selection of destinations, often being major source markets or destinations. O'Hagan and Harrison (1984) analysed econometrically the evolution of market shares of US tourism expenditure in Europe in the period 1964-1981; White (1985) conducted a similar study for the period 1964-1981 grouping 16 countries under 7 groups. The disadvantage of such groupings lies in the potential violation of the separability assumption. It may also lead to results which are difficult to interpret or easily mis-interpreted, because heterogeneous destinations may have been grouped rather than homogeneous ones. Syriopoulos and Sinclair (1993) establish the separability assumption more clearly than in previous studies – they apply the AIDS model to estimate

tourism expenditure allocation for four European origin countries (France, Germany, Sweden and UK) and to a specific group of Mediterranean destinations instead of the whole of Europe. The researchers applied the original model, though they initially included dummy and trend variables, which were then eliminated since no improvement in the model was achieved.

Papatheodorou (1999) conducted, for the period 1957-1989, the estimation of three systems of six equations each, as he considers three highly developed European origin countries (France, West Germany and UK) and six Mediterranean destinations (Spain, Greece, Italy, Portugal, Turkey and Yugoslavia). Papatheodorou considers this paper as "a parallel study to the one of Syriopoulos and Sinclair (1993)" (1999, p.620), though the results "are often in contrast with those obtained by the other two researchers" (1999, p.620). De Mello, Pack and Sinclair (2002) analyse the UK demand for tourism in Spain, France and Portugal for the period 1969-1997, accounting for a structural break in the model using time trend and a dummy variable. Divisekera (2003) analysed US, UK, Japan and New Zealand demand for tourism in Australia and alternative destinations and uses tourism price indices to proxy prices.

Li, Song and Witt (2004) apply a linear AIDS (LAIDS) model to UK outbound tourism to 22 European destinations using data covering the period 1972 to 2000. Both long-run and short-run elasticities are estimated, indicating that UK demand is more price elastic in the long run than in the short run. Similarly both long-run and short-run dynamics are analysed by Han, Durbarry and Sinclair (2006) who

apply an AIDS model to US demand for tourism in European destinations and show that whilst price competitiveness is important for France, Italy and Spain, it is relatively unimportant for the UK.

Cortés-Jiménez, Durbarry and Pulina (2009) study the outbound Italian tourism demand for four main destinations, France, Germany, Spain and UK through an error-correction AIDS model. They use monthly data to reflect seasonal variations and introduce dummies to assess the effects of terrorism attacks. They estimate long-run LAIDS and short-run EC-LAIDS and assess forecasting accuracy. Applying structural time-series models and examining inbound tourism to the UK, Cortés-Jiménez and Blake (2010) modelled demand by purpose of visit and nationality pairings and compare results with models utilising more aggregate data.

These studies focused on time-series evaluation of tourism expenditure allocation by destination whereas Fujii, Khaled and Mak (1985) analyse expenditure by visitors to Hawaii for six different classes of goods (food and drink, lodging, recreation and entertainment, local transport, clothing and other), i.e. they assess tourist expenditure allocation within a single destination. A similar approach is adopted by Divisekera (2010) who analyses domestic tourism in Australia based on the AIDS model distinguishing by travel motives of leisure and non-leisure. Five broad category groups are studied: accommodation, food, transportation, shopping and entertainment.

Variables

The basic model used in each of these studies is the AIDS model (3.11). The dependent variable is the share of tourist expenditure allocated to each destination by each origin country or, as in the case of Fujii, Khaled and Mak (1985) and Divisekera (2010), tourist expenditure allocated to broad category within a single destination. Being inherent to the model, price and expenditure variables are always included as explanatory variables (Stabler, Papatheodorou and Sinclair, 2010), with the price variables including the prices of goods and services related to both the destination and substitute destinations (Song, Li, Witt and Fei, 2010).

Additional independent variables, such as dummy variables and a time trend to account for changes in tastes and preferences, are sometimes included in the AIDS models. Marketing expenditure is expected to influence tourist expenditure allocations but this variable, though mentioned by O'Hagan and Harrison (1984) and by Papatheodorou (1999), is not actually included in any of the studies under review, generally due to data limitations.

Each equation within the model relates to one destination, as will be evident from the application of the AIDS model discussed in Chapter 6. The dependent variable in each equation is the share of the origin country's tourism expenditure allocated to that destination. This means that data for the dependent variable is obtained by using tourism expenditure of origin country *i* in destination country *j* as a percentage of the aggregate tourism expenditure of origin country *i* in all the destination countries *j* under consideration. Data limitations

may force the researcher to create proxies for such data by, as Papatheodorou suggests, "multiplying total international tourism receipts of country *j* by the share of tourist quantity supplied by country *i* in the total tourist quantity which visits country *j*" (1999, p.621). The "tourist quantity" may be measured by using tourist arrivals at registered accommodation. Papatheodorou prefers this measure rather than guestnights, due to the heterogeneous nature of lodgings.

The price variable used relates to the exchange rate-adjusted consumer price index (effective price) throughout most of the studies. Syriopoulos and Sinclair (1993), through the estimation of own- and cross- price elasticities, indicate the importance of effective prices in determining the allocation of expenditure among destinations. Papatheodorou clearly explains how the price set is derived by dividing the consumer price index by "the evolution of the cross-exchange rate (number of currency units of destination country *j* required to buy one currency unit of origin country *i*)" (1999, p.623).

Thus the relevant exchange rate is transformed into an index setting a particular year as the base year. White (1985) uses the IMF CPI and "rh" series[5] on exchange rates and due to aggregation of 16 destinations into seven groups uses the Divisia Price Index for each group. Divisekera (2003) weights costs occurring at the destination and travel costs to obtain an aggregate price variable. The inclusion of travel costs in the AIDS model depends not only on data

[5] The IMF rh series is the yearly average of exchange rates in US $ per unit of foreign currency.

availability, but also on what is included in the term 'tourism expenditure' (Li, 2004).

When the AIDS model is applied to domestic tourism, the exchange rate element is not relevant. In this context, Divisekera (2010) uses, as a proxy for prices, average spending per night per each broad category of expenditure deflated by appropriate price indices estimated on the basis of the components in each category.

One argument generally presented with regard to the price variable is that the CPI, often used as a proxy for a tourism price index, is not appropriate due to its composition which does not directly reflect tourists' consumption of goods and services as some items included in the CPI may not be purchased by tourists, particularly by international tourists, as opposed to domestic tourism. Han, Durbarry and Sinclair (2006) investigated the use of alternative price indices within the tourism demand modelling process. It is interesting to note that they concluded that the choice between the alternative price indices (Stone Price Index, Laspeyres Index, Paasche Index) does not have a significant effect on the results.

The expenditure variable is defined as the origin country's tourist expenditure in the destinations being analysed. In most studies, this variable is expressed per capita of the origin's population and deflated by the Stone index (aggregate price index). Papatheodorou (1999) does not, however, use population figures to arrive at per capita data but divides by the number of tourists in all the destination countries under consideration. The argument in favour of obtaining per capita

expenditure data by dividing by the number of tourists rather than by the total population of the origin country lies in the fact that

> "only people who actually travel are able to incur tourist expenses. In addition, the division by whole country population is bound to result in a non-stationary process for per capita expenditure."
>
> (Papatheodorou, 1999, p.623)

Dividing by tourists rather than by population is theoretically consistent. De Mello, Pack and Sinclair (1999), however, argue in favour of a per capita estimate based on population figures — for two reasons. The first reason is data reliability. The second reason relates to the multi-stage budgeting approach and the 'representative consumer' who, it is argued, is given the opportunity not to spend anything on tourism. Any member of the population is a potential tourist and therefore, dividing by population estimates appears to be more appropriate.

A variable to model a trend is included in some of the empirical studies to account for changes in popularity and tastes. For this purpose White (1985), Papatheodorou (1999), de Mello and Sinclair (2000), Cortés-Jiménez, Durbarry and Pulina (2009), Divisekera (2010) include a time trend in their models. Syriopoulos and Sinclair (1993) included it but then removed it since it did not improve the model's results. This situation repeats itself when a dummy variable is included. Other empirical studies, such as that by de Mello, Pack and Sinclair (2002), include a dummy variable to account for structural breaks in explanatory variables caused by historical, political or special events. Cortés-Jiménez, Durbarry and Pulina

(2009) include additional dummy variables in the model for terrorist attacks, for the impact of the euro and for the seasonal impact. To account for the latter, Divisekera (2010) adopted a different approach — seasonal trigonometric variables — which allows the seasonal cycle dictated by the data rather than dummy variables which define the season.

Estimation procedure and restrictions

The estimation procedure adopted throughout these studies involved the OLS estimation where no a priori restrictions are placed on the model, and Zellner's 1962 Seemingly Unrestricted Regression (SUR), where the imposition of consumer behaviour restrictions are introduced. As Li, Song and Witt (2004) point out, maximum likelihood (ML) could also be used. Most empirical studies have used SUR since it is more efficient than OLS and converges to a ML estimation (Cortés-Jiménez, Durbarry and Pulina, 2009) but ended up with the theoretical restrictions being rejected.

Durbarry (2002) provides a list of examples of the failure of the homogeneity restriction in the literature. He explains that one cause for rejecting the homogeneity restriction may be mis-specification of the model, for example resulting from applying a static AIDS model. Empirical results have commonly indicated violation of the homogeneity and symmetry conditions, implying that the assumption of rational behaviour on the consumer's part requires modification. Often such studies were based on a static model specification assuming that consumers adjust fully to price and income changes instantaneously. In reality, there may be adjustment costs and

consumers may be basing their decisions on limited information, with the result that they only obtain satisfaction, without maximising it.

Only in Papatheodorou (1999), de Mello, Pack and Sinclair (2002), Divisekera (2010) can one find acceptance of the homogeneity and symmetry restrictions. Where such restrictions fail to be accepted (as, for example, in the study on outbound Italian tourism demand by Cortés-Jiménez, Durbarry and Pulina, 2009), following the standard empirical literature and economic theory, the homogeneity and symmetry conditions are imposed and the restricted model is then estimated.

The following formulae are used to estimate the expenditure, uncompensated and compensated own- and cross-price elasticities.

Expenditure elasticities:

$$\varepsilon_i = \left(\frac{\beta_i}{w_i}\right) + 1 \qquad (3.17)$$

Uncompensated own-price elasticities:

$$\varepsilon_{ii} = \left(\frac{\gamma_{ii}}{w_i}\right) - \beta i\left(\frac{w_i^B}{w_i}\right) - 1 \qquad (3.18)$$

Uncompensated cross-price elasticities:

$$\varepsilon_{ij} = \left(\frac{\gamma_{ij}}{w_i}\right) - \beta i\left(\frac{w_j^B}{w_i}\right) \qquad (3.19)$$

Compensated own-price elasticities:

$$\varepsilon^*_{ii} = \left(\frac{\gamma_{ii}}{w_i}\right) + w_i^B - 1 \qquad (3.20)$$

Compensated cross-price elasticities:

$$\varepsilon^*_{ij} = \left(\frac{\gamma_{ij}}{w_i} \right) + w_j^B \qquad (3.21)$$

where w_i represents the sample's average share of destination i and w_j^B represents the share of destination j in the base year.

Comparison of results of some empirical applications of AIDS

Direct comparisons of elasticity measures are not always possible, due to the different origin and destination countries included in the models, different data sources, different time periods and varying sets of explanatory variables. Li (2004) attempted a comparison of elasticities where possible. The set of destinations chosen and the variables included in the model naturally have an influence on the results. Furthermore, the estimation procedure (unrestricted model versus homogeneity- and symmetry- restricted models) may be another reason for the different results. Given this situation, only some general comments will be provided on the results which are relatively comparable.

These comments are based on the four empirical studies conducted by Syriopoulos and Sinclair (1993), Papatheodorou (1999), de Mello, Pack and Sinclair (2002), Li, Song and Witt (2004). These four studies are chosen because they each provide estimates on the UK source market to Mediterranean destinations: in this respect, they are therefore similar to the research conducted in this thesis. Spain and Portugal feature in all four studies whereas Greece and Italy feature in 3 studies, Turkey is included in the 1993- and 1999-published studies, whilst the 2004-published study also features France and

other destinations. Syriopoulos and Sinclair comment that the UK (together with Sweden) is among the "most income and expenditure elastic origin countries" (1993, p.1551). In all four studies, Spain emerges as a core destination, as described by Papatheodorou (1999). It is "a more traditional holiday choice" (Syriopoulos and Sinclair, 1993, p.1549), "a primary destination" (de Mello, Pack and Sinclair, 2002, p.517) with high expenditure elasticities. It is however worth noting that Spain appears to be losing ground to its competitors and becoming more price sensitive over time, as indicated by the de Mello, Pack and Sinclair (2002) study. Papatheodorou provides a possible explanation for this result by stating that core destinations, being best-known, could experience

> "a reduction in their relative price [which] induces people to visit other countries, since they may have already visited the core."
>
> (Papatheodorou, 1999, p.627)

This could be a further possible explanation for a destination's life cycle referred to earlier in this chapter. Papatheodorou highlights Italy as another core destination and states that

> "this seems to be logical, since these two countries [Spain and Italy] have a highly developed tourist infrastructure and are able to offer a diversified product to satisfy different groups of tourists."
>
> (Papatheodorou, 1999, p.626)

The estimates by Li, Song and Witt (2004) however indicate that the long-run expenditure elasticity for Italy was slightly lower than 1.

Spain and Portugal are substitute destinations and Portugal's expenditure elasticity appears to be stable over time. There appears to be a decreasing responsiveness of UK demand to changes in prices in Portugal and an increasing sensitivity to price changes in Spain (de Mello, Pack and Sinclair, 2002). Syriopoulos and Sinclair (1993) found that the responsiveness of demand to price rises in destinations appeared to be high in Portugal and Greece, followed by Spain, Turkey and Italy. Papatheodorou's results, besides emphasising the price elastic nature of the core countries (Spain and Italy), also indicate that "Greece and Turkey are relatively price elastic" and "the Portuguese product is very price elastic" (1999, p.627). Li, Song and Witt (2004) also find that the long-run elasticities are generally greater than the short-run estimates, especially for Greece and France, indicating that tourists in the long run are more flexible in response to price changes, a finding which as will be shown in Chapter 6 is supported by this thesis.

In terms of expenditure elasticities for Portugal and Turkey, results from Syriopoulos and Sinclair (1993) and from Papatheodorou (1999) are in direct contrast. The 1993 study shows that these two destinations are highly expenditure-elastic whereas that published in 1999 indicates that "the Turkish tourist product is inelastic, while the Portuguese one is almost invariant to expenditure changes" (Papatheodorou, 1999, p.627). These different results may be due to various reasons, including different data sets, the inclusion of a time trend in Papatheodorou's (1999) study, or a different definition of the expenditure variable. Comparison of elasticity results may not be conclusive as they depend on the model specification.

The theoretical underpinnings together with the econometric methodologies of the AIDS model provide that which is to be estimated and the possibility to test hypotheses related to this research, hence its application. In spite of the increasing number of tourism demand studies applying the AIDS model, an area that has not quite been explored is the use of this model for policy evaluation. This is a gap which this thesis seeks to contribute to through the research presented in Chapter 6.

The focus now turns to a review of the literature which deals with the extent to which the different characteristics of the tourism products supplied affect the overall price of the products. Therefore the literature relating to hedonic pricing and its application to tourism will be reviewed. The hedonic pricing model is the second econometric model that will be applied in this research to conduct analysis for policy.

3.1.3 Characteristics theory of value and the hedonic pricing model

Competitiveness, as specified in the Ritchie and Crouch model (2003) on destination competitiveness, is influenced by elements relating to the quality of the services. Such quality is dependent on the characteristics which make up the services provided. The value consumers place on these characteristics affects the price of these tourism services. This argumentation is based on the characteristics theory of value, which forms the theoretical background to hedonic

price analysis. What follows is therefore an outline of this theoretical background, the hedonic pricing model and a review of empirical studies applying hedonic pricing models in tourism.

3.1.3.1 The characteristics theory of value

As opposed to neoclassical consumer theory which assumes that an individual derives utility by just consuming goods, the Gorman-Lancaster characteristics framework (Lancaster, 1966; Lancaster, 1971; Gorman, 1980), explained in Stabler, Papatheodorou and Sinclair (2010) postulates that goods can be regarded as bundles of characteristics and that the consumer's utility is drawn from the consumption of the attributes or characteristics of the goods concerned (Rosen, 1974; Tomkovich and Dobie, 1995). The maximum consumption of characteristics is determined by a budget and a time constraint.

Rosen (1974), basing on the characteristics theory, developed hedonic price analysis. The valuation technique of hedonic pricing seeks to estimate the value of unpriced characteristics of goods and services reflecting consumers' valuation of that attribute. One would expect such a valuation to be reflected in the price. The understanding of price goes beyond issues of demand, supply and scarcity as mirrored through the paradox of value which was resolved by Galiani (1751). Galiani analysed the price of a commodity in terms of its scarcity on the one hand and its utility on the other. Utility reflects not only a commodity's usefulness, but also its pleasure-giving potential.

Jevons (1871) formulated a theory of value based on utility as an alternative to the classical theory. Classical theory had not ignored utility but had not regarded it as a proper basis for an explanation of exchange-value. Whereas the classical theory of value was objective and related to the whole of society's economic activity, Jevons' approach referred to individual, subjective factors. Jevons' theory of value started from the individual and their wants, pointing to the hedonist philosophy. Roll, on Jevons' theory of value, explains how utility

> "can only become a significant concept in a theory of value if the total utility of a commodity is carefully distinguished from the utility which an individual, at a given time, attaches to a portion of that commodity."
>
> (Roll, 1992, p.347)

The individual's valuation would therefore be expected to be dependent both on usefulness and pleasure maximisation. One of the broad approaches to the analysis of value is related to 'use' in economic theory. General use theories, based on the assumption that the value of a commodity was related to the use to which it could be put, could form the basis of the choice of some of the explanatory variables in the hedonic pricing model. Within the context of tourism services, for example, these could include attributes such as money exchange facilities, kids' and sports facilities and swimming pools. Tourists would value these tourism offers or holiday package characteristics and be willing to pay for them given their use. However, the tourist seeks pleasure maximisation, which can be derived from facilities, services and the general atmosphere and ambience which form part of the holiday package. Fine views and the

experience of staying in a hotel with a wonderful location, for example, could contribute to such pleasure maximisation. The research presented in this thesis, in Chapter 7, will test whether the tourists opting for package holidays value attributes because of their use and the pleasure derived from their 'consumption'.

The characteristics theory, additionally, highlights the heterogeneity in preferences, heterogeneity in the goods and discreteness in choice (Papatheodorou, 2001). Applying this theory to tourism, specifically to the case of inclusive tour holidays, hedonic pricing modelling estimates the implicit values of the characteristics which differentiate and make inclusive tour holidays heterogeneous. As consumers are assumed to be homogeneous, consumers' willingness to pay for increments to a non-traded characteristic can be inferred. On the other hand, if consumers are heterogeneous, it implies that they place different valuations on a particular bundle of characteristics forming the package (in the case of tourism). A second stage regression, having the implicit values as the dependent variable and the characteristics of the consumer as the variables, would render estimates of willingness to pay. A prerequisite that has to be made for these 'willingness to pay' estimates is that prices must have been competitively determined.

Based on this characteristics theory of value, hedonic pricing analysis therefore provides the opportunity for understanding which characteristics are valued by tourists and to what extent, testing tourists' sensitivity to product design. As Tomkovich and Dobie (1995) assert, the use of the hedonic pricing methodology is to gauge

price sensitivity and market receptivity to product design. On this basis, the hedonic pricing methodology, explained next, is appropriate for competitiveness studies.

3.1.3.2 The hedonic pricing model

Based on this characteristics theory, the hedonic pricing model was developed for demand studies by Rosen (1974). The hedonic pricing model is used to estimate the implicit equilibrium price of each characteristic of the good concerned. The methodology, as explained by Lancaster (1971) and Triplett (1975), permits "measuring the explanatory importance of a set of characteristics for the explicit valuation of a product" (Stabler, Papatheodorou and Sinclair, 2010, p.72).

The foundations of the hedonic regression is the hypothesis that each good is characterised by the set of all its characteristics, such that there is a functional relationship *f* between its price *p* and its characteristics vector *x* which represents the set of characteristics ($x_1 \ldots x_n$), i.e.

$$p=f(x) \tag{3.22}$$

For price competitiveness analysis, therefore the hedonic regression would be:

$$P(Z) = P(z_1, z_2, \ldots, z_n) \tag{3.23}$$

where P(Z), the price of the good or service Z, is a function of the characteristics z_1 to z_n.

If demand analysis is then to be conducted, then income and preferences must also be incorporated in the regression as follows:

$$D(Z) = D(z_1, z_2 \ldots z_n, Y, \delta) \quad (3.24)$$

where D(Z) refers to the demand for the good or service Z, z_1 to z_n are the characteristics making up good or service Z, Y is income and δ refers to preferences.

The characteristics theory does not specify the appropriate functional form for hedonic pricing analysis. Recognising this, Cropper, Deck and McConnell (1988) compared different functional forms of hedonic pricing. They concluded that when attributes or variables are not observed or are replaced by proxies, the simpler linear hedonic pricing function performs better. On the other hand, when all attributes are observed, linear and quadratic functions of Box-Cox transformed variables provide better estimates of the marginal attribute price. In empirical studies relating to tourism, the hedonic price specification is assumed to take a Cobb-Douglas functional form (Papatheodorou, 2002; Stabler, Papatheodorou and Sinclair, 2010):

$$P = a \prod_{m=1}^{M} \prod_{i=1}^{I_m\text{-}1\mathrm{c_{im}}} C_{im} \prod_{j=1}^{J\text{-}1} Dj^{d_j} \prod_{k=1}^{K\text{-}1} F_k^{f_k} e^u \quad (3.25)$$

and its logarithmic version:

$$\ln P = \ln a + \sum_{m=1}^{M} \sum_{i=1}^{I_m\text{-}1} c_{im} \ln C_{im} + \sum_{j=1}^{J\text{-}1} d_j \ln D_j + \sum_{k=1}^{K\text{-}1} f_k \ln F_k + u \quad (3.26)$$

where P is the price of the good or service, C_{im} is a scaling factor for the *i*th characteristic in the *m*th group of good or service features, D_j is a location scaling factor for destination *j*, F_k represents an operator

scaling firm for firm *k* (if applicable), *a* is a constant, c_{im} is a dummy variable that is equal to one if the product or service possesses the attribute *i* in group *m* or zero otherwise, d_j is a dummy variable that is equal to one if the product or service refers to destination *j* or zero in all other cases, f_k is another dummy variable if the product or service refers to firm *k* or zero otherwise, *M* refers to the total number of groups of product or service features, I_m is the total number of characteristics in group *m, J* represents the total number of destinations, *K* is the total number of operators, *e* is the exponentiation, *u* is the error term and Π(∑) is the symbol for multiplication (summation).

Most of the research has adopted Rosen's (1974) advice to use the log-linear (semilog) form as opposed to the linear form. The dependent variable, price, would be expressed in natural logarithm. This facilitates interpretation of results as the regression estimates would provide the percentage change in the dependent variable associated with a one-unit increase in the independent variable, an evident advantage of the semilog functional form (Thrane, 2005). In the case of dummy variables, following Halvorsen and Palmquist (1980), the percentage difference between the characteristic and the reference category is obtained by taking the antilog of the coefficient minus 1.

The hedonic pricing model which utilises panel data, as will be applied in this research, further distinguishes between fixed-effects and random-effects estimators. Given that few empirical studies in the

tourism field have used panel data in hedonic pricing models, the tourism literature offers little guidance in terms of which estimators to adopt. Espinet, Saez, Coenders and Fluvià, who apply panel data, estimate a random-effects models which offers the

> "advantages of testing the hypothesis that the parameters remain constant for all hotels, towns or dates, and of estimating the variance of parameters across hotels, towns or dates when hypothesis is rejected."
>
> (Espinet et al, 2003, p.169)

In most applications in economics, the choice between fixed and random effects estimators was based on the standard Hausman test (Baltagi, Bresson and Pirotte, 2003).

3.1.3.3 Hedonic pricing applications to tourism

The hedonic pricing methodology has been widely applied to different durable and non-durable product markets, ranging from pens (Tomkovich and Dobie, 1995) to cars (Irandoust, 1998), to computers (Pakes, 2002; Doms and Forman, 2005), and to wines (Carew and Florkowski, 2010). Numerous hedonic pricing models have been applied to the real estate market to understand property prices. Different studies have sought an understanding of how property prices vary according to the characteristics of houses, examined the effect of location (Irwin, 2002), studied the effect of a landfill closure on housing values (Kinnaman, 2009), assessed the effect of landscape through GIS-based hedonic pricing (Cavailhes Brossard, Foltête, Hilal, Joly, Tourneux, Tritz and Wavresky, 2009), estimated the influence of natural amenities on residential property

values in a rural setting (White, 2007) and compared residential property values following the occurrence of environmental hazards (Naoi, Seko and Sumita, 2009). Evidently, location, for both real estate and tourism, is a characteristic which determines property or accommodation prices.

Though not as often as its application to real estate, the hedonic pricing methodology has been applied to tourism services. Within these empirical studies, one can identify not only different applications and different empirical contexts, but also common and differing approaches and methodologies. What follows is therefore a review of these empirical studies found in the literature.

The context of the empirical studies

Many empirical studies seek to assess the price competitiveness of specific operators and destinations within the context of holiday packages (e.g. Clewer, Pack and Sinclair, 1992; Papatheodorou, 2002; Espinet, Saez, Coenders and Fluvià, 2003; Thrane, 2005). These studies have attempted to identify the characteristics which make up the package, the relationship between the package price and those characteristics, and the heterogeneity within those packages. Sinclair, Clewer and Pack in their seminal work on the subject, demonstrated that the hedonic pricing model is an appropriate method for

> "estimating the price competitiveness of different tour operators and resorts, and of quantifying the effects of various facilities offered by the hotel or tour operator."
> (Sinclair, Clewer and Pack, 1990, p.101)

In this pioneering work, hedonic pricing is applied to package holidays from the UK to one province, Malaga, seeking to estimate the price differentials which are not only due to variations in the mixes of characteristics, but also due to differences between tour operators and between resorts. Clewer, Pack and Sinclair's (1992) work, which assesses the price competitiveness of inclusive tour holidays in London and Paris for British, French, German and Spanish residents for summer 1989, takes this further by testing for differentiation across operators, besides testing for differences across origin markets and package characteristics. They show that competition between tour operators on the basis of product differentiation does appear to be important. These studies have established that there does exist variation across tour operators within the package holiday market. Whilst it is to be expected, as shown in Sinclair, Clewer and Pack's (1990) and Clewer, Pack and Sinclair's (1992) work, that variations across operators occur, the variations within one operator still need to be researched. By focusing on one source market, i.e. the UK, and on one major tour operator, i.e. Thomson, the variations within one operator from one origin market will be examined in this thesis, testing whether such variations occur and to what extent.

Not surprisingly, a number of the studies which have analysed the prices of holiday packages have focused on Mediterranean or Mediterranean-type destinations (e.g. Papatheodorou, 2002; Mangion, Durbarry and Sinclair, 2005; Haroutunian, Mitsis and Pashardes, 2005; Thrane, 2005), a region renowned for package holidays. Papatheodorou (2002), Mangion, Durbarry and Sinclair (2005) as well as Haroutunian, Mitsis and Pashardes, (2005) focus on

package holidays for Mediterranean destinations offered by British tour operators in the UK market. Whilst Papatheodorou (2002) examines the package holidays offered by different tour operators, Haroutunian, Mitsis and Pashardes, (2005) examine two major UK tour operators. Mangion, Durbarry and Sinclair (2005) focus on one British tour operator and examine variations from the summer season of one year to the same season of another year. A different context is analysed by Thrane (2005) who examined how the price of a Norwegian sun-and-beach package tour to the Canary Islands is determined by the choice of the tour operator, the choice of the destination, the hotel star rating and a series of attributes making up the package tour.

The Mediterranean is also an interesting case study because it is often described as saturated with the implication that to achieve competitiveness two strategies can be followed: price dumping or product differentiation. These destinations are sometimes portrayed as homogeneous through the similar type of packages featured in the tour operator brochures, making hedonic pricing research more relevant. However, Papatheodorou's (1999) hedonic pricing research on competitiveness in Mediterranean resorts, was the first to invalidate the assumption of resort resemblance by showing the degree to which differences in the package characteristics influence the prices of the packages. He explored the source of price differentials of Mediterranean holiday packages, showing that the stage of tourism urbanisation influences variations in implicit prices. Additionally, Papatheodorou distinguished between core and peripheral resorts. His findings indicate that what differentiates the

two types of resorts "is the existence of built attractions and the air of sophistication" (Papatheodorou, 2002, p.148). These differences result in different consumer valuations. Papatheodorou's finding of heterogeneity within Mediterranean holiday packages is supported by Mangion, Durbarry and Sinclair's (2005) results. Haroutunian, Mitsis and Pashardes (2005) specifically examine two causes of heterogeneity: that arising from differentiated quality reflected in the tour operator brochure and that arising from different quality characteristics in packages of different accommodation star rating.

Other studies have applied hedonic pricing to particular tourism services, with the majority of applications focusing on accommodation. Such studies have examined prices of accommodation facilities providing particular services such as bed and breakfast amenities (Monty and Skidmore, 2003) or located in particular environments such as capital cities (Clewer, Pack and Sinclair, 2002 – London and Paris; Thrane, 2007 – Oslo; Chen and Rothschild, 2010 - Taipei); or in rural areas (Fleischer and Tchetchik, 2005) or in particular tourist areas or destinations (Cox and Vieth, 2003 - Hawaii; Rigall-i-Torrent and Fluvià, 2007, 2010 - Catalonia); or examining variations in weekday and weekend room rates (Chen and Rothschild, 2010). One exception is the empirical context examined by Falk (2008). Falk (2008) applied hedonic pricing to ski lift tickets in Austria, also taking into account neighbourhood spillover effects. Interestingly, Falk (2008) presented a ranking of the ski resorts according to their characteristics of quality.

Source of data, timeline and choice of characteristics

Hedonic pricing models, as a minimum, require data on prices and on the characteristics influencing those prices. Data have been tapped from four main sources, namely brochures providing information about districts and tourist facilities (Hamilton, 2007); a survey among hotels (Cox and Vieth, 2003); internet-based search engine for hotel information (Thrane, 2007; Chen and Rothschild, 2010); and tour operator brochures, which is the most common source used (Sinclair, Clewer and Pack, 1990; Clewer, Pack and Sinclair, 1992; Papatheodorou, 2002; Espinet, Saez, Coenders and Fluvià, 2003; Mangion, Durbarry and Sinclair, 2005; Haroutunian, Mitsis and Pashardes, 2005; Thrane, 2005, Rigall-i-Torrent and Fluvià, 2010).

Though tour operator brochures are the main source of data used in hedonic pricing models related to tourism, a debate is present in the tourism literature on the appropriateness of this source. The main issue on this here lies in whether there exists a distinction between the featured prices in the brochures and the actual prices at which the holidays are sold. Sinclair, Clewer and Pack (1990) argue that using price information from brochures provided by tour operators is more related to supply than demand for holidays. Whilst recognising that "the prices quoted in the brochure may not be the prices paid by all consumers if some of the holidays which are offered are not taken up and are sold at last minute 'bargain' prices" (Sinclair, Clewer and Pack, 1990, p.94), they state that if this does not happen to a great extent, one can assume that "the implicit prices derived from the hedonic equation approximates market clearing prices" (Sinclair, Clewer and Pack, 1990, p.94). Rigall-i-Torrent and Fluvià (2010), on

the other hand, argue that "it is reasonable to assume that brochure prices reflect "expected" prices paid by tourists" (p.3). This argument follows that presented by Papatheodorou, who again recognises this caveat, which he describes as "of limited scale", and considers the information provided in the brochure as "a very useful proxy for expected future sales" (2002, p.135). Additionally, the prices presented in the brochure by tour operators are formed on the basis of the past year's demand and holiday patterns and signal package tour quality (Papatheodorou, 2002; Israeli, 2002; Thrane 2005).

Most of the literature, sourcing data from tour operators' brochures or using other sources, presents a hedonic pricing model for a single year's season or for a particular week or month (e.g. Papatheodorou, 2002; Thrane, 2005; Thrane 2007; Chen and Rothschild, 2010). Only a few empirical studies (Espinet, Saez, Coenders and Fluvià, 2003; Mangion, Durbarry and Sinclair, 2005), have extended the conventional cross-sectional hedonic pricing model to utilising panel data for the analysis. Panel data analysis allows the possibility of estimating the variation over time, which is not quite addressed in the literature. This thesis will address this interesting issue of variation over time. It will provide hedonic pricing models for two different seasons to test whether variations occur from one season to the other within one tour operator's packages. Secondly, through the panel data model that will be presented, these variations over a longer period of time will be tested with a view to understanding from where these variations occur, whether from within the hotels or between the hotels featured in the tour operator's brochure.

The hedonic pricing models which have been applied in the tourism literature have generally focused on identifying the characteristics which may account for the price differentials. The choice of these characteristics is often quite arbitrary as the theory underlying the model does not specify such characteristics.

A possible difficulty is faced in the choice of characteristics in view of multicollinearity between hotel star rating and facilities. As Thrane (2005) explains, a specification error may arise because the star rating dummies would be endogenous explanatory variables. Thrane (2005) tests this by using a hierarchical regression procedure and concludes that though these attributes do not have direct effects on the package price, they have important indirect effects through the hotel star rating which therefore captures quality factors.

Whilst a general to specific approach has often been used in the choice of variables making up the model, other models have been formulated on the basis of the characteristics incorporated in previously published hedonic pricing empirical tourism studies. For example, Rigall-i-Torrent and Fluvià (2010) chose the private attributes on the basis of considerations presented by Espinet, Saez, Coenders and Fluvià (2003) and Haroutunian, Mitsis and Pashardes (2005). The research conducted by Espinet, Saez, Coenders and Fluvià (2003) based the choice of variables on external information, including in-depth interviews ranking the more important attributes of hotels in the sun-and-beach sector, the availability of reliable information and the attributes appearing in the brochure. This was complemented by assessing the real variation across hotels and the

statistical significance in explanatory analysis. This resulted in the final choice of explanatory variables being the hotel's star rating; the number of rooms; television/air-conditioning/minibar; garden; outdoor pool; sport; the hotel being located in front of the sea; the hotel being located close to the town centre; recent renovation of hotel; and availability of parking space. The year and month were included as additional independent variables to account for seasonality and the non-linear trend.

A different approach to the choice of variables is that adopted by Sinclair, Clewer and Pack (1990) who estimated a hedonic price model for tourism resorts in Malaga, basing the choice of characteristics on the notion that hotel star ratings are correlated to hotel characteristics giving rise to multicollinearity and applied canonical correlation analysis to identify which variables are contributing more to the correlation. Another approach guiding the choice of variables is that by Mangion, Durbarry and Sinclair (2005) who used factor analysis, not with the aim of creating factor variables for inclusion in the model, but to identify which characteristics were to be grouped together.

Various characteristics were included in the empirical studies that applied hedonic pricing to inclusive tour holidays (see Appendix 1, Table 1) and to the hotel product (see Appendix 1, Table 2). Irrespective of the empirical context, some characteristics emerge from all studies as always significant and more importantly as highly valued - in particular the hotel's location and its star rating. The results of the seminal study by Sinclair, Clewer and Pack (1990)

demonstrated the importance of location. It showed that the prices varied significantly between resorts due to the resorts' environments, as also indicated through the results of Papatheodorou (2002) and Thrane (2005). The hotel category's star rating is a variable which consistently significantly influences the price both of the package holiday and of the hotel, as evidenced in Appendix 1.

Other characteristics such as the size of the hotel have led to sometimes conflicting results, possibly as a result of the empirical context and the tourist profiles involved. The hotel size may be seen positively as a larger hotel tends to provide additional facilities, thus commanding a higher price (Papatheodorou, 1999). From the supply side, a larger hotel can benefit from economies of scale. On the other hand, a larger hotel may suffer from impersonal service (Sinclair, Clewer and Pack, 1990).

The empirical studies applying hedonic pricing models to tourism contexts have shown that price variations exist across tour operators, across destinations and resorts. These price differentials have been estimated, identifying the characteristics in the tourism offer responsible for such variations. Three main elements are particularly important for inclusive tour holidays: hotel category, size of the hotel (dependent on the context) and the location.

Location and accommodation prices

An interesting development in the literature is that, whilst many studies have shown that location plays a major role in determining tourism prices (Sinclair, Clewer and Pack, 1990; Monty and

Skidmore, 2003), more recently, other articles have focused on analysing the relationship between specific elements relating to location and accommodation prices.

Cox and Vieth (2003) estimate the rate of return on hotels' investment in open areas for three different locations in the State of Hawaii, US. This study shows that increases in the attractiveness of the environment surrounding the accommodation property can be indirectly reflected by the hotel rooms' rental rate.

Fleischer and Tchetchik (2005), analysing the price of rural tourist accommodation in Israel, assess whether tourists value that their accommodation is located on a working farm. They conclude that an outstanding view from the accommodation is positively related to price whilst being located on a working farm is not a crucial element for rural accommodation.

Hamilton (2007) studies the relationship between accommodation prices with coastal and landscape attributes in Schleswig-Holstein in Northern Germany. She concludes that the type of coastal landscape has an effect on the price of accommodation, with open coast being more valued and reflected in higher accommodation prices. These findings are particularly relevant to land use and tourism planning decisions.

Distinguishing between private and public attributes

Whereas consideration is given to public characteristics in empirical hedonic pricing studies on housing markets, this is not as common in the tourism applications. An attempt at this is made by Rigall-i-

Torrent and Fluvià (2007, 2010), who distinguish between private attributes and public goods embedded in the tourism product. The 2007 article analyses the effects of public goods on hotel prices in Catalonia. This is done by including in the hedonic pricing model the jurisdiction where hotels are located, an approach that may be considered to be limited in that the public attributes are not actually specified but it is assumed that the jurisdiction incorporates such elements. This limitation is recognised by Rigall-i-Torrent and Fluvià (2010) who then analyse public elements such as exclusivity, complementary products and services, crowdedness, natural environment and public safety in the model. Clearly distinguishing between private and public attributes provides insights which can assist tourism service providers and destinations develop competitive advantage over competitors. Decisions relating to destination positioning, location decisions by private firms, promotion strategies, provision of public goods could be more informed by the use of the findings from these studies.

Implications for managers and policymakers

The discussion and conclusions following the results of the hedonic pricing models relating to package holidays or hotels reviewed here have generally focused on providing possible reasons for the identified variations in prices, discussing why such observations have occurred. In spite of the valuable information such hedonic pricing models provide, very few articles have discussed the implications for managers and policymakers, and for achieving competitiveness. Exceptions are Mangion, Durbarry and Sinclair (2005) and Rigall-i-Torrent and Fluvià (2010), who highlight that such information can be

used at both destination and firm level, at both macro and micro levels. The obvious use of the estimates is for making strategic pricing decisions, a matter which is also recognised by Espinet, Saez, Coenders and Fluvià (2003), Haroutunian, Mitsis and Pashardes (2005) and Thrane (2005).

At a destination level, the results from the hedonic pricing models, particularly those quantifying the effects of location variables, are of relevance to urban and tourism planners and authorities (Mangion, Durbarry and Sinclair, 2005). These results can guide decisions relating to the permissible locations for hotel development and other development policies.

The hedonic price estimates can also throw light on the extent to which the provision of public goods is valued and what the effect on package prices and accommodation prices would be. Rigall-i-Torrent and Fluvià (2010) provide an interesting perspective on this matter. These authors explain that comparing the hedonic price estimate to the cost of marginally changing each attribute would provide the net marginal value of the decision to provide or not to provide a public good.

At a firm level, investment decisions can also be based on the evidence resulting from these models. Location decisions by private firms can be based on the differences in rents and differences in costs against the possible higher benefits resulting from higher mark-ups from different locations (Rigall-i-Torrent and Fluvià (2010). Additionally, as Mangion, Durbarry and Sinclair (2005) explain,

decisions relating to whether to upgrade or not, or which additional facilities and services to offer to achieve a better rate, could be more informed. Operational decisions, particularly marketing decisions, relating to promotional strategies, as argued by Rigall-i-Torrent and Fluvià (2010) can also be guided by hedonic pricing estimates.

Various insights can be sought from the hedonic estimates which could assist firms and destinations identify and develop competitive advantages. Since competing firms and destinations may change their own supply of characteristics, the coefficients in the hedonic pricing models may change over time. This highlights the importance of conducting estimates to identify variations over time and understand what the cause for such variations was. As Rigall-i-Torrent and Fluvià state, "old competitive advantages may vanish and new ones arise" (2010, p.11).

3.2 Conclusion

The aim of this chapter was to review the literature on the econometric models that will be used in this research for tourism policy analysis evaluating and informing policies aimed at achieving destination competitiveness.

Econometrics has been recognised in the literature as a strong analytical tool, which can assist in the design and evaluation of policies, leading to a more evidence-based approach to policy-making. Of utmost importance, and to avoid misguiding policy when using econometrics to inform policy-making, models should be

grounded in economic theory and the right functional form should be used. The advantage of econometric models is that such models provide an understanding of cause and effect. The Almost Ideal Demand System model and the hedonic pricing model are two econometric models which can be used for such policy analysis to assist in formulating evidence-based tourism policy.

Consumer behaviour theory underpins the AIDS model allowing for the analysis of relative prices and the estimation of demand elasticities. Most importantly, the AIDS model applied to a tourism context provides a deeper understanding and estimation of the interrelationships among destinations. Whilst the tourism literature presents a number of applications of this model, the AIDS model has not been applied to evaluate the impact of a tourism policy measure. The research presented here aims to contribute to filling this gap in the literature. It will examine, particularly through the application of a dynamic AIDS model, a tourism policy's effect on budget shares, price and income elasticities and consequently on destination competitiveness.

The characteristics theory of value forms the theoretical background to the hedonic pricing model. Applied to tourism, hedonic pricing analysis provides an understanding of which characteristics are valued by tourists and to what extent, testing tourists' sensitivity to product design, gauging also price sensitivity. The literature has shown that tour operator packages' pricing differences are due to variations in the tour operators themselves, in hotel category, in the hotel's location, in hotel size, and in the number of facilities provided.

This research will complement the existing literature by examining whether the valued characteristics remain the same over time, by assessing whether variations in prices occur within and/or between hotels featured by one tour operator, by testing the effect of relative prices on package holiday prices. The model will also be used to test what was the effect of the tourism policy on the package price. Such analysis for policy is useful to direct tourism policy, both at a firm and destination level. How the findings can be translated into tourism policy is also discussed, providing a further contribution to the literature.

This chapter, along with Chapter 2, has identified four main gaps in the literature. Firstly, there is little or no literature relating to evidence-based policy-making in tourism. Secondly, the AIDS and hedonic pricing models have not been used to evaluate tourism policy measures aimed at improving destination competitiveness. Thirdly, the hedonic pricing model applications relating to tourism have not taken into account relative prices, nor often applied panel data for hedonic price analysis. Fourthly, the tourism literature does not frequently indicate how findings resulting from econometric models can direct tourism policy. This thesis, building on the literature reviewed in this chapter, aims to contribute to the literature by filling these gaps, eventually publishing papers related to each of these literature gaps.

CHAPTER 4: METHODOLOGY

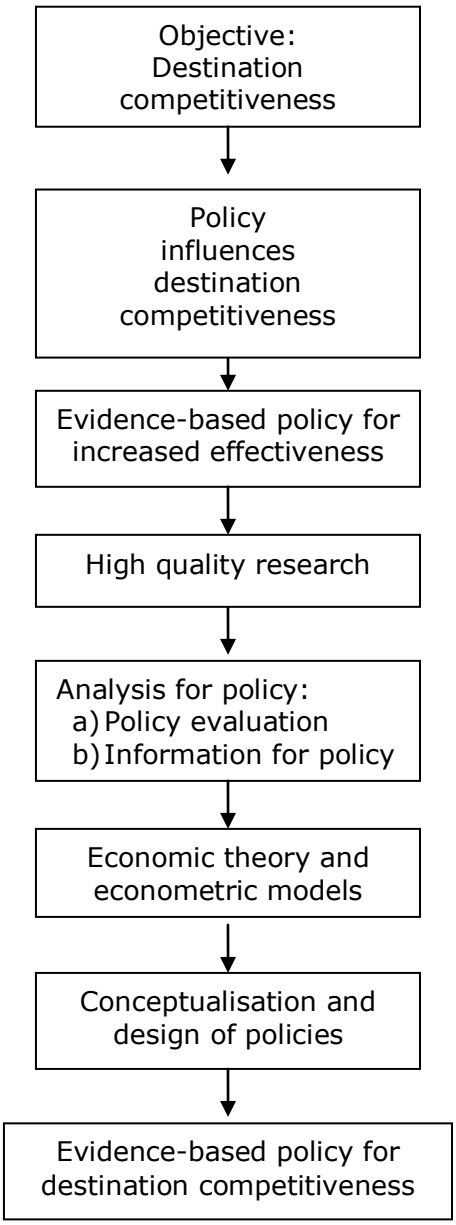
4.0 Introduction

On the basis of the debates in the literature, reviewed in Chapters 2 and 3, and their outcomes, this chapter aims at establishing the methodology applied in the research presented in this thesis, which seeks to address the question: How can an evidence-based tourism policy contribute to the achievement of destination competitiveness?

According to conceptual frameworks (Dwyer and Kim, 2003; Ritchie and Crouch, 2003) and empirical research (Enright and Newton, 2004, 2005; Lee and King, 2009; Crouch, 2010), destination competitiveness is influenced by policy, amongst other factors. Policy can become more effective and efficient if its conceptualization and design is based on an evidence-based approach (e.g. Dye, 2005; Head, 2008; Dunworth, Hannaway, Holahan and Turner, 2008). Such an approach requires rigorous, high quality research (e.g. Davies, 2004; Hall, Whipple and Jackson-Elmoore, 2008), including policy analysis that has the potential to create sound evidence. Policy analysis, specifically 'analysis for policy', involves both policy evaluation and providing information for policy-making (Hill, 2005). Econometrics provides a useful tool for such policy analysis insofar as models are based on economic theory (Lucas, 1976). Though the potential usefulness of econometrics for policy analysis has been widely debated, it has not often been illustrated (Cho and Rust, 2008) particularly for public policy-making. On the basis of the reviewed

literature, Figure 4.1 depicts a process towards evidence-based policy-making aiming at achieving destination competitiveness.

Figure 4.1: A process for evidence-based policy-making



Source: Own compilation based on literature

Information about price and income elasticities relative to those of competitors is required for an understanding of destination competitiveness. The AIDS model, grounded in consumer behaviour

theory, examines this substitution effect and, as will be shown in Chapter 6, is therefore very appropriate for the analysis for policy relating to competitiveness:

> "Given the theoretical merits of AIDS with regard to its ability in examining the substitution effect, this method is highly suitable for analyzing the destination competitiveness."
>
> (Song and Li, 2008, p.212)

The characteristics theory of value and hedonic pricing modelling, as will be presented in Chapter 7, provide a further framework within which to examine the competitiveness of inclusive tour holiday packages. In fact,

> "the hedonic price analysis may provide a very good benchmark for studying competitiveness."
>
> (Stabler, Papatheodorou and Sinclair, 2010, p.72)

Importantly, these two economic theories and models allow the competitiveness analysis to take place at both the macro and micro levels. This is also in line with the destination competitiveness framework of Ritchie and Crouch (2003) which considers both environments. It is on these foundations that the methodology adopted in this thesis is based.

4.1 The Methodology

This thesis delves into evidence-based policy-making by illustrating and examining the potential usefulness and additional information that can emanate from the analysis for policy. This in itself is a

contribution to the literature as most of the literature reviewed in Chapter 2 and relating to evidence-based policy-making was based on stakeholder opinions. Analysis for policy is conducted through reference to principles and modelling taken from economics, which can make a strong contribution to the analysis for policy by assisting the conceptualization and design of policies. It would be presumptuous to consider this approach as the only legitimate method for tackling policy analysis, particularly since, as Dunn suggests, policy analysis "is a process of multidisciplinary inquiry" (2004, p.2).

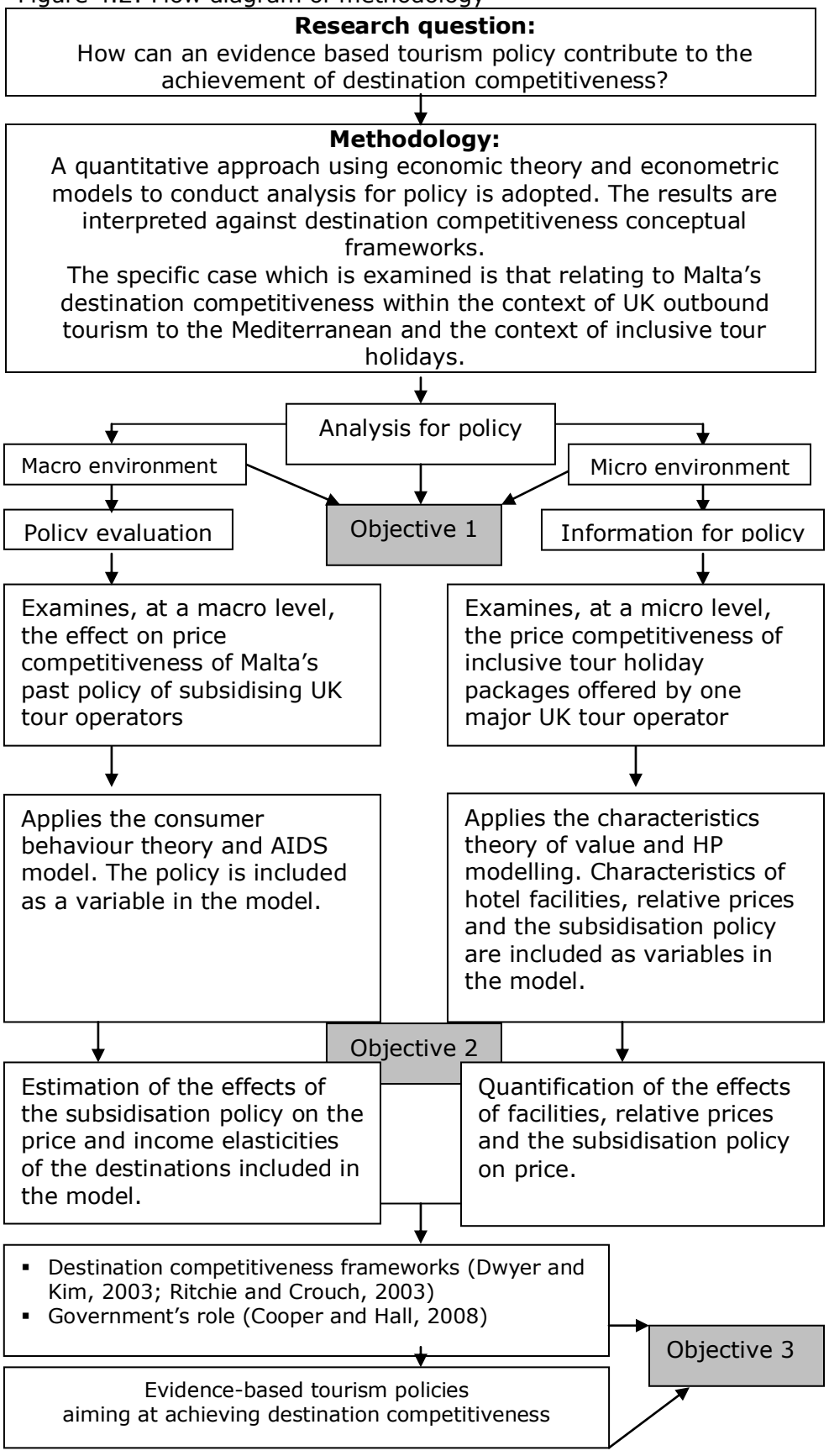
As explained in the introductory chapter, the empirical research relates to the context of the UK outbound travel market to the Mediterranean, characterized by inclusive tour holidays. The Mediterranean accounts for one-third of the world's tourist flows, being the most popular destination region (UNWTO, 2010). In spite of the important role this region plays in tourism there is a lack of studies on the Mediterranean (Farsari, Butler and Prastacos, 2007). Ioannides, Apostolopoulos and Sonmez (2001) argued that this may be attributed to factors such as fragmentation of Mediterranean basin in terms of governance, culture and administrative status, fragmentation of data availability and lack of an effective umbrella organisation for the region. Since the analysis presented in this thesis focuses on Mediterranean destinations, a further contribution to the literature is made.

This methodology is designed to meet the objectives of the research. To recapitulate, the objectives are to:

1. show that policy analysis at macro and micro level can create evidence for use in policy formulation;
2. present a case demonstrating the potential usefulness of econometric modelling in conducting such policy analysis;
3. depict how such analysis interpreted against destination competitiveness frameworks can be utilized at both government and firm level to formulate policy on the basis of this evidence.

A graphical representation of the adopted methodology is provided in Figure 4.2.

Figure 4.2: Flow diagram of methodology



Source: Own compilation

The methodology depicted in Figure 4.2 is based on the premise that high-quality research is required for an evidence-based policy. Such research in this thesis focuses on analysis for policy. The first objective of the research is met by applying analysis for policy to both the macro and the micro contexts. The second objective of the research is met by applying econometric models to conduct policy evaluation and to provide information for policy, two of the aspects relating to analysis for policy.

Policy evaluation is carried out at the macro level, whereby the effect of the Maltese government's past tourism policy to subsidise British tour operators is estimated in terms of its influence on price and income elasticities. Such elasticities affect destination competitiveness. This analysis is carried out through the application of the AIDS model, incorporating the specific tourism policy in the explanatory variables of the model. Including policy in the AIDS model is a contribution to both the AIDS and tourism policy literature, a methodology which has not been previously adopted, as indicated in section 3.1.2.3.

At the micro level, information for policy is generated through examining which characteristics making up inclusive tour holidays influence price. Basing on the characteristics theory of value, hedonic price modelling is applied. Using cross-sectional data, the valued characteristics of holiday packages are identified together with the resulting variations and their impact on price. The empirical research presented here uses data from one tour operator to estimate price differentials relating to variations in the characteristics of inclusive

tour holidays offered by a single tour operator. This goes beyond what is already proven in the literature, i.e. that price variations arise from different tour operators, as seen in section 3.1.3.3 from the studies by Sinclair, Clewer and Pack (1990); Clewer, Pack and Sinclair (1992); Papatheodorou (2002) and Haroutunian, Mitsis and Pashardes, (2005). Additionally, panel data are applied to the hedonic pricing model examining the effect of relative prices and of the subsidization policy on the package price, providing not only information for policy formulation but also evaluating the policy at a micro level. This methodology is innovative in that panel data have meagerly been applied to this model, particularly within the tourism context and, secondly, hedonic pricing models have, as indicated in the literature review hardly been used (only exceptions are Espinet, Saez, Coenders and Fluvià, 2003; Mangion, Durbarry and Sinclair, 2005) to provide information about the effect of relative prices and of policies.

The techniques used in the applied econometric models, including choice of destinations, data and variables used, functional form and estimation method are described and justified in Chapter 6 in the case of the AIDS model and in Chapter 7 in the case of the hedonic pricing models (refer to Sections 6.2.2.1 and 6.2.2.2 for AIDS models and to Sections 7.2.2 to 7.2.2.3 for HP models).

The third objective of the research is achieved by interpreting the results of the econometric models against the destination competitiveness frameworks. Possible policies that can be adopted by

government, given its role, and by hoteliers or tour operators at the micro level are presented.

Prior to presenting the justifications for the adopted methodology, it is important to discuss the epistemology forming the basis of this study. This is what follows next. The rationale for using econometric models is then presented, leading on to a discussion on the justifications and validation of the applied econometric models.

4.2 Epistemology underlying this thesis

This thesis is set within economics, for which there exists many definitions. One cannot hope for a stable definition of economics given the diversity of areas that it addresses (Backhouse and Medema, 2009). Economics, however, in many textbooks, is classified as a science, "a social science that studies the choices that individuals, businesses, governments and entire societies make as they cope with scarcity" (Bade and Parkin, 2002, p.5).

The claims concerning economics' approximation to science are based on the discipline having a distinct set of methods. These methods include specific theories, hypotheses formulation, gathering evidence and then revising hypotheses as needed, to provide knowledge. This is in accordance with the Cartesian and Lockean view of science, which holds that "the distinctive success of scientific knowledge is because it possessed a method, the scientific method, a corpus of sure procedures which, if applied, with appropriate scruple and

commitment, are sure to produce knowledge of the world" (Hughes and Sharrock, 1997, p.11).

Further similarities between economics and science may be drawn when considering their respective epistemology. Economics holds that the knowledge derived from it reflects that from science, which takes "the form of a theory – 'a well supported and well-tested hypothesis or set of hypotheses' (Shermer, 1997, p.19) – or a fact – 'A conclusion confirmed to such an extent that it would be reasonable to offer provisional agreement' (Shermer, 1997, p.19)" (Barringer in Ashman and Barringer ed., 2001, p.5).

Science aims at objectivity and providing knowledge based on logic and empirical evidence, "the two bona fide forms of knowledge" recognized by positivism (Hughes and Sharrock, 1997, p.29). It is Popper who redefines the idea of 'objectivity' by stating that "scientific theories are never fully justifiable or verifiable, but … they are nevertheless testable. […] the objectivity of scientific statements lies in the fact that they can be *inter-subjectively* tested" (Popper, 1959, p.44).

The implications of this lie in the link between empirical procedures and scientific statements, theories and hypotheses. Positivist philosophies of science, upon which positive economics is based, accorded empirical research (which must also be inter-subjectively tested, according to Popper, 1959) great importance in the production of knowledge. This supported Comte's theory of knowledge, which stressed that science "consisted of precise and

certain method, basing theoretical laws on sound empirical observation" (Hughes and Sharrock, 1997, p.26). The significance of the above for this thesis lies in the fact that preeminence is given to method, theory, laws and empirical findings.

Attacks, particularly by postmodernists and post-structuralists (such as Derrida, 1978; Lyotard, 1979; Ronell, 2005) have been launched at positivism, which ultimately underwrites these methodologies. Such attacks are a response to the suspicion that positivism tends to promote a stance that appreciates the prices of everything and the value of nothing, whilst also being weak with intangibles and immeasurables. However, this criticism is not quite justified with respect to economics. Developments in economics increasingly are looking into such indefinables, whilst in econometric modelling this difficulty of measuring indefinables is acknowledged through the inclusion of the error term, which is meant to capture such other factors. Positivists did not appreciate the diversity of forms of understanding, which could be sought from non-theoretical and possibly non-scientific kinds of explanation (Hughes and Sharrock, 1997, p.19-20). What is irritating to postmodernists, who are "inherently skeptical of sweeping claims to authority and rationality" (Starkey and Whittington, 1997, p.9), is that econometric model results are presented as revealing one truth and generating knowledge to form the basis for effective practice. Unlike positivists, postmodernists are keenly aware of the role of interpretation, relativism, local knowledge or contingency in the formation of knowledge and this persuades them that there is a certain degree of deliberate constructedness even in science. For postmodernists, what

science discovers is not as incontrovertible as it might believe or suggest, but to some extent a function of the operations of the research procedure brought to bear upon the object of knowledge. These operations give an impression of logical, precise, clinical detachment, but that only may be an *a posteriori* effect which disguises the uncertainties that had bedevilled the research (Nash ed., 1994).

Contrary to these postmodernist arguments,

> "if behavioural relations and parameter values are uncertain, counterfactual experiments with alternative specifications of behaviour and plausible ranges of parameter values are a better basis for policy making than subjective debates that leave the door open to ideological discourse and obfuscation."
>
> (Sadoulet and Janvry, 1995, p.1)

It is recognized that there might be aspects of this research which are not quantifiable and therefore a combination of approaches could enhance understanding. Yet it must be noted that most policy analysis in the literature, as shown in the literature review chapter, was conducted through qualitative research. Contributing to the literature, the scope of this thesis has been set to quantify, through econometric modelling, that which can be quantified with respect to analysis for policy for destination competitiveness. It looks at the implications of policy decisions, delving into cause and effect and ways of improving outcomes. It is easy to miss many of the complex effects of a policy but empirical modelling can help reveal some of these effects. Notwithstanding, some interpretivist thinking is presented in Chapter 8 where the models' results are discussed

against the background of the competitiveness frameworks. In addition, provision is made of possible unquantified explanations which do not in any way pose as certainty. Once the quantification has been established, future research may go beyond into the realm of subjective debates.

The research is also based on the important and essential premise that economic theory underlies the econometric models chosen for the analysis. The theories that have been presented in the literature review chapter, namely the consumer behaviour theory and the characteristics theory of value, may be considered by some as remote from 'reality'. In the case of the former theory, decisions to travel are related solely to budget allocation, which in return is influenced by the identified quantifiable explanatory variables and the error term. In the case of the second theory, the consumer's utility is drawn from the attributes of the product whose price reflects such valuation. Any economics textbook explains that economic theoretical models are used to simplify the complexities of the economic world. This can lead to questioning, some of it potentially quite philosophical, of the role that theory can possibly play. McCloskey robustly compares pure theory to fantasy:

> "Pure theory in economics is similar to the literary genre of fastasy. Like fantasy it violates the rules of 'reality' for the convenience of the tale, and amazing results become commonplace in a world of hypotheses. … The task of pure theory is to make up fantasies that have a point … Pure theory confronts reality by disputing whether this or that assumption drives the result, and whether the assumption is realistic."
>
> (McCloskey in Nash ed., 1994, p.17)

This parallel between theory and fantasy questions the 'truth' about the world economics strives to provide. Yet, the assumptions upon which economic theories are based seek to simplify complex economic situations. In this way explanations for an aspect of the research problem are provided. Often this is done for a particular context defined by the assumptions upon which economics is founded.

4.3 Justification for the adopted methodology

The methodology described in section 4.1 meets a number of criteria identified in the literature as essential for conducting policy analysis. Though such engagement with public policy theory is quite lacking in the tourism literature (Hall and Jenkins, 2004), a framework for the study of tourism public policy was formulated by Hall and Jenkins, in 1995. Table 4.1 outlines the criteria specified in this framework and explains how the methodology adopted in this thesis meets these criteria. All of these aspects are incorporated in the adopted methodology, indicating the explanatory powers of the study.

Table 4.1: How the methodology meets the criteria for tourism public policy analysis

Aspects essential to critical analysis of tourism public policy	**How the methodology meets these aspects**
A) Analyse public policy at a number of levels (macro, middle, micro) over time and space.	▪ The tourism public policy to subsidise tour operators is analysed in terms of its impact on the competitiveness of destinations (macro level) and secondly in terms of its impact on package holiday prices (micro level). ▪ In the analysis to inform policy, considerations are given to implications for government, the private sector and tour operators, reflecting different levels. ▪ Time series analysis, cross-sectional and panel data analysis are applied, taking into account time and space.
B) Incorporate the historical imprint of earlier decisions, actions, procedures and programs, as a short-term account of the public policy process might provide misleading findings.	▪ The analysis carried out is set within a context which is the outcome of past decisions and actions. The models incorporate time and hence the historical effects. ▪ A historical analysis of tourism policies in Malta is also provided – refer to Chapter 5.
C) Utilize the case study approach	▪ A case study approach is adopted focusing on UK outbound tourism to a number of Mediterranean destinations, with a key focus on Malta. The case study also focuses on a particular tourism policy, over a specified period of time and on package holidays.
D) Link description, theory and explanation	▪ Descriptions are provided. The models that are adopted for the analysis are grounded in economic theory. An explanation of the findings is provided together with a discussion of the implications.
E) Give explicit recognition to ideology, power and values as well as institutional arrangements	▪ The description of tourism policies in Malta recognizes this through the mention of the ideologies and principles of the governments which adopted the specified policies at particular points in time.
F) Acknowledge that the values of the researcher surround all that is done in the course of the study.	▪ This is acknowledged particularly in view of the researcher's place of residence and professional background.

Source: Hall and Jenkins, 1995, in Hall and Jenkins, 2004, p.532 for the information included in the first column and own compilation for information provided in the second column

In spite of its strong explanatory power, one may criticise the adopted methodology on the basis that it is overly quantitative and technical, arguing that information on the relationship between policies and goals could be obtained more easily and more meaningfully by surveying key stakeholders or experts. What, however, such an analysis would not provide, and what the methodology presented and utilised in this thesis accomplishes, is to assess the causal relationship between the goals sought and the policies. Furthermore, focus is placed on sensitivity analysis, measuring the extent to which a policy was or could be effective. This is done through a rigorous scientific approach which is not based on stakeholders' perceptions or interpretations of what the results were and which tend to be subjective, but based on the actual measures and results for tourism competitiveness.

Tourism policy is in fact primarily an economic policy (Sessa, 1976) requiring, precisely, economic analysis to assess its economic effectiveness. In addition, the policy being evaluated is related to economic factors including exchange rates and what is being assessed is the policy's impact on elasticities and on package prices, both economic measures. When carrying out policy analysis to inform policy, once again one is dealing with economic factors. As all of this involves economic behaviour, an economic analysis for tourism policy is considered to be highly justifiable. This is done through the application of econometric models, a choice which is explained in the next section.

4.4 Justification for the use of econometric models for the analysis for policy

Econometrics unifies economic theory, mathematical tools and statistical methodology, seeking to estimate economic relationships and understanding economic behaviour. Building a framework of analysis and describing the behaviour of the agents in the system, some econometric models assess the causal relationships between variables and resulting impacts. The econometrics presented in this thesis does not only, however, just look at such relationships and impacts, but assesses how these are, or can, be affected as a result of a tourism policy. Econometrics therefore is considered to be an appropriate methodology for policy analysis as it also meets the criteria laid out in Table 4.1.

What is of utmost importance in econometrics is the choice of models. Logically, this depends on what is being modelled and what the aim of the research is. To evaluate models, Lester and Stewart (2000) consider usefulness as the best criterion for evaluating a model. They emphasise that

> "if we are going to use models when thinking about public policy, then we need to have a number of criteria for evaluating the usefulness of these models."
>
> (Lester and Stewart, 2000, p.53)

Six criteria, to which Lester and Stewart also refer to, were developed by Dye (1995) for this purpose. Table 4.2 outlines these criteria for evaluating models and specifies how these criteria are met by the models developed and presented in this thesis.

Table 4.2 Criteria for evaluating models

Criteria	Models for evaluating tourism policy	Models for informing tourism policy
1 Does the model order and simplify political life so that we can think about it more clearly and understand relationships in the real world?	The models used to assess the tourism policy take into account a series of determining variables which are expected to affect, in the first set of models, tourism demand and in the second set of models, package holiday prices. This facilitates an understanding of these relationships.	The model seeks to understand the relationship between package holiday prices, their characteristics and specific economic factors including relative prices. This simplifies reality without oversimplifying to become meaningless.
2 Does the model identify the most important aspects of public policy?	The models incorporate the policy to provide a subsidized exchange rate to tour operators. The models estimate the effect of this policy on tourism demand elasticities and package holiday prices.	The models' results identify the characteristics that affect the holiday package price indicating the important areas for policy. It draws attention to what is really significant for public policy.
3 Is the model congruent with reality?	The models are case studies and bear a strong relationship to the reality of the case study. The models incorporate the actual rates of exchange and real world events. In the second instance, data from brochures selling real packages are used.	Reality is reflected through the case study approach. The models are drawn up on the basis of information provided in brochures selling real packages.
4 Does the model communicate something meaningful in a way that we all understand?	The AIDS models show how destination competitiveness was affected and the resulting changes in elasticities. This is considered relevant and important information. In the HP model, the effect of the policy on package holiday prices is communicated.	The models provide a measure of the extent to which holiday package prices are affected by characteristics and by macroeconomic variables.
5 Does the model direct inquiry and research into public policy?	The models test hypotheses. The relationships are tested with real-world data for input into public policy.	The models test hypotheses. The relationships are tested with real-world data for input into public policy.

Criteria	Models for evaluating tourism policy	Models for informing tourism policy
6 Does the model suggest an explanation of public policy?	An explanation of Malta's tourism policies is provided separately. The models explain how competitiveness was affected through the changed demand elasticities and package holiday prices. In both cases, a series of relationships are presented.	The models explain the relationship between the characteristics forming the package and the price. This leads to explanations of how public policy can affect package prices through influencing such characteristics.

Source: Column 1: Dye (1995) referred to by Lester and Stewart (2000), pp.53-54. Columns 2 and 3 own compilation

Table 4.2 indicates that the econometric models applied in this thesis meet the criteria developed by Dye (1995) for evaluating models.

These criteria are met not simply because of the applied models are assessing policy or informing policy, but also because of the type of econometric models being applied. What follows in the next section is a discussion to justify the choice of these econometric models, namely the AIDS model and the HP model.

4.5 Justification for the choice of econometric models – AIDS and HP models

As explained in section 4.1, two econometric models are used in this thesis, namely the AIDS and HP models. These models were chosen for a number of reasons related to the aims of the research, what is being modelled, the strength of the models and their applicability and adaptability to policy analysis. Additionally, the main motivation behind the choice of models was to ensure that policy implications

would not be misleading. This could arise if the models chosen were not grounded in economic theory:

> "Empirical studies which are undertaken without an explicit theoretical underpinning may produce biased results with misleading policy implications for the area concerned."
> (Stabler, Papatheodorou and Sinclair, 2010, p.23)

This section will outline the reasons for the choice of the Almost Ideal Demand System model, followed by a justification for the choice of the hedonic pricing model.

4.5.1 Justification for the AIDS model

The aim of the research is to assess the effect of the policy on destination competitiveness, measuring changes in price and income elasticities and hence the destinations' relative price competitiveness. Demand analysis had to be conducted. This could be done either through a single equation demand model or through a systems-of-equations model.

Single-equation tourism demand models have been generally adopted by the literature, but without any specification of the theory underpinning such models – a recurrent weakness of such demand models, as elaborated upon in Chapter 3, section 3.1.2.2. System of equations models, on the other hand, use economic reasoning to justify the choice of variables and form of the model, establishing the set of constraints which the demand parameters must satisfy, limiting the number of independent parameters to be estimated and ensuring consistency in the results obtained. The strength of the AIDS model,

which is a system of equations model developed by Deaton and Muellbauer (1980) and applied in this research, undoubtedly lies in that it is grounded in the economic theory of consumer behaviour. It is formulated in a way which is consistent with aggregation from the individual tourism consumer to the macroeconomic level.

The choice of model depends on what is to be estimated taking into consideration the policy objective. Both approaches permit the formulation and testing of hypotheses related to the effects of variables on demand. They provide elasticity estimates that quantify the response of demand to a change in an independent variable. However, whereas the single-equation model provides information relating to changes in the levels of tourism demand for a single destination, the AIDS model (reproduced hereunder from section 3.1.2.2) focuses on the changes in the budget shares of tourism expenditure attributed to a set of destinations (Syriopoulos and Sinclair, 1993, p.1541).

$$w_i = \alpha_i + \Sigma_j \gamma_{ij} \log p_j + \beta_i \log\left(\frac{x}{P}\right) \qquad (4.1)$$

where, when applied to tourism, w_i is the share of the budget of the residents in the source market j allocated to tourism in destination i; α_i, γ_{ij} and β_i are coefficients to be estimated; p_j is the price level in origin j; x is the budget for tourism expenditure by residents of origin j; P is a price index taking account of prices in the destinations.

This methodology permits estimation of expenditure-, own- and cross-price elasticities, allowing for an investigation of the interrelationships between alternative destinations, a further

advantage of the AIDS model. Li, Song and Witt argue that consequently the AIDS model provides "more reliable information for policy evaluation than the single-equation alternatives" (2004, p.141).

Other more recent models exist and include structural equation modelling, which examines the causes and interrelationships between different types of tourism demand in an integrated framework. Discrete choice models address the probability of choice of a destination but depend on the availability of relevant disaggregated data, which has led to limited use of this model. Neural networks have been developed as more appropriate for forecasting tourism demand (Uysal and El Roubi, 1999). The Rubin-Causal model, the currently dominant framework for program evaluation, presents a potential outcomes framework assessing participation or lack of it, in binary, multivalued discrete or continuous treatments. The focus of the part of the thesis where AIDS is applied is to estimate, in quantitative terms, the effect of the policy on elasticities. This makes these other models less relevant to this research.

The AIDS model was also adaptable for the policy analysis that was to be carried out. The policy being evaluated, that relating to providing tour operators with a favourable exchange rate, was justified on redistribution grounds in that it was intended to induce the behaviour of a potential tourist, also through instigation by the tour operator, to choose Malta rather than another destination. A model which could reflect this had to be chosen since an important consideration in econometrics is that the model reflects reality. This

the AIDS model does through the adding up restriction (explained in Chapter 3, Section 3.1.2.1) making the model appropriate for evaluating the effect of this policy.

The AIDS model not only reflected such theoretical expectations from this policy, but could also be adapted in its formulation to incorporate this policy through the inclusion of dummy variables and through the estimation of the relative price variable.

Considerable attention has been paid to the study of relative price competitiveness as a key determinant of tourism demand at the international level. Studies, reviewed in Chapter 3, have attempted to estimate price elasticities of demand with a view to indicating the extent to which a change in relative price competitiveness will affect tourism demand. The focus on relative price competitiveness has tended to emphasise a policy of competition by means of holding effective prices at lower levels than those of competing destinations.

This thesis makes a substantial contribution to the literature in that the AIDS model application presented here examines how a destination's policy to provide subsidies influenced price competitiveness in specific tourism destinations. The literature applying the AIDS model to a tourism context has not as yet included policy as an explanatory variable. In this thesis, this is done by estimating the effect on price competitiveness of the chosen destinations at a macro level relative to both the source market and each other. This was the research aim which could be achieved through the application of the AIDS model. Details about model

specification, the choice of destinations and variables, the data used and the econometric estimation techniques applied in the empirical research are presented in Chapter 6.

4.5.2 Justification for the hedonic pricing model

The analysis for policy set within a micro context seeks to provide possible measures for understanding and assessing destination competitiveness with the aim of defining appropriate policies to achieve such competitiveness. It delves into the attributes of the products offered leading to quality considerations, focusing on the package holiday product. The aim is to inform policy about the product aspects, which tourists value and which, hence, require particular policies to be brought to bear.

The main reason for choosing the hedonic pricing model for this analysis was that it is grounded in the characteristics theory of value, which reflects that which was being researched, namely, the attributes which tourists value in a holiday package. The fact that the model is grounded in economic theory justifies its use and strengthens the validity of the results. The economic model specifies that

$$P(Z) = P(z_1, z_{2,} \dots , z_{n)} \qquad (4.2)$$

where P is the observed package price within the context of the empirical research, Z is the vector of attributes and $z_1 \dots z_n$ are the individual characteristics.

The hedonic pricing model was chosen as the appropriate model to conduct such an analysis, given that it is appropriate for competitiveness analysis (Stabler, Papatheodorou and Sinclair, 2010). It could be applied to identify and estimate variations in package prices over time – information required to understand competitiveness. Most of the literature applying hedonic pricing models used cross-sectional data for analysis. The research conducted here, whilst initially presenting two models using cross-sectional data relating to characteristics and comparing results, focuses primarily on utilizing panel data, which allows for the possibility of estimating the variation over time - "it incorporates much richer information from both time series and cross sectional data" (Song and Li, 2008, p.212).

Though panel data gives additional information that cross-sectional data analysis cannot provide, hedonic pricing models based on panel data are not common in the literature. Exceptions are Espinet, Saez, Coenders and Fluvià (2003) and Mangion, Durbarry and Sinclair (2005). Espinet, Saez, Coenders and Fluvià (2003) apply panel data to a hedonic pricing model to the areas of the southern Costa Brava in Spain, a single region in a major destination. On the other hand, Mangion, Durbarry and Sinclair (2005) apply panel data to the wider context of Mediterranean destinations. They examine inclusive tour holidays featured in a major UK tour operator's brochure and include the UK's consumer price index as a variable to estimate the effect of inflation on the package price.

Methodological differences are also present in this research, particularly in terms of the methodology adopted for the choice of variables to be included in the model, as further outlined later on in Chapter 7. Table 7.2 lists the independent variables included in the models. Suffice here to state that whereas in most of the literature, as outlined in the literature review chapter, the choice of variables is based on external information or previously published articles, the methodological difference present in this research is that factor analysis is applied to decide on the attributes which are to be included as variables in the model.

The hedonic pricing model was also adaptable for policy analysis, first to inform policy about the effect on prices of characteristics, relative price and the subsidization policy. The techniques applied for this econometric analysis will be outlined in Chapter 7. In informing policy, the hedonic pricing model estimates the effect of characteristics on package prices, indicating which characteristics need to be included or excluded in the package to increase or decrease the package price. Such results are then used to inform policy-making to adopt policies which support or discourage characteristics accordingly. The hedonic price model also allowed for the inclusion of particular variables which were important for such policy analysis and which may not be considered as 'prima facie' characteristics but which are in fact intrinsic to package pricing by tour operators. These variables, of a macroeconomic nature, included inflation, exchange rates and relative prices, as will be described in more detail in Chapter 7. Though microeconomic analysis is carried out through the hedonic pricing model, given that macroeconomic

variables may influence micro decisions and given that this has to be reflected in the model, such macroeconomic variables were included in the hedonic pricing models. The effect of the destination's relative price on package prices is examined - an issue left, as yet, unexplored in the literature: this notwithstanding that price competition in the Mediterranean is a significant determinant of tourism demand.

The hedonic price model, additionally, could be adapted to assess whether policy (specifically the Maltese government's subsidy policy), was reflected in the package price. This was done by including in the model relative prices and a dummy variable representing the subsidy policy. Hence the effect of the policy on destination competitiveness at the level of package holidays was estimated. Further details on this are provided in Chapter 7. The hedonic pricing model therefore was not only appropriate to inform policy but also to evaluate policy in terms of destination competitiveness.

4.6 Conclusion

This chapter has outlined the methodology adopted in this thesis for the empirical policy analysis. It has shown that whilst quantitative analysis – the approach adopted here - may be criticized mainly through postmodernist arguments, it does have strong merits particularly with regard to measuring what is measurable, and doing so as precisely as conceivable. Econometrics can assist in identifying and estimating certain effects that otherwise would probably be left unrevealed within the complex impacts of a policy. It not only has the

potential to evaluate past policies but also can direct future policy. Caution is however to be exercised in applying econometrics for policy-making, since if not well modelled it could result in misguided policy. Utilising models which are grounded in economic theory ascertains a level of econometric policy analysis. Consumer behaviour theory and the characteristics theory of value underlie the econometric models applied in this thesis, AIDS and hedonic pricing models, respectively. The specification of the models is informed by these economic theories that throw light on the determinants of the budget shares in the case of the AIDS model and of the price in the case of the HP model.

Given that "extensive description and comparative history are fundamental entry points into any policy debate" (Sadoulet and Janvry, 1995, p.1), what follows is a descriptive analysis of the tourism policies that have characterized Malta's tourism development. The quantitative modelling, including the model specification, the data and variables used, the applied econometric techniques and results for the AIDS and HP models, is then presented in Chapters 6 and 7. This is done with a view to understanding some of the complex relationships and the magnitude of past and expected impacts.

CHAPTER 5: A DESCRIPTIVE ANALYSIS OF MALTA'S TOURISM POLICIES AND DEVELOPMENT

5.0 Introduction

Policy analysis should be carried out with an understanding of the context within which the policies analysed were adopted. This chapter, intended as a background for a better understanding of the policy analysis presented in the next two chapters, aims to outline the policies that helped shape the development of tourism in Malta, starting off from 1958 through 2009.

International market forces and events had major influences on the Maltese economy and consequently on tourism, its management and development. During the 1960s, Malta was faced with unexpected declines in British military expenditure. The energy crisis and unprecedented inflationary pressures characterised the 1970s. International recession was a major determinant for the 1980s. Globalisation and competitiveness were the major challenges during the 1990s. The turn of the century brought about new challenges for tourism, ranging from terrorism to flu outbreaks, from environmental difficulties to turbulence in the airline sector to financial and economic crises. These different scenarios resulted in different policy responses from the Maltese government. The provision of financial incentives to different players in the tourism sector and investment in tourism infrastructure were the more common policy responses.

The next sections will describe Malta's economy, within which the tourism industry was operating in the past fifty years, and present a

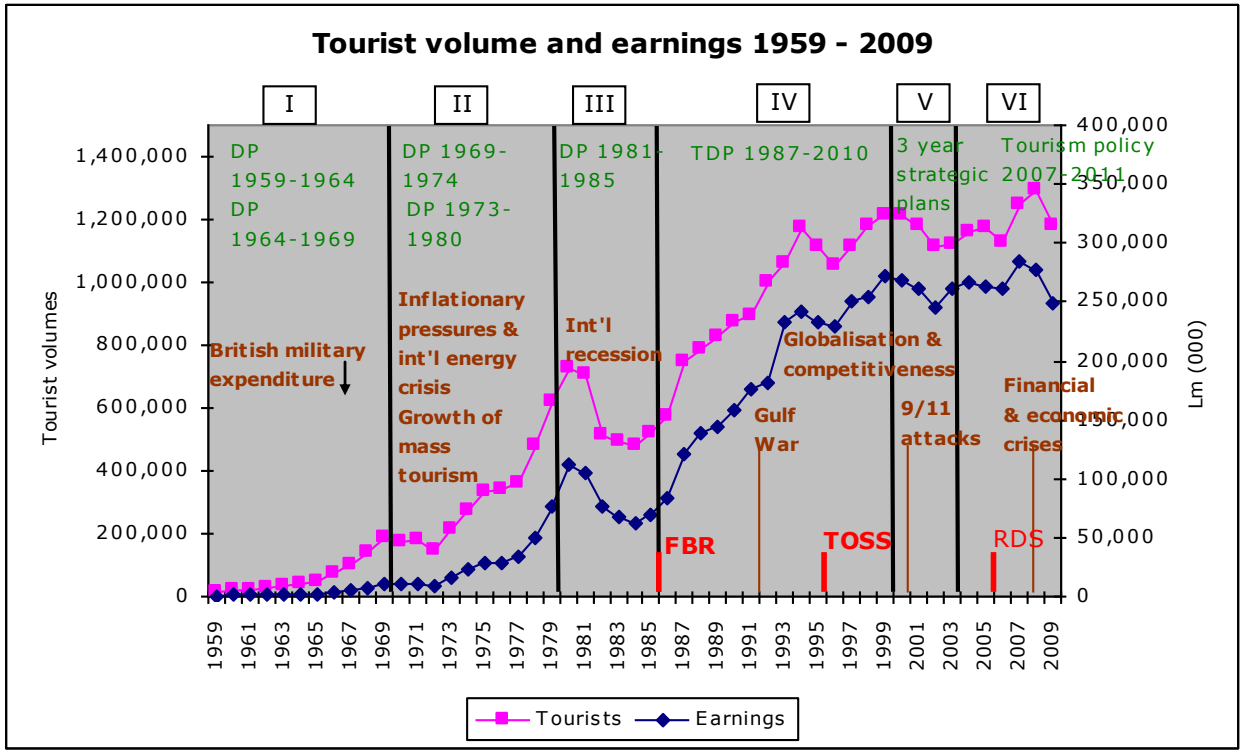
descriptive analysis of the policies which were adopted. This chapter will also explain the markets that were targeted, the resulting tourism demand for Malta and how the supply side acted or reacted to changes in policies and market forces. Particular attention will be paid to the policies that were aimed at Malta's major source market, outlining how tourism from the UK to Malta developed as a consequence.

5.1 The policies that helped shape Malta's tourism industry: 1958 – 2009

Tourism in Malta can trace its beginnings to 1958 following the Emergency Ordinance XIII of 1958 establishing the Malta Government Tourist Board (Pollacco, 2003). Over the years, economic, planning and tourism policies were adopted by the Maltese government to stimulate and steer tourism development. These policies, along with international factors influenced the performance of Malta's tourism industry.

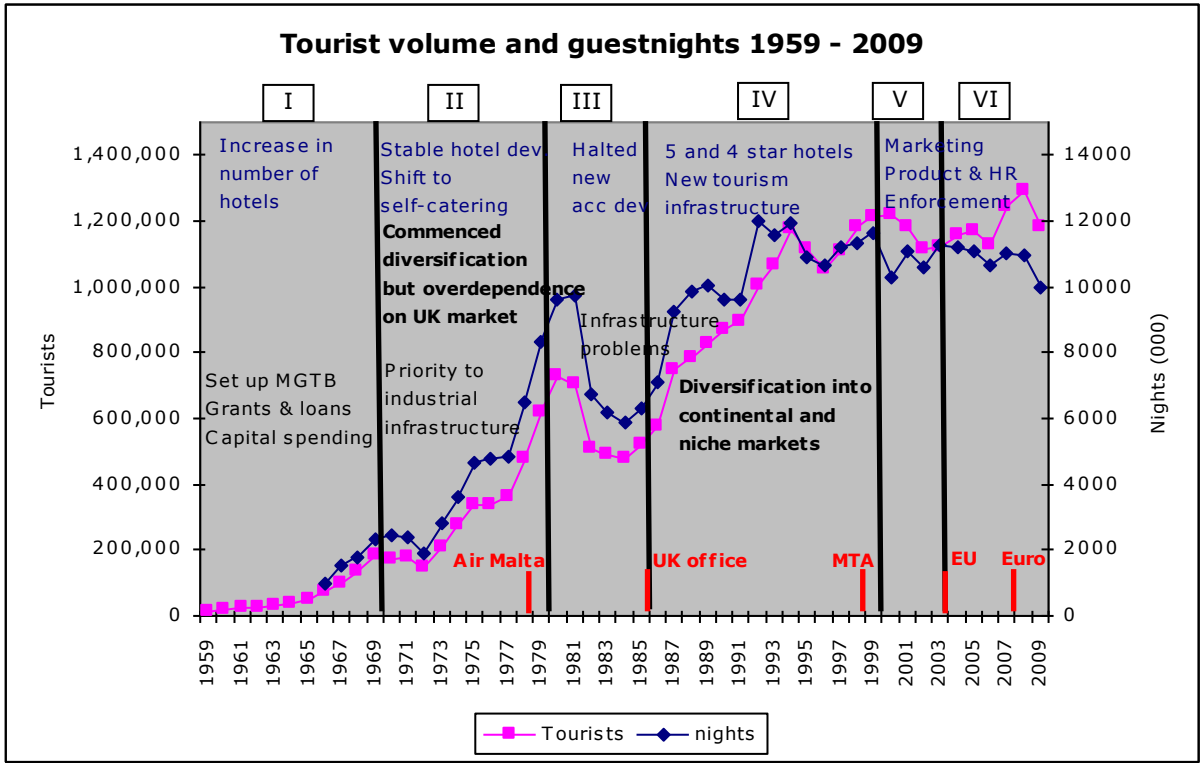
To observe this relationship it is useful to plot, as in Figure 5.1, the international scenarios and events, the major economic and tourism policies adopted at specific points in time, and Malta's tourism performance. Additionally, a graph, Figure 5.2, presents the Maltese government's policies and incentives targeting the private sector. In contrast to Figure 5.1, Figure 5.2 focuses on institutional structures, accommodation development policies and marketing strategies.

Figure 5.1 Tourist volume and earnings 1959-2009



Source: Own compilation based on NSO data
(Note: DP: Development Plan; TDP: Tourism Development Plan; Int'l: international; FBR: forward buying rate; TOSS: Tour Operator Support Scheme; RDS: route development scheme. Earnings data in € converted to Lm using the official conversion rate of 0.4293)

Figure 5.2 Tourist volume and guestnights 1959-2009



Source: Own compilation based on NSO data
(Note: MGTB: Malta Government Tourist Board; MTA: Malta Tourism Authority; acc: accommodation;
dev: development; HR: human resources. Data relating to guestnights generated between 1959 and 1965 are not available)

The performance of Malta's tourism industry over the past fifty years may be divided into six stages as shown in Figures 5.1 and 5.2. Throughout the first three stages, five economic plans (referred to as Development Plans) were formulated. Recognition of the fact that these were incongruent with a free market economy meant that such plans were not formulated post-1987. Sectoral plans, however, such as the Tourism Development Plan 1987-2010, the three-year rolling strategic plans for the Malta Tourism Authority, and the Tourism Policy 2007-2011, were drawn up.

In addition, global economic scenarios (such as economic crises) or events which affected the international scene (such as terrorist attacks and wars) influenced each of the six stages, as shown in Figure 5.1. Private sector investment responded, as shown in Figure 5.2, not only to the factors noted in Figure 5.1 but also to the institutional developments, marketing strategies and development policies adopted by the Maltese government. Though further details are provided in the next sections, a brief explanation of how Malta's tourism developed over the years follows to explain Figures 5.1 and 5.2.

- Stage I (1958-1969): British military expenditure was cut down. This meant that the economy could no longer rely on the activity and financial injection arising from the British military base. In response, in 1958, tourism was identified as one of the economic sectors that could assist economic transformation (DP 1959-1964, DP 1964-1969). As shown in Figure 5.2, the Malta Government Tourist Board (MGTB) was set up. A programme of capital spending for tourism infrastructure was established. Given

the lack of accommodation infrastructure, grants and loans were provided to entrepreneurs to build hotels. This first stage could be considered equivalent to the exploration stage in the life cycle of a destination.

- Stage II (1970-1979): During the 1970s, Malta's economic policy was outlined in the third development plan (DP 1969-1974) and the seven-year plan (DP 1973-1980). Malta's tourism performance during this period was affected by the onset of mass tourism and the pressures created by the international energy crises. Mass tourism brought about a shift in accommodation preferences, such that hotel developments stabilised and self-catering accommodation boomed, as noted in Figure 5.2. Malta was during this period over-dependent on the UK market. This was the beginning of the development stage in the life cycle of Malta as a tourism destination. Crucial for Malta's tourism development is accessibility by air. This was recognised in the 1970s, leading to Air Malta being established in 1979.
- Stage III (1980-1985): The lack of planning which characterised the 1970s gave rise to infrastructural problems in the 1980s. These, together with the international recession, led to declines in tourist arrivals and earnings.
- Stage IV (1986-2000): The consistent declines and the posting of the worst ever negative rate of growth instigated the Maltese government to introduce a subsidisation policy for tour operators and to build better relations with tour operators through the establishment of a Malta office in London in 1986. Two schemes were created by the Maltese Government to support tour operators: the forward buying rate in 1986, which lasted till

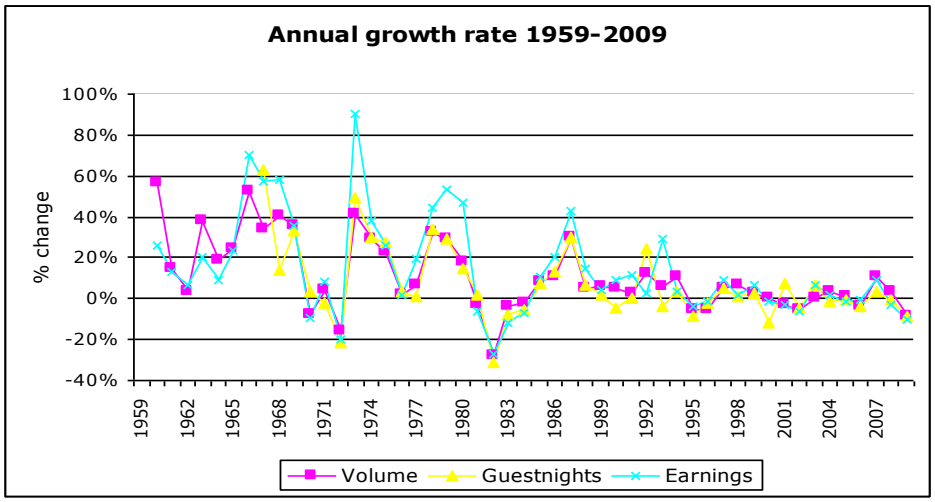
1995, and the Tour Operator Support Scheme, which was effective from 1996 to 2000. These subsidisation policies were in effect throughout the fourth stage, resulting in further expansion of the sector. In the midst of this, the 1992 Gulf War and globalisation and competitiveness became important global factors during the mid-1990s. A more holistic approach to tourism planning was deemed important, with the result that the Maltese government, with assistance from the WTO, commissioned a Tourism Development Plan (TDP) in 1989 covering the period to 2010. The TDP's recommendations relating to market diversification, upgrading and deseasonalisation were taken up. As shown in Figure 5.2, Continental and niche markets were tapped to meet the diversification and deseasonalisation objectives. To implement the recommendation to upgrade, only permits for higher standard accommodation were issued. In parallel, public investment in new tourism infrastructure was made. These policies and initiatives brought Malta's tourism into the consolidation phase of its life cycle.

- Stage V (2001-2004): This period was followed by stagnation. The subsidisation policy was abolished and the international travel market changed as a consequence of the 9/11 terrorist attacks. During this fifth stage, a level of stability was however achieved and retained into the sixth stage, as a more holistic approach to tourism was adopted. MTA was set up with the aim of co-coordinating marketing, product and human resource development and enforcement initiatives.
- Stage VI (2004-2009): Further stagnation was halted as the Maltese government, through a route development scheme,

actively sought to increase accessibility to Malta by enticing low-fare and other airlines to operate to and from Malta. The Maltese tourism authorities sought to rejuvenate the destination by making it more accessible and by projecting an image removed from that of a grandparents' destination. Following a positive performance in 2007, the financial and economic crises dampened results for the subsequent years. The introduction of the euro in 2008 provided Malta some economic stability, helping the industry survive the difficulties of 2009 and rendering positive results in 2010.

The graphical descriptions provided in Figures 5.1 and 5.2 provide valuable information. Nevertheless, the examination of rates of growth, presented in Figure 5.3, may provide additional insights.

Figure 5.3 Annual growth rates in tourist volume, guestnights and earnings 1959-2009



Source: Own compilation based on NSO data

Figure 5.3 indicates apparent volatility in Malta's tourism performance, particularly up to 1995. Major changes in growth rates

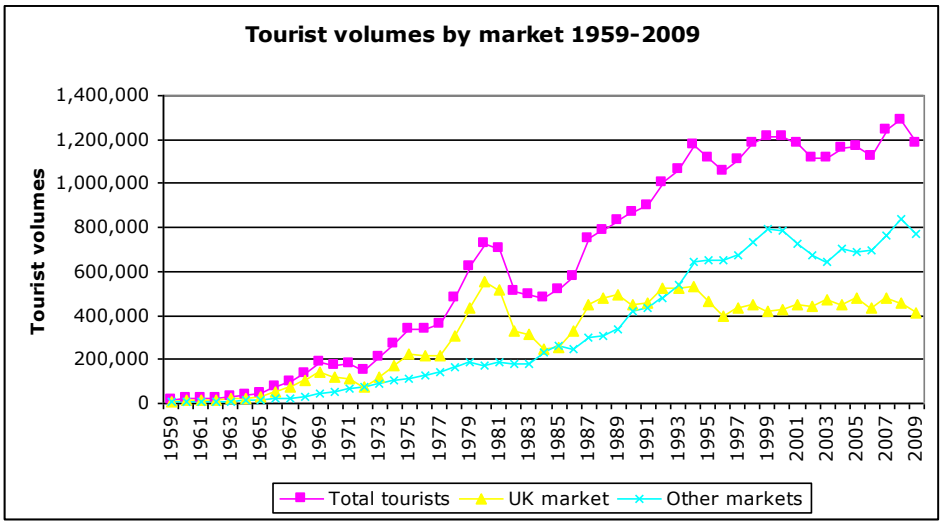
coincide with policies adopted either by the government of the source market, or by the destination's government or by international events. For example, homing in on the outliers, the growth rate registered in 1966 corresponds to the UK government's travel allowance policy; the negative decline in 1972 was possibly affected by the strained relations between Malta and the UK at the time, with 1973 consequently responding positively. The international recession negatively affected the rate of growth in 1982 while the positive growth rates of 1979 and 1987 coincide with the setting up of Air Malta and of the tourist board's UK office, respectively. Post-1995, a level of stability seems to have crept in.

Many of the booms and troughs that occurred over the years in tourism in Malta were instigated or influenced by developments in UK travel to Malta, as shown in Figure 5.4. This was always likely to occur given the UK's predominant market share (refer to Figure 5.5). As other source markets began to generate additional tourism activity to Malta - a consequence of the diversification policy - the growth and decline patterns of the Maltese tourism industry, particularly during the latter two decades, no longer directly followed those occurring within the British source market. As shown in Figure 5.4, this was particularly the case between 1990 and 1994 and post-1997, when the UK's market share did not exceed the 45% mark.

Whilst the UK remains the main generating market for tourism in Malta, now accounting for 35% of tourists visiting Malta, the UK market share has declined over the years, as shown by Figure 5.5. Given its importance, specific policies targeting this source market

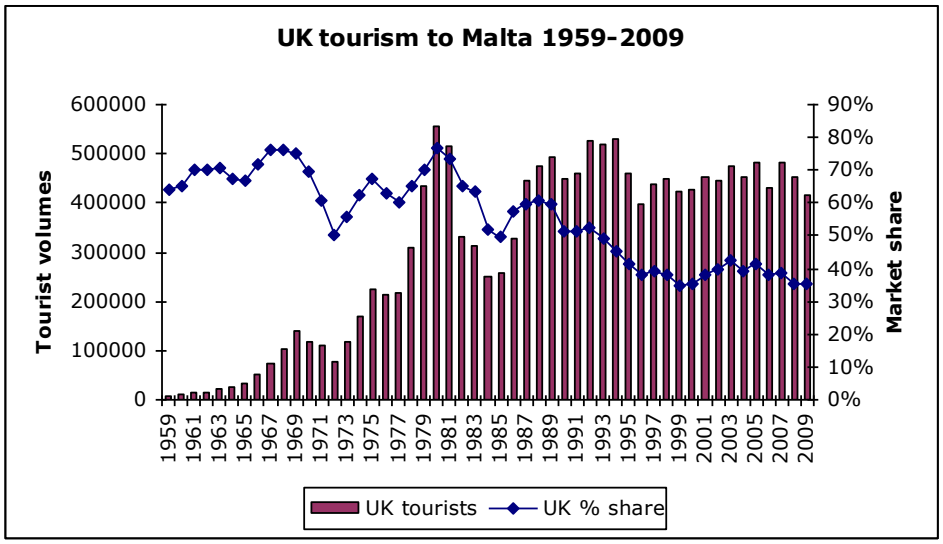
have been adopted by the Maltese Government. A descriptive analysis of these policies and the tourism industry's performance is provided in the sections that follow.

Figure 5.4 Total and British tourism in Malta 1959-2009



Source: NSO

Figure 5.5 UK tourism to Malta 1959-2009



Source: NSO

5.1.1 The beginning of tourism in Malta – the 1960s (Stage I)

Prior to the 1960s, Malta was a fortress economy. The British military base was the main stimulus for the Maltese economy. One out of every three active persons was directly employed with the British government.

After the Second World War, Malta was entitled to British financial aid for public works and rebuilding of the infrastructure. During this period, the local population grew rapidly. Economic growth, wealth and jobs did not develop in step with the increase in the population, which led to high emigration.

Malta lost its strategic and military importance due to the development of new technologies and new types of weaponry. The British government began to run down its military presence in many overseas bases, including Malta. British military expenditure was reduced and military personnel withdrawn. The Maltese economy had to restructure if it was to support its population. Other economic activities had to act as a motor for the islands' economic development. With Malta's land-based natural resources limited to limestone and salt, extensive importation is unavoidable and exports had to be generated in order to provide foreign exchange. Malta's small internal market meant that sectoral expansion could only be sustained through the export market.

The Maltese government identified three main sectors which could yield such foreign currency: shipbuilding, manufacturing and tourism.

The Maltese Government in 1958 initiated an economic planning programme which was set out in the pre-independence Development Plan 1959-1964. This plan identified tourism as a possible way of assisting in the diversification of the Maltese economy, which would be based on the strategic assets of its harbours and geographical position (Development Plan 1959-1964). This was the beginning of tourism in Malta.

A policy response was needed to stimulate further tourism, as during the early sixties the main purpose of travelling to Malta from another country was to visit friends and relatives who were working in the British military base. The local government, therefore, initiated a programme of capital spending on improving access to beaches, and on promotion and advertising. Very limited funds were available to the newly set up Malta Government Tourist Board: £0.8 million spread over a five-year period. At this point in time, Malta had only 25 hotels with some 1,200 beds. Tourist arrivals were about 12,500, leaving a gross income of only £1,185,000.

The Second Development Plan, covering 1964 to 1969, placed greater emphasis on the economy's efficiency and competitiveness. The economy was set to become more export-oriented and the importance of tourism was re-emphasised. Grants and interest-free loans were offered to encourage investment in new hotels. This was a costly measure but very successful, as shown in Figure 5.6.

Figure 5.6 Hotel development and tourist arrivals 1959-1970

Source: NSO and HCEB

By 1969, Malta had 101 hotels with over 7,500 beds and over 186,000 tourists visiting the islands, yielding over £16.7 million (Lm10.8 million) in earnings, as indicated in Table 5.1. This meant a 20% average annual increase in bedstock and a 30% average annual increase in tourist volumes and earnings since the start of tourism in Malta.

Table 5.1 Total and UK tourists and total earnings 1959-1969

Year	Total Tourists	Growth rates (Total)	Tourists from UK	Growth rates (UK)	Total Earnings (Lm 000)	Growth rates in earnings
1959	12,583		8,028		765	
1960	19,689	56.5%	12,846	60.0%	966	26.3%
1961	22,611	14.8%	15,800	23.0%	1,094	13.3%
1962	23,334	3.2%	16,327	3.3%	1,167	6.7%
1963	32,299	38.4%	22,758	39.4%	1,402	20.1%
1964	38,380	18.8%	25,750	13.1%	1,533	9.3%
1965	47,804	24.6%	32,021	24.4%	1,890	23.3%
1966	72,889	52.5%	52,368	63.5%	3,220	70.4%
1967	97,519	33.8%	74,054	41.4%	5,062	57.2%
1968	136,995	40.5%	104,613	41.3%	7,998	58.0%
1969	186,084	35.8%	140,232	34.0%	10,836	35.5%

Source: NSO
Note: For comparability with Tables 5.2-5.6, earnings figures in Sterling (£) were converted to the Maltese Lira (Lm) introduced in the early 1970s.

The performance of Malta's tourism industry was dependent on the performance of the UK market, as reflected by the growth rates in that market. The boom in UK travel to Malta, accounting for about 75% of tourist arrivals to Malta during the late 1960s, was induced by UK travel currency restrictions at that time, which limited UK citizens to an annual allowance of £50 for travel outside the sterling area. Travel to Malta, which was within the sterling area, was possible without using the allowance (Davis, 1973). This UK government policy, together with the capital spending and promotional efforts of the Maltese government, induced marked growth for Malta's fledgling tourism industry.

5.1.2 The arrival of mass tourism in Malta – the 1970s (Stage II)

The Third National Development Plan covered the years 1969 to 1974. Again, in this plan tourism policies aimed at further growth, increased tourist arrivals and foreign earnings, diversification into non-UK geographical source markets and more even spreading of tourism throughout the year.

This plan was, however, short-lived due to a change in administration. A seven-year development plan was instead drawn up by the newly-elected Labour government in 1971. This plan linked economic and political aims. It favoured joint ventures between Maltese and foreign industrialists. It also introduced two new concepts in the management of the Maltese economy: a mixed

economy, where government took up a very active role, and social development.

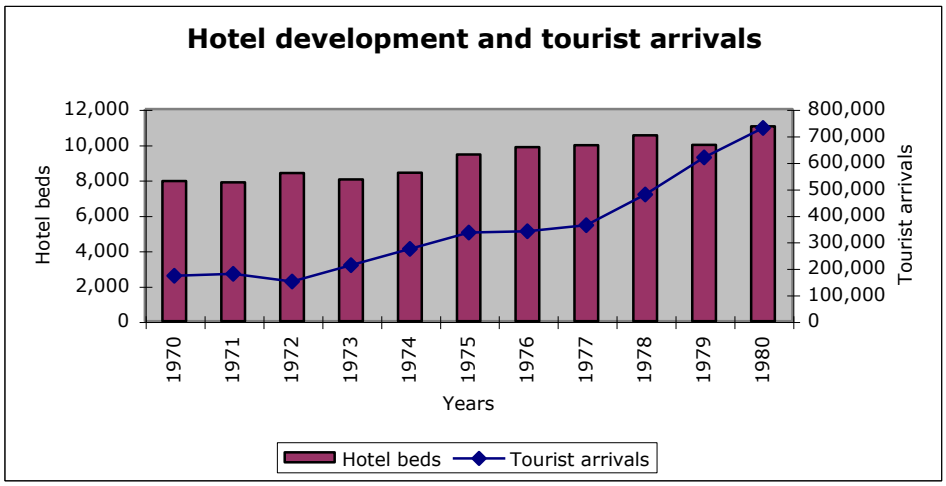
The new administration considered the tourism industry to be very vulnerable and hence shifted focus from tourism, halting the grants programme and channelling funds towards the creation of industrial infrastructure. In the first years of this decade (particularly in 1972, which registered a 16% decline in total arrivals, mainly resulting from a 32% decline in UK arrivals) tourism was affected negatively due to the crisis in negotiations between Malta and the UK relating to the rent for military bases (Davis, 1973). Consequently, partly as a result of these policies, tourism slowed down in the early 1970s and hotel construction declined. Figure 5.7 shows that over 10 years, from 1970 to 1980, the number of beds increased by only 3,000 whilst the number of hotels fell from 110 to 100. Other forms of accommodation, particularly self-catering accommodation, were placed on the market. On a more positive note, accessibility to the islands increased with the setting up of the national airline, Air Malta, an important development for Malta's tourism industry.

During this period, tourist volumes still registered growth, particularly since package travel and mass tourism, particularly to Mediterranean destinations, came to characterise international travel. At the same time, other Mediterranean destinations, such as Cyprus and Spain, faced political difficulties. Consequently, total tourist arrivals to Malta increased fourfold, from 170,853 in 1970 to 728,732 in 1980, reflecting the increased arrivals from the UK market, from 118,930 in 1970 to 557,620 in 1980. During the mid-seventies, the British

market accounted for 63% of arrivals, Italy almost 7%, and Germany 5.3%. The main reasons cited for visiting Malta was for the sea and the warm climate. Malta was marketed and became known as a sun and sea destination, particularly within the package travel market. This led to fast development with no proper land-use or tourism planning, the consequences of which are still felt. Malta was predominantly a summer destination – over 80% of visitors coming over between March and October, half of these in the three summer months. During this period there was a shift from hotel to self-catering accommodation. Apartments previously used by British services became available as tourist accommodation. New apartment blocks were built. In less than 10 years places like Bugibba and St Paul's Bay were built. Whereas in 1979 apartments provided 14,000 beds, in just three years to 1981 this had increased to 29,000 beds.

This led to further dependence on the British market. In 1980, 76% of the tourists came from the UK and 60% of all available accommodation was in self-catering. Demand continued to increase. Prices rose but quality fell. Maltese infrastructure at the time could not adapt, with the result that massive problems, such as water shortage, arose. It was enough to highlight the importance of managing tourism and the need for better policies on tourism development and planning.

Figure 5.7 Hotel development and tourist arrivals 1970-1980



Source: NSO and HCEB

Table 5.2 Total and UK tourists and total earnings 1970–1979

Year	Total Tourists	Growth rates (Total)	Tourists from UK	Growth rates (UK)	Total Earnings (Lm 000)	Growth rates in earnings
1970	170,853	-8.2%	118,930	-15.2%	9,820	-9.4%
1971	178,704	4.6%	108,935	-8.4%	10,601	8.0%
1972	149,913	-16.1%	75,603	-30.6%	8,470	-20.1%
1973	211,196	40.9%	117,678	55.7%	16,151	90.7%
1974	272,516	29.0%	169,472	44.0%	22,333	38.3%
1975	334,519	22.8%	224,967	32.7%	28,087	25.8%
1976	339,537	1.5%	214,076	-4.8%	28,695	2.2%
1977	361,874	6.6%	218,318	2.0%	34,399	19.9%
1978	477,741	32.0%	310,584	42.3%	49,752	44.6%
1979	618,310	29.4%	434,694	40.0%	76,227	53.2%

Source: NSO

5.1.3 The decline in tourism in Malta – the early 1980s (Stage III)

The effect of limited tourism management in the seventies was felt in the early eighties, indicating a time lag between policy, or the lack of it, and the resulting impacts. The absence of a well-managed tourism product, coupled with the international recession, induced tour operators to reduce their sales to Malta, resulting in a drop in arrivals, especially from the UK. This decline continued till 1984,

when total tourist arrivals fell to almost 480,000 compared to 728,000 in 1980. Arrivals from the UK dropped from over 557,000 in 1980 to about 250,000 in 1984. During these years, the German, Italian and Libyan source markets generated increases, which slightly compensated for the huge losses from the UK market. Whilst the share of the UK market declined to 56% by 1984, Germany and Italy each generated 9% of tourist volumes, whilst Libya and Scandinavia generated an additional 4% each. Income from tourism also fell from Lm111.9 million in 1980 to Lm 63.1 million in 1984, a decline of 44% over a four year period, or a 13% decline per annum. This situation was accentuated by the international recession.

The accommodation sector was also adversely affected. Occupancy rates declined, with self-catering accommodation establishments being worst hit. Beds in this sector fell from just over 29,000 in 1981 to slightly more than 11,000 in 1985 to just over 6,600 in 1991. Some of the surplus accommodation was sold to Maltese people for domestic use whilst the rest, after investment, were upgraded to holiday complexes. To protect existing accommodation from facing even lower occupancy rates, further additions to the accommodation sector were halted, particularly between 1983 and 1986.

Table 5.3 Total and UK tourists and total earnings 1980–1985

Year	Total Tourists	Growth rates (Total)	Tourists from UK	Growth rates (UK)	Total Earnings (Lm 000)	Growth rates in earnings
1980	728,732	17.9%	557,620	28.3%	111,900	46.8%
1981	705,506	-3.2%	516,484	-7.4%	105,000	-6.2%
1982	510,956	-27.6%	331,712	-35.8%	76,600	-27.0%
1983	490,812	-3.9%	312,302	-5.9%	67,800	-11.5%
1984	479,747	-2.3%	250,163	-19.9%	63,100	-6.9%
1985	517,864	7.9%	256,468	2.5%	69,800	10.6%

Source: NSO

During the first half of this decade, a Fifth Development Plan 1981-1985, entitled *Malta: Guidelines for Progress*, was drawn up. The aim of this plan was to strengthen and consolidate the economic and social structure. Greater emphasis was placed on developing the manufacturing industry, particularly that related to engineering, which was considered to be high value. This resulted in the manufacturing sector accounting for about 30% of Malta's Gross Domestic Product.

5.1.4 Supporting the sector – the late 1980s to 2000 (Stage IV)

The continuous decline in tourism could not be left unaddressed, even though other economic sectors were registering growth. Measures were taken to combat the decline in tourism, which was mainly caused by the international recession and the declines from the UK market.

The Maltese government of the time was faced with a five-year outstanding decline in tourism from the UK market, which was bound to continue as tour operators were reducing their programmes to Malta. A holiday to Malta from the UK was becoming relatively more expensive as sterling found itself weakened against the Maltese Lira and was expected to remain so. This situation demanded a policy response. Consequently, the Maltese government adopted a subsidisation policy to address the situation.

5.1.4.1 Support to tour operators: Forward Buying Rate 1986–1995

A Forward Buying Rate scheme was introduced in 1986 "to alleviate the problems of UK/Malta currency exchange rates for tour operators and to stimulate the UK market" (World Tourism Organisation, 1989, p.21). The FBR scheme was based on guaranteeing, through forward buying, an exchange rate which was more favourable than the spot rate. This scheme was directed at improving the price at which Malta was sold by British tour operators as a tourism destination. This helped to restore tour operators' commitment to Malta. It resulted in increased tourist arrivals, as indicated by Table 5.4.

The FBR was intended as a temporary measure to minimise the negative impacts of restructuring the sector in terms of market diversification, quality improvement and a more seasonal spread. It was however retained for ten years. During these ten years, tourism in Malta in terms of arrivals, earnings and guestnights increased. Solely on the basis of this data, one may conclude that this policy was effective. However, this policy did have other effects on Malta's tourism. The effects of this policy, specifically on Malta's tourism competitiveness and price sensitivities, are analysed in the next chapter.

To complement this subsidisation policy and maintain closer contact with tour operators, a new tourist office was opened in the UK, also making Malta more visible on the market. Additionally, a programme of diversification into continental markets was adopted. New tourist

offices were opened in Frankfurt, Paris, Amsterdam and Milan. This also helped to raise awareness of Malta's existence and its potential as a tourist destination that could offer more than just sun and sea.

This resulted in an increase in tourist arrivals, which reached 745,943, a 30% rise in 1987 over the previous year. In 1987, earnings from tourism increased by 43% to Lm 120.1 million. Tourism continued to grow till 1994. This reflected also the improved performance within the British market, as indicated by the data provided in Table 5.4.

This stronger performance was assisted by improvements in the overall tourism product. General infrastructural developments, such as an improved water supply and distribution network, and the use of latest fibre-optic technology for telecommunications, were made. Additionally, Malta's main point of entry and exit was unattractive and called for major investment, such that in 1991 a new airport terminal was inaugurated.

Malta's accommodation offer, at this time, largely lacked higher quality accommodation. As the new government, elected in 1987, sought to increase foreign exchange earnings from tourism by maximising revenue from more upmarket tourists, a policy to allow only development of five-star and four-star hotels was adopted. Concurrently a major reclassification exercise for all hotels was undertaken. This provided tour operators with an opportunity to further expand their programmes to Malta, offering package holidays featuring five-star and four-star accommodation. Having this higher

quality accommodation on offer also meant that new markets, including the business and conference market, could increasingly be tapped. This necessitated better service by people working in the tourism industry. Trained employees were essential for the success of the industry. Hence, the Institute for Tourism Studies was set up with the aim of professionally training young people seeking a career in the hospitality sector.

Whilst improvements in Malta's tourism offer were being registered, the Maltese tourism industry still had a number of weaknesses. Proper planning for a vulnerable industry was clearly necessary. 1989 saw the completion of a Master Plan for Tourism, which set out the strategic approach for the future development of tourism in Malta. The Master Plan suggested short-term, medium-term and long-term strategies for tourism. It focused not simply on marketing issues but also on product and human resource issues. The Plan identified actions which were meant to overcome the industry's weaknesses.

Up to that point main weaknesses of the Maltese tourism industry had been marked dependence on the UK market, which was also dependent on subsidies (through FBR), the seasonality of the industry and the quality of the product being offered, as well as environmental issues. Three strategies were suggested to overcome this: market diversification, deseasonalisation and product/tourist upgrading.

Consequently, the first half of the 1990s registered growth in tourist arrivals and earnings up to 1994. Slight declines were registered in 1995 and 1996, which were then followed by periods of growth, but

at a slower rate. The performance of the UK market reached a peak between 1992 and 1994 with over 525,000 British tourists visiting the islands per year during these three years and accounting for 52% of total tourist arrivals per annum. This performance was not retained in the second half of the 1990s as arrival figures from the UK market declined by 13% in 1995 and by a further 14%, reaching their lowest levels at 399,000 in 1996.

The declines that occurred in 1995 and 1996 were the result of British tour operators reacting to the Maltese government's announcement of the removal of the Forward Buying Rate scheme.

Table 5.4 Total and UK tourists and total earnings 1986-2000

Year	Total Tourists	Growth rates (Total)	Tourists from UK	Growth rates (UK)	Total Earnings (Lm 000)	Growth rates in earnings
1986	574,189	10.9%	329,390	28.4%	83,900	20.2%
1987	745,943	29.9%	446,686	35.6%	120,100	43.1%
1988	783,846	5.1%	476,578	6.7%	138,200	15.1%
1989	828,311	5.7%	492,899	3.4%	143,800	4.1%
1990	871,776	5.2%	450,002	-8.7%	157,400	9.5%
1991	895,036	2.7%	458,523	1.9%	175,300	11.4%
1992	1,002,381	12.0%	525,629	14.6%	180,500	3.0%
1993	1,063,213	6.1%	520,778	-0.9%	233,200	29.2%
1994	1,176,223	10.6%	530,385	1.8%	241,900	3.7%
1995	1,115,971	-5.1%	461,159	-13.1%	232,800	-3.8%
1996	1,053,788	-5.6%	398,899	-13.5%	228,800	-1.7%
1997	1,111,161	5.4%	436,899	9.5%	249,800	9.2%
1998	1,182,240	6.4%	448,763	2.7%	254,618	1.9%
1999	1,214,230	2.7%	422,368	-5.9%	271,383	6.6%
2000	1,215,230	0.1%	428,780	1.5%	268,483	-1.1%

Source: NSO

5.1.4.2 Support to tour operators: Tour Operator Support Scheme 1996–2000

Once again, the Maltese Government, seeing such a reaction from the tour operators and the effect on tourism's performance, sought an immediate response. The Tour Operator Support Scheme (TOSS) was therefore introduced. The TOSS was designed to overcome the flaws of the FBR system. The TOSS sought to ensure that the benefits provided to the tour operators were passed on to the consumer in the form of a more competitive package price. Secondly, the financial support was only provided once proof of conversion of Sterling into Maltese Lira through the banking system was given, seeking to curb abuses. The TOSS was applicable only to British and Irish tour operators. The TOSS also provided a favourable exchange rate. However, differently to the FBR system, the TOSS rate was established following forecasts for the UK/Malta exchange rate and hedging agreements. The favourable rate was announced months in advance of the season targeted, in order to allow tour operators to contract in time. The data provided in Table 5.4 in relation to 1996 to the year 2000 indicate the performance of the UK market and consequently of total tourism volumes and earnings. The TOSS helped retain tour operators' interest in Malta as a tourism destination for the British. Deeper analysis on the effect of TOSS on Malta's competitiveness, on price sensitivities and its influence on package holiday prices as featured in the tour operator brochures will be provided in the chapters to follow.

As a result of the TOSS, the importance of the UK market was retained and its performance stabilised. The question of whether this could be sustained was looming.

5.1.5 Moving towards EU membership - adapting to a new scenario 2001-2004 (Stage V)

As negotiations with the EU for Malta's full membership started to take place, it was evident that the TOSS was incompatible with EU competition policy. The policy options included extending the subsidy to all markets, which would have proved too costly, or removing TOSS completely. The Maltese Government decided to phase out TOSS, adopting a policy to make Malta's tourism industry competitive in a free market environment.

When the announcement that the TOSS would be removed was made, the UK market retained the volumes in the year 2000 as relations with tour operators were better managed. Strategic alliances with tour operators were retained through joint marketing initiatives.

This scenario required a more holistic approach to tourism which could also be reflected in the institutional setup managing tourism. The Malta Tourism Authority was set up in September 1999. It was a more expanded setup from that which characterised the National Tourism Organisation-Malta (NTOM), which focused solely on marketing. The MTA's responsibilities ranged from marketing Malta as a tourism destination, to product development, to human resource development to acting as the regulator of the tourism industry.

Strategic plans for the Malta Tourism Authority started being drawn up, particularly because with such a broad brief, the MTA had to streamline its initiatives.

During this decade, the tourism industry faced unprecedented circumstances triggered by 9/11, which resulted in a decline in tourism to Malta of 2.9% in 2001 and a further 5.5% in 2002. Travel to Malta from the UK increased by 5% in 2001 (outbound travel from the UK increased by 1% in 2001) but declined by 2% in 2002.

Table 5.5 Total and UK tourists and total earnings 2001-2004

Year	Total Tourists	Growth rates (Total)	Tourists from UK	Growth rates (UK)	Total Earnings (Lm 000)	Growth rates in earnings
2001	1,180,145	-2.9%	451,530	5.3%	260,745	-2.9%
2002	1,115,237	-5.5%	444,335	-1.6%	245,100	-6.0%
2003	1,118,234	0.3%	473,097	6.5%	261,400	6.7%
2004	1,157,684	3.5%	452,880	-4.3%	266,600	2.0%

Source: NSO

5.1.6 Operating in a free market environment - 2004–2009 (Stage VI)

Full membership into the European Union on 1 May 2004 altered Malta's economic prospects, opening up additional opportunities. Increasingly, through Structural Funds, investments were made in Malta's tourism product, particularly in its cultural offer, and also, importantly, in human resource development through training programmes.

The effect of membership on the tourism industry was not as acute as in other sectors. As Malta's main source markets were European and

the Maltese tourism service providers contracted with European tour operators, some of the standards laid out through obligations from directives such as the package travel directive or the timeshare directive were still adhered to. However, membership in the EU did assist in putting Malta on the map, allowing more Europeans to be aware of Malta as a tourism destination. Consequently, the number of tourists visiting Malta registered increases in 2004 and 2005, also due to the novelty aspect of visiting an otherwise unknown destination from some less traditional source markets. The UK market, however, in 2006, generated less volume, dipping by almost 11%.

Table 5.6 Total and UK tourists and total earnings 2004-2009

Year	Total Tourists	Growth rates (Total)	Tourists from UK	Growth rates (UK)	Total Earnings (Lm 000)	Growth rates in earnings
2004	1,157,684	3.5%	452,880	-4.3%	266,600	2.0%
2005	1,170,598	1.1%	482,615	6.6%	262,302	-1.6%
2006	1,124,236	-4.0%	431,343	-10.6%	260,670	-0.6%
2007	1,243,510	10.6%	482,405	11.8%	285,140	9.4%
2008	1,290,856	3.8%	454,356	-5.8%	277,410	-2.7%
2009	1,183,012	-8.4%	415,229	-8.6%	249,475	-10.1%

Source: NSO

In the midst of these developments, air travel became even more financially accessible with the rise of low-cost airlines, which were registering high double-digit growth rates, whilst other distribution channels were either stable or in decline. Malta, till 2006, was not tapping into this new development in the international market. A debate on the viability of tapping low-fare airlines kicked off in Malta. Questions were raised about the sustainability of this business model for airlines as well as the risks that could be faced by Air Malta, Malta's flag carrier, as a result of increased price competition if such airlines operated to Malta. Government was being asked, by the

private tourism sector, to fork out money to support the introduction of low-cost airlines operating routes to and from Malta. A discussion on whether government should resort to what in effect is a subsidisation policy for airlines ensued. In the last quarter of 2006, following negotiations with airlines and also with the European Commission in view of competition law and state aid regulations, the first routes operated by low-fare airlines were opened. The Maltese Government's policy ultimately was to tap all available distribution channels. Tour operators generated package holidays and group business; low-cost airlines operated new or underserved routes and generated independent travel; the flag carrier guaranteed a level of accessibility to major routes for package and independent travellers. The result of this policy was mainly evident in 2007, when a 10.6% growth in total tourist volumes, an 11.8% increase in British tourists and a 9.4% rise in earnings were registered, as shown in Table 5.6.

In the meantime, the Maltese Government was preparing to adopt the euro as Malta's currency, which it did on 1 January 2008. For those contracting and targeting Continental source markets this spelt no major difference, as tourism-related contracts were already denominated in euros. In other cases, transaction costs were eliminated. The adoption of the euro facilitated travel between Eurozone tourism source markets such as Germany, France, Italy and the Netherlands.

The upturn in tourism which was being observed in 2007 and the beginning of 2008, however, was slowed down as a result of the international financial and economic crises which negatively affected

international travel. Additionally, when sterling weakened against the euro (towards the end of 2008 and during 2009), Eurozone destinations, including Malta, became less attractive for the British market, meaning their visitor numbers dipped even further. This resulted in a decline of over 8% in UK and total tourists visiting Malta and a 10% decline in earnings in 2009, as shown in Table 5.6.

The performance of tourism in 2008 and 2009 could have been much worse if Malta had not secured better air travel accessibility by attracting low-cost airlines to operate to and from Malta. The islands, prior to this policy, were connected to some 60 European and North African airports, generating over 2.7 million passengers (in both directions) for Malta through flights operated mainly by flag carriers and tour operator airlines (Malta International Airport, 2005). In 2009, as a result of active negotiation with airlines, Malta was serviced by a total of 75 connected airports, 14 of which were in the UK (Malta International Airport, 2009). These connections generated a total of 2.9 million passengers in 2009 (Malta International Airport, 2009). Air Malta despite the advent of low-cost airlines such as Ryanair and EasyJet, managed to maintain its market share at 56% during this period. Low-cost airlines including Ryanair and EasyJet, by 2009, captured a market share of more than 21% of passengers flying to and from Malta from British and continental originating markets (Malta International Airport, 2009). Tour operator airlines and flag carriers, such as Thomson Fly and British Airways retained part of the market but in 2009 registered fewer passenger movements between the UK and Malta than in 2006. The policy of increasing accessibility by air to Malta has resulted in a change in the

ratio of package tourists to independent travellers. Independent travellers now account for over 48% of the business, up from 33% in 2005, as shown in Table 5.7.

Table 5.7 Package tourists and Independent tourists 2005-2009

Year	Package tourists	Share %	Independent tourists	Share %
2005	780,440	66.7%	390,168	33.3%
2006	750,848	66.8%	373,387	33.2%
2007	683,046	54.9%	560,464	45.1%
2008	594,899	52.9%	530,519	47.1%
2009	695,957	51.6%	652,493	48.4%

Source: NSO data

In 2006, the Maltese Government embarked on the reformulation of tourism policy. This was formulated following public and sectoral consultation and was published towards the end of 2006. The Tourism Policy for the Maltese Islands covers the five-year period 2007-2011. It recognises the importance of achieving competitiveness, which it aims for through price competitiveness, addressing structural reforms, improving accessibility, enhancing the product offer and offering enhanced service standards whilst increasing visibility on the market through promoting Malta to particular segments.

The Maltese government's policies have impacted not only the volumes of tourists, guestnights and earnings, but also the profile of tourists and their motivation for visiting Malta. Over the years, Malta's tourist profile has changed from one which was mainly focused on visiting friends and relatives in the Maltese garrison to a much more diverse purpose of visit. Malta, which attracts 1% of total tourists to the Mediterranean, has been transformed into a destination which has the potential to offer something for everyone. Malta's tourism industry today has decreased its dependence on the

British market, which now accounts for 35% of incoming tourism. Strong increases from the Italian and Spanish markets are now being registered as flights from these countries to Malta increased. Malta is being marketed not solely as a destination for one's main annual summer holiday, but also, and even more so, as an off-peak destination. Particular niche markets have been developed, including the English-language learning market; the meetings, incentives, conferences and exhibitions market; the diving market and sports market. These niche markets, according to NSO and MTA, generate about 60,000 tourists each year. The aim of this niche market policy has been to enhance and diversify Malta's offer and make the country more attractive as a tourism destination and thus earn further income from the more lucrative source markets.

Tour operators still account for more than half of incoming tourism to Malta from all originating markets. Despite the decline in market share, they are still an important component, generating some 690,000 tourists for Malta in 2009. Various players within the industry are linked to this type of business, including, for example five-star hotels which rely on this type of business during particular months of the year and three-star hotels which solely target this market. Changes, such as shifts in preferences from half-board to room-only basis, are now being observed within this market. This indicates that even within the inclusive tour holiday market, a more independent traveller characterises the market.

5.2 Conclusion

This chapter, through a descriptive analysis of the main policies adopted by the Maltese Government, has explained how the Maltese tourism industry has developed throughout the past five decades. Policies have varied depending on the political and economic context of the time. Different governments have attached different levels of importance to tourism, resulting in varying levels of investment afforded to this sector. In diverse ways and to different levels, investment in public infrastructure essential for tourism has been the focus of efforts by a series of governments. Evidently, governments, besides applying other tools, have throughout the years provided financial incentives to motivate the main players in the industry and stimulate development. Such incentives targeted entrepreneurs and investors, hoteliers to offer higher quality accommodation, tour operators to extend their holiday programmes and sell Malta, airlines to fly to Malta. Reflective of the life cycle of the destination, in the first decades of the development of the sector, incentives were provided to develop the supply of tourism services. As the destination became more of a mature destination, stimulating diversified demand became more of a priority, evolving into incentives for different distribution channels.

Although from this descriptive analysis one cannot simply conclude that the industry's development was a result of these policy responses, there does appear to be a relationship between tourism policy and tourism demand. What is not clear is the extent to which such policies influenced tourism demand for Malta. Analysing the

effect of each of the policies outlined in this chapter would have broadened the scope of this thesis too much. In parallel, some policies of the Maltese government (e.g. development policies; that relating to the introduction of low-fare airlines) have already attracted the attention of academics (e.g. Bramwell, 2003, 2006; Graham and Dennis, 2010). Therefore, this research will give particular attention to the inclusive tour holiday market and the Maltese government's policy to support tour operators between 1986 and 2000 through an exchange rate subsidy, which was then an innovative system. The next chapter assesses the effect of this policy through econometric analysis.

CHAPTER 6: EVIDENCE THROUGH POLICY EVALUATION AT A MACRO LEVEL

6.0 Introduction

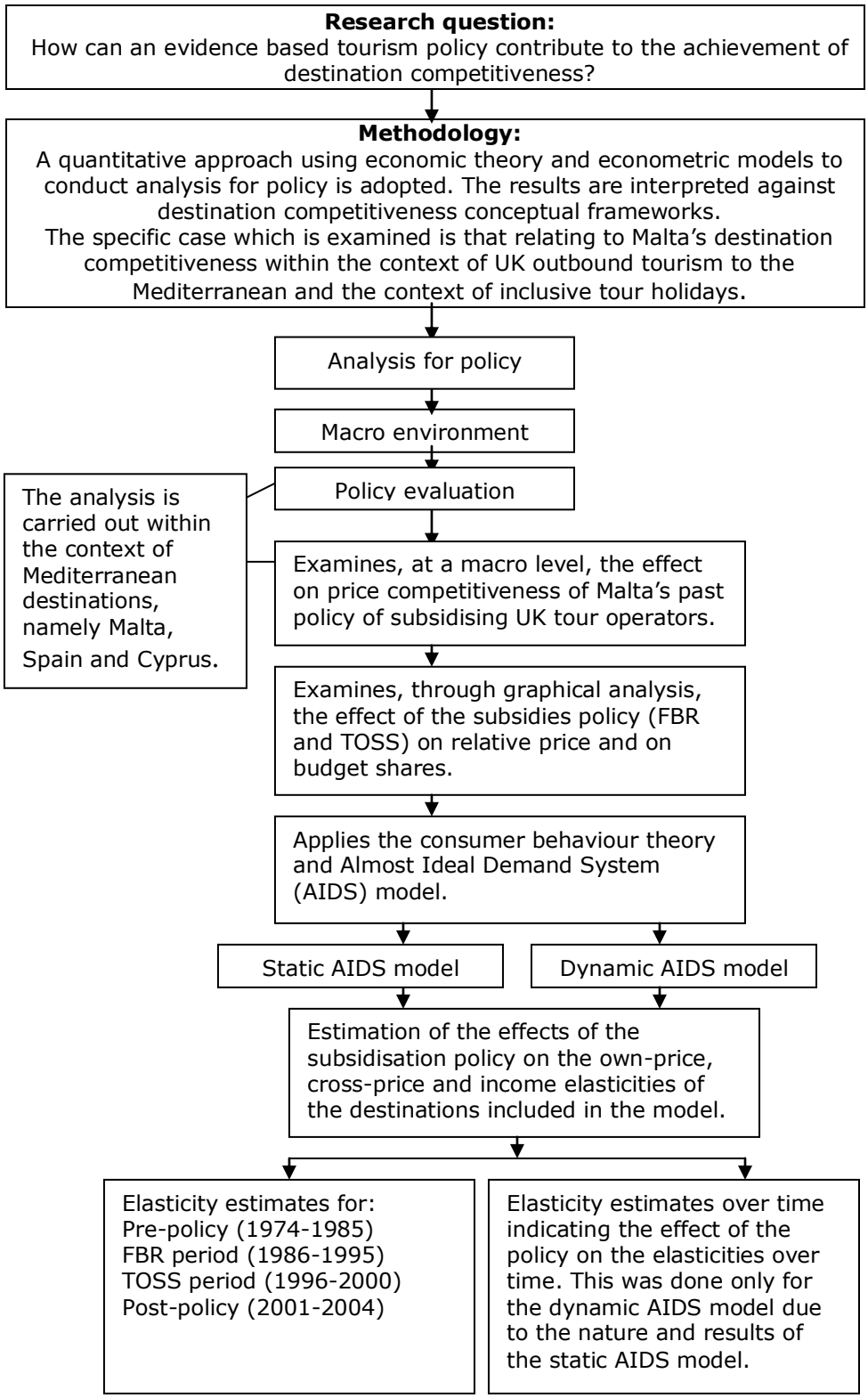
This chapter seeks to meet two objectives of this thesis: first to show that policy analysis at a macro level can create evidence that can be used to formulate policy aimed at achieving destination competitiveness, and secondly to demonstrate the potential usefulness of econometric modelling for policy analysis. The research presented here is particularly relevant since it will show and measure the extent to which past policy has affected destination competitiveness at a macro level. Such policy evaluation based on quantitative assessment can contribute to evidence-based policy-making as the policy-maker can be informed about the effectiveness of past policies and about how and to what extent the market responded to particular policies.

The literature, as amplified in Chapter 2, has established that policy is one of the factors that determine destination competitiveness. Yet the tourism literature seems limited with regards to the measurement of the extent of the effectiveness of policy on destination competitiveness, this despite a growing interest in policy analysis and in the effect of policies aimed at increasing destination competitiveness (OECD, 2008b). In addition, Crouch and Ritchie identify the need for further research on destination competitiveness and particularly for research that examines the influential factors' relative importance

> "as a function of the competitive environment, target markets and competitor characteristics [along with] valid assessments of a destination's competitive position and the suitability of its strategic response [carried out through] the development of indices, metrics and diagnostic tools for measuring destination competitiveness."
>
> (Crouch and Ritchie, 2006, p.430)

Against this requirement and focusing on policy as an influential factor for destination competitiveness, this chapter evaluates through econometric modelling the Maltese government's policy of subsidising tour operators. Since this policy was aimed at improving the destination's price competitiveness, it is assessed in terms of its impact on budget shares and demand elasticities, considered to be measures of competitiveness. This is done within the context of reference to two other Mediterranean destinations, namely Spain and Cyprus. Figure 6.1, building on Figure 4.2, presents in more detail the framework of the research presented in this chapter.

Figure 6.1 Framework of the research presented in this chapter



Source: Own compilation

As the aim of the policy was to be more price-competitive by reducing inclusive tour holiday prices, a graphical analysis of the destinations' relative prices and budget shares is first conducted, as outlined in Figure 6.1. This is followed by an analysis of the policy based on the theory of consumer behaviour, taking into account other destinations and the shares of tourists' expenditure budget that each destination receives. Using the Almost Ideal Demand System (AIDS) model (Deaton and Muellbauer, 1980), the strengths of which were explained in Chapter 3 (Section 3.1.2.2), the effect of the Maltese government's subsidisation policy on the country's relative price, on its budget share, and on the price and income elasticities of Malta and of its competitors will be assessed through static and dynamic specifications. Such policy evaluation utilising the Almost Ideal Demand System (AIDS) model has not been presented in the literature. In conducting this empirical analysis, a number of hypotheses will be tested, namely:

1. econometric modelling is a useful tool for tourism policy analysis related to a macro environment;
2. a subsidisation policy applied through a favourable exchange rate increases that destination's budget share and reduces that of the competitors;
3. a subsidisation policy applied through a favourable exchange rate improves that destination's price elasticity;
4. a subsidisation policy applied through a favourable exchange rate improves that destination's income elasticity;
5. a subsidisation policy applied through a favourable exchange rate worsens the price elasticity and income elasticity of competitors;

6. a subsidisation policy results in higher output levels but increased price elasticities in the long run.

A synopsis of the Maltese government's tourism subsidisation policy will now follow. More details on this policy were provided earlier on in this thesis (Section 5.1.4, 5.1.4.1 and 5.1.4.2). A graphical analysis of the effects of the policy on the destinations' relative prices and on their budget shares is then presented along with the hypotheses to be tested through the AIDS model. This is followed by an exposition of the AIDS model used to analyse the policy, giving justification for the choice of destinations and an explanation of the variables and data sources used. The static AIDS model specification is then presented along with the results. This is followed by the dynamic AIDS model specification and results. On the basis of these results, the effect of the policy on price and income elasticities pre-, during and post-policy implementation is estimated. Elasticity values over time for each year are also provided, along with an interpretation of these results. This chapter concludes with a number of observations prompted by the results of the econometric modelling.

6.1 The Maltese Government's policy for price competitiveness in the UK source market

A five-year period of consistent negative growth (as depicted in Figures 5.1, 5.2 and 5.3 and described in section 5.1.3) in the number of British tourists visiting Malta, averaging an annual decline of 14.4% per annum between 1980 and 1985, prompted the Maltese Government to take action and intervene to address the situation.

The decline in tourist arrivals was complemented by a 14.2% average annual decrease in guestnights and a 15.1% average annual decline in tourism earnings over the same five-year period. As explained in Chapter 5 (Section 5.1.4 and Section 5.1.4.1), the Maltese Government's reaction was to adopt a policy to subsidise tourism from the UK by guaranteeing to British tour operators, through forward buying, an exchange rate which was more favourable than the market (spot) exchange rate. This policy was aimed at reducing the price for a holiday to Malta, hence stimulating tourism demand and increasing the destination's price competitiveness. This policy, in Lester and Stewart's categorisation, may be described as "substantive" and "material" (2000, p.9) in that the policy was concerned with governmental actions to deal with a substantive problem and at the same time provided tangible resources to its beneficiaries.

This policy of subsidising tour operators commenced in 1986 and continued till the year 2000. During the period 1986 to 1995, the Forward Buying Rate (FBR) system was used and administered by the Central Bank of Malta. As can be observed from Table 6.1, the FBR was a progressive one, allowing its eventual phasing out.

Table 6.1 Market and favourable exchange rates (Maltese Lira to Sterling) 1986-2000

	Spot rate (Lm 1 = Stg)	Forward Buying Rate (Lm 1 = Stg)	Tour Operator Support Scheme (Lm 1 = Stg)
1986	1.735904	1.450	-
1987	1.771176	1.350	-
1988	1.699135	1.350	-
1989	1.753762	1.425	-
1990	1.772168	1.450	-
1991	1.754148	1.485	-
1992	1.786555	1.510	-
1993	1.744115	1.550	-
1994	1.729003	1.605	-
1995	1.794795	1.635	-
1996	1.778188	-	1.655
1997	1.582616	-	1.625
1998	1.554154	-	1.465
1999	1.547337	-	1.400
2000	1.507222	-	1.415

Source: Own elaboration based on data provided by Central Bank of Malta and MTA

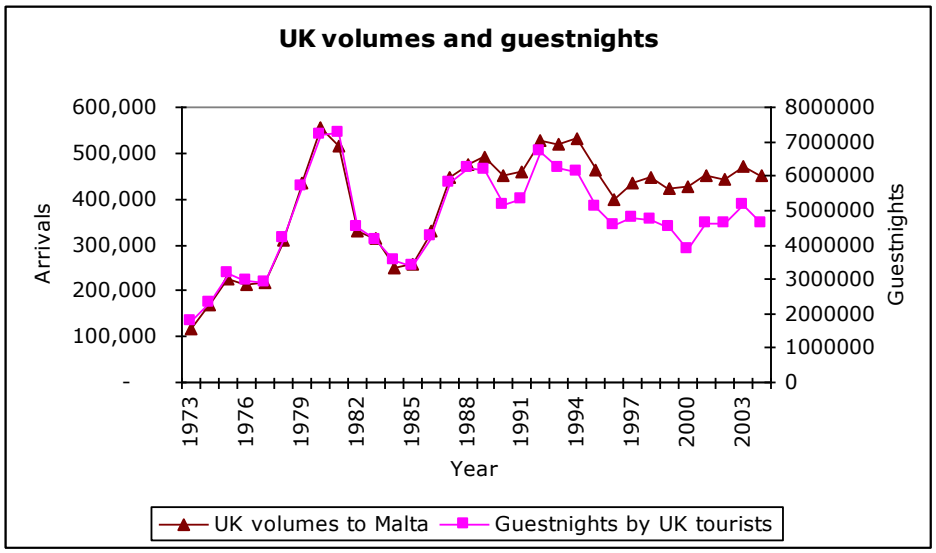
An attempt by the government at terminating this policy was instituted between 1995 and 1996. As explained in Section 5.1.4.2, the consequent reactions of the tour operators, their agents and hoteliers led to a revision of the decision to terminate the subsidisation policy and a new instrument was devised by government. The FBR mechanism was fine-tuned, such that the favourable exchange rate was set in expectation of the market exchange rate, using forecasted exchange rates and hedging. This revised instrument became known as the Tour Operator Support Scheme (TOSS) and was administered by the national tourism organisation. Both the FBR system and TOSS provided demand-side subsidies aiming at reducing the prices to final consumers, on the assumption of enhanced consequent competitiveness. What follows is an analysis of this subsidisation policy on relative prices, budget shares and elasticities.

6.2 Estimating the effect of government policy to provide subsidies through a favourable exchange rate

The declared objective of the Maltese government's policy to subsidise tour operators was to increase the number of tourist arrivals from the UK to Malta by lowering the price of inclusive tour holidays. One could simply, though superficially, assess the effect of government's policy by looking at the performance of the UK tourism to Malta during this period.

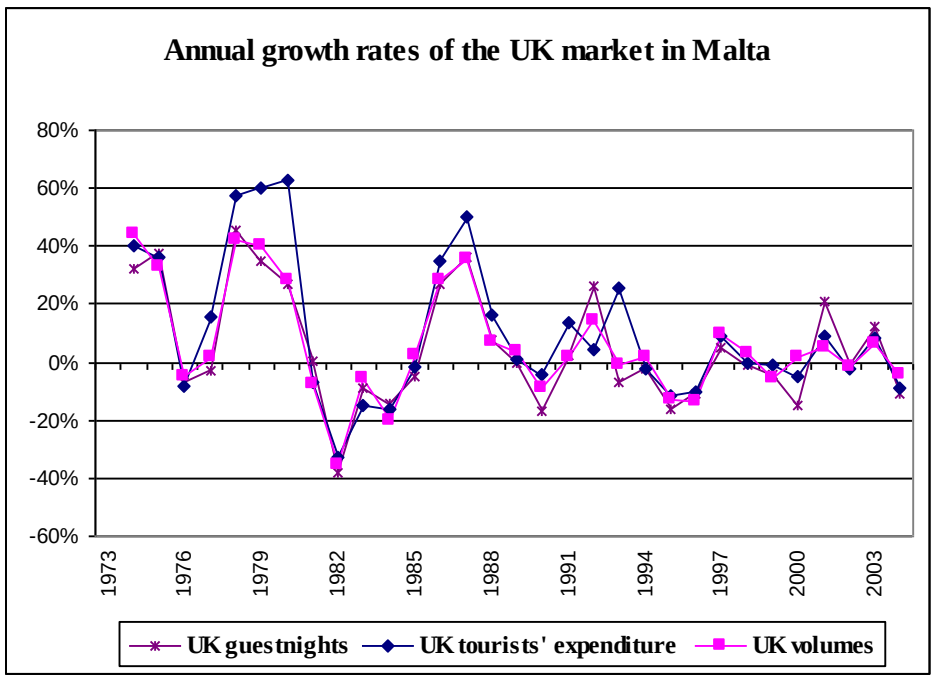
Figures 6.2 and 6.3 indicate that the figures for tourist arrivals, guestnights and tourist expenditure and the respective average annual growth rate during the FBR years (1985-1995) were higher than those registered during the TOSS years (1996-2000). During the FBR years, tourist arrivals from the UK rose from 329,390 in 1986, peaking in 1992 to reach over 525,600 tourists and then declining to just over 451,000 in 1995, resulting in an average annual growth rate of 3.8% over this nine year period. When TOSS was in place, Malta attracted 398,899 British tourists in 1996, peaking in 1998 to reach over 448,000 tourists declining to just over 428,700 tourists in the year 2000. This resulted in an annual average growth rate of 1.8%, a smaller rate of growth when compared to that achieved during the FBR years.

Figure 6.2 UK volume and guestnights 1973-2004



Source: NSO data

Figure 6.3 Annual growth rates of the UK market to Malta 1973-2004



Source: NSO data

As shown in Figure 6.2, guestnights in 1986 amounted to 4.25 million, peaked in 1992 to reach 6.7 million guestnights, and then declined to 5.1 million nights in 1995. This meant an average annual growth rate of 2%, which is higher than the 4% average annual

decline registered between 1996 and the year 2000 when the TOSS was being implemented. Guestnights during this latter period increased from 1996 to 1997 to reach 4.78 million guestnights but after that annual declines in guestnights were registered to reach a low of 3.8 million in the year 2000.

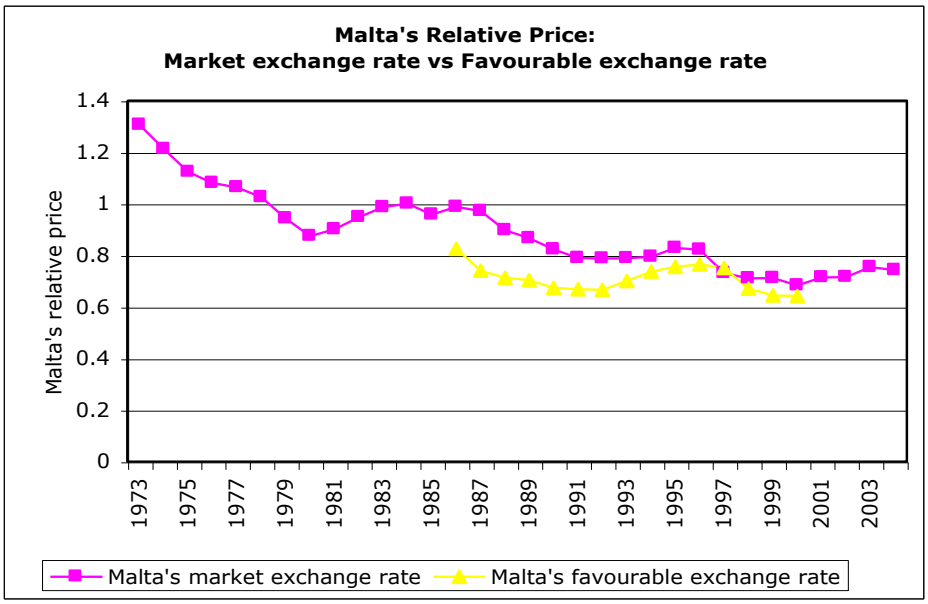
Tourist expenditure by British tourists also followed this trend. In 1986 British tourists visiting Malta generated over Lm 50.1 million in expenditure. This expenditure peaked in 1993 to Lm 126 million, and decreased to Lm 109 million in 1995, registering an average annual growth rate of 9%. This is in sharp contrast to the stagnant annual growth rate of 0.6% registered between 1996 and 2000 when TOSS was in place. Once again, the first year following the implementation of the TOSS was very positive, generating over Lm 106.7 million, but continuous reductions in expenditure were registered during the subsequent years to the year 2000. This could be interpreted as implying that the FBR was more effective than TOSS. However further analysis needs to be carried out to truly assess the impact on the destination's competitiveness, particularly the long-term effects. Post-TOSS, demand for Malta by the British source market was practically stagnant, with average annual growth rates for arrivals, guestnights and expenditure reaching just 0.1%, -0.2%, -1.2% respectively from 2001 to 2004. On this basis one may therefore conclude that the subsidies did manage to generate demand for Malta as measured by arrivals, guestnights and expenditure.

The following section takes this analysis further by assessing what the effect of the subsidies was on the destination's relative price and budget share.

6.2.1 The effect of the subsidies policy on relative price and on budget shares

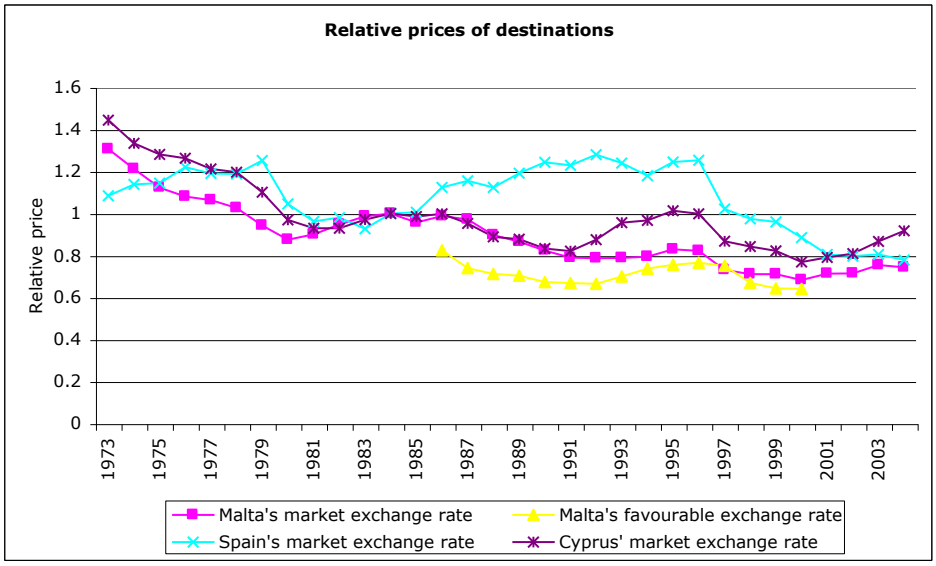
Applied to tourism, a favourable exchange rate, as provided through FBR and TOSS, reduces the relative price of that destination. This is depicted in Figure 6.4, which shows that the relative price of Malta based on the favourable exchange rate was lower than the relative price of Malta if the market exchange rate was applied to tourism. This reduction in Malta's relative price occurred when the FBR policy was put into effect in 1986 and continued till 1995 when the FBR policy was stopped. As shown in Figure 6.4, Malta's relative price initially fell but as the FBR started to be phased out, this increased. In 1996 the Maltese government adopted the policy to implement the TOSS with the result that the relative price of Malta was once again influenced. This, as indicated in the graph, was not the case in 1997, not because the policy was not in effect but because the market rate was more favourable than the announced exchange rate. Once the TOSS policy was removed, as shown in Figure 6.4, the relative price of Malta was once again influenced by the market exchange rate rather than by the favourable exchange rate. The Maltese Government's policy to adopt a favourable exchange rate made Malta more price-competitive in the UK market when compared to Cyprus and Spain, as shown in Figure 6.5. During the period when the FBR policy was in place, Cyprus's relative price was higher than Malta's.

Figure 6.4 Malta's relative price 1973-2004



Source: Own compilation based on data from the Central Bank of Malta and MTA

Figure 6.5 Relative prices of destinations 1973-2004

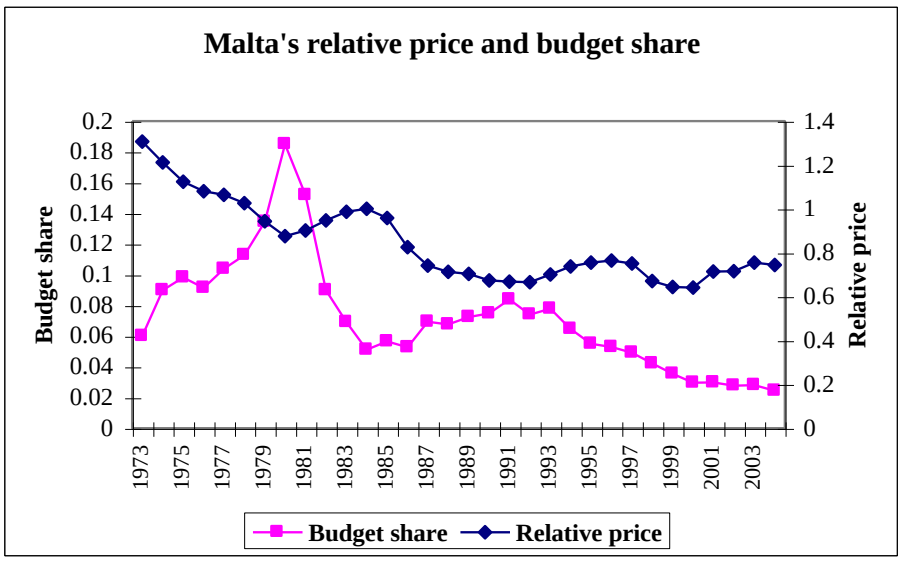


Source: Own compilation based on data from the Central Bank of Malta, MTA, the World Bank

Economic theory postulates that a favourable exchange rate will reduce a destination's relative price and hence should increase competitiveness, leading to increased demand. Figure 6.6 indicates that generally as Malta's relative price increased, its budget share decreased and as the destination's relative price decreased, its

budget share increased. This however was not always the case, particularly during the 1996-2000 period, i.e. when the TOSS was in place. No conclusive evidence can be drawn from Figure 6.6 that indicates that the Maltese Government's policy resulted in an improved budget share for the destination and consequently a reduced share for competitors.

Figure 6.6 Malta's relative price and budget share 1973-2004



Source: Own compilation based on data from NSO, Central Bank of Malta and MTA

A more effective tool than graphical analysis is therefore required to assess the effect of the policy on the budget share and on elasticities of that destination and of others. The importance of the measure of price elasticity of demand is that it tells the policy-maker what will happen to total expenditure on a destination if its price should change. This is important information if policies relating to competitiveness are to be formulated on the basis of evidence.

What follows is an explanation of the model used to estimate the effect of the subsidisation policy, the variables and data used, the results and their interpretation.

6.2.2 The Model

The AIDS model is used to quantify the effect of the Maltese government's policy. Justification for the choice of this model is provided in the methodology chapter (Section 4.5.1). In applying the AIDS model, it is assumed that a three-stage budgeting process is followed: in terms of accumulated effect of individual decisions, tourists first allocate their consumption expenditure between total tourism consumption and consumption of other goods and services. They then allocate their expenditure between tourism in Mediterranean Europe and in other regions. Finally tourists decide on their budget allocation among the alternative destinations in the Mediterranean, specifically among Malta, Spain and Cyprus.

The AIDS model is specified as follows:

$$w_i = \alpha_i + \Sigma_j \gamma_{ij} \ln p_j + \beta_i \ln \left(\frac{x}{P^*} \right) \qquad (6.1)$$

where, when applied to a tourism context, w_i is the budget share of the residents in the source market j allocated to tourism in destination i; α_i , γ_{ij} , β_i are the coefficients to be estimated; p_j is the effective price of tourism; x is the total per capita expenditure allocated in all destinations and P^* is a price index taking account of prices in the destinations.

This is the basic AIDS model which had to be adapted such that the government policy could be taken into account. The evaluation is conducted through dummy variables. This is in line with other studies (de Mello, Pack and Sinclair, 2002; Durbarry, 2002; Han, Durbarry and Sinclair, 2006; Cortés-Jiménez, Durbarry and Pulina, 2009; Cortés-Jiménez and Blake, 2010) which have sought to estimate the effect of particular political disturbances and events through the use of dummy variables. In this research two dummy variables are used to represent the FBR and the TOSS, two mechanisms through which the subsidisation policy was implemented. Ideally a comparison of the results of an AIDS model based on the market exchange rate and another model based on the favourable exchange rate would be made but as, of course, there are no observations for expenditure by UK tourists in Malta in response to the market exchange rate, this alternative approach was adopted.

Prior to presenting the static and dynamic AIDS models' specification used to evaluate the Maltese government's policy, information about the choice of destinations, the variables and the data used in the modelling will be provided.

6.2.2.1 Choice of destinations for inclusion in the model

Given the assumed stage-budgeting process, the empirical AIDS model presented in this chapter focuses on the effect of the Maltese government's policy (applicable to the UK source market) on the price competitiveness of three Mediterranean destinations. The model is applied to outbound tourism from the UK to Malta, Spain and Cyprus.

The reason for choosing the UK market as the origin market was because the policy being evaluated was applicable solely to British tour operators selling Malta. Naturally given the Maltese context of this research, Malta was included in the choice of destinations. It was decided that for the purpose of this policy analysis, just three destinations would be included in the model in order to simplify the case study. Given that Malta was automatically included in the model, it was important to determine which other two destinations British tourists consider visiting before actually choosing Malta. Surveys conducted by the Malta Tourism Authority among tourists questioned respondents accordingly. The results of these surveys (NTOM, 1992-1999; MTA, 2000-2006) indicated that Spain and Cyprus were the two topmost destinations which British tourists visiting Malta considered prior to booking a holiday in Malta. This was the prime reason for the choice of destinations.

Data availability played a crucial part in the decision relating to the choice of other destinations. Time-series data relating to variables such as guestnights, tourist expenditure, inflation and exchange rates were readily available for each of these destinations, as opposed to destinations such as Tunisia.

The three destinations chosen all depended comparatively strongly on air traffic, tour operators and inclusive tour holidays during the period of assessment. Malta, Spain and Cyprus are often perceived as strong competitors. These three destinations were featured in both the summer and winter holiday brochures of major tour operators selling in the UK. Spain was the second most popular destination for the UK

till 2001 but has since become the most popular for this outbound market, accounting for about 18% of UK residents' visits abroad (Office of National Statistics, 1997-2009). Alternative destinations were considered in the process of selecting destinations. Destinations such as Greece and particularly some of the Greek Islands, were not prominently featured in the tour operators' winter brochures,[1] during the period under review. Destinations such as Southern France and Southern Italy are also in the Mediterranean but did not feature strongly in the Summer Sun and Winter Sun holiday brochures of British tour operators, indicating that they were not primarily tour operator destinations. Given that the policy being evaluated provided a subsidy to tour operators, it was important to include destinations which were featured in British tour operator holiday brochures.[2]

Malta and Cyprus, being island destinations, are dependent on air travel with 97% and about 90%, respectively, of incoming tourists opting for air transport. Although it is possible to travel to Spain by land-based transport, the highest proportion of UK tourists opt to travel to Spain by plane. All three destinations have the potential to offer an opportunity for a holiday in the sun, possibly a beach holiday mixed with an element of culture, outdoor activities and good food. Furthermore the three destinations selected have been open to tourism for a number of years and can be considered as mature destinations for the British holiday market.

[1] TUI Thomson Winter Sun and Summer Sun brochures were used as a proxy for tour operator brochures.
[2] When the tour operator subsidisation policy was in effect, tour operator brochures played a major role.

6.2.2.2 Variables and data sources used

The AIDS model depends on time series data relating to the budget share allocated to each of the destinations, to the relative price of each destination to the source market and to tourists' real expenditure per capita. The model was originally applied to the time period 1973 to 2001[3] but as additional data became available the model was extended to the year 2004. The dataset that was compiled for this estimation therefore eventually covered the years 1973 to 2004. This time series allowed the possibility of having a time period prior to the policy being adopted, a number of years during which the policy was implemented, and following that a period when the policy was no longer applicable. This meant that results could be obtained for pre-, during and post-policy.

Consideration was given to extending the time series to 2008. The time series was not however extended to 2008 for a number of reasons. At the time of conducting the analysis, the full data set required for 2008 for Spain and Cyprus was not available. Hence at most the time series could have been extended by another three years to 2007. Including these three additional years in the time series would have implied modelling for additional policies beyond that of tour operator subsidisation which is the focus of this chapter. Post-2004, the Maltese government adopted different policies - including in particular the policy to support low cost airlines operating

[3] The dataset was originally compiled to estimate the model presented in Mangion, Durbarry and Sinclair (2005), 'Tourism Competitiveness: Price and Quality'. *Tourism Economics* 11(1), pp.45-68. The dataset had to change in order to isolate the effect of the government policy, i.e. the effect of a favourable exchange rate being applied to tourism.

to and from Malta - which undoubtedly influenced the UK tourists' budget allocations among the three destinations. Furthermore, in May 2004, Malta and Cyprus became full members of the European Union, implying a different scenario for tourism policy-making. FBR and TOSS became a thing of the past with EU membership. The European Union acts as a single market operating on the basis of free competition and therefore generally disallows state aid, which is considered to distort competition. Hence it was decided that the model would use the time series from 1973 to 2004. The year 2004 is still included in the time series because holidays for that year would have been booked in advance.

The budget share allocated to each destination could easily have been calculated if UK tourists' expenditure for each destination was available for the whole time series. Attempts were made to utilise the same data source for expenditure data, namely the UK's Office of National Statistics (ONS) International Passenger Survey data published in 'Travel Trends'. Expenditure data for Spain were available through this source for the whole time series. However, for the period to 1989, this source did not provide separate expenditure data for Malta and Cyprus but only aggregated data with that of Gibraltar, due possibly to the relatively small sample size the survey would have for each of these destinations. Attempts at obtaining the disaggregated data could have been made but when comparing the International Passenger Survey data for the number of UK residents visiting Malta with Malta's National Statistics Office's figures for UK tourists visiting Malta, figures did not quite tally. Malta's NSO's statistics were considered to be more reliable as they were based on

a headcount of the actual number of tourists visiting the island. On the other hand, the UK's ONS' estimates were based on the International Passenger Survey, which possibly had too small a sample, responsible for a higher margin of error for smaller destinations. For this reason, it was deemed more appropriate to utilise a different data source, rather than the UK's International Passenger Survey for Malta and Cyprus.

Both the Malta Tourism Authority and the Cyprus Tourism Organisation, through the respective national statistics offices and central banks, provide data for total tourists' expenditure in the country, and data for arrivals and guestnights by source market. Using the available data for these two destinations, UK expenditure in Malta and Cyprus was estimated on the basis of the share of UK guestnights to total guestnights as a proportion of total tourists' expenditure registered in Malta and Cyprus respectively, thus accounting for the length of stay. This methodology assumes that British expenditure levels are similar to those of other source markets. For Cyprus, the UK market averages a share of 40% throughout the years with some years peaking at over 50% and others falling to a low of 19%. Up to 1989, the British market accounted for over 60% of the total, with some of the earlier years' shares increasing to almost 70% for Malta. A tourist expenditure survey conducted by the Malta Tourism Authority over the past years indicates that this assumption is reasonable, even for the recent years in the time series when the UK market accounted for about 40% of total. Hence the estimated expenditure by British tourists in Malta can act as a good proxy for actual expenditure. Figures for total

tourists' expenditure in Malta were denominated in Maltese Lira, implying that these amounts had to be converted into Sterling. For this purpose, the conversion to Sterling was done on the basis of the market exchange rate, allowing the government policy not to be directly reflected in the budget share since one of the questions to be answered is whether this particular government policy had an effect on the destination's budget share.

The IPS UK expenditure data for Spain and the estimates for UK tourists' expenditure in Malta and Cyprus were used to calculate the budget shares for each of the three destinations for the period 1973 to the year 2004.

Relative prices of destinations had to be estimated. The relative price of a destination is based on the consumer price index (in the absence of a tourism price index) of the destination, that of the source market and on the exchange rate between the destination and the source market. The formula for the price deflator is standard in tourism demand modelling:

$$P = \left(\frac{CPI_i}{CPI_j} \right) / \left(\frac{Exch_{ij}}{Exch_{ijb}} \right) \qquad (6.2)$$

where P is the price deflator, CPI is the consumer price index, Exch is the exchange rate for the destination's currency relative to the source country's, i is the destination, j is the source market, b is the base year. The CPI and exchange rates data were obtained from the World Bank. For the period when the FBR and TOSS were in effect, Malta, for a number of years, applied a more favourable exchange rate for the UK market. These favourable exchange rates were sourced from

the Malta Tourism Authority. In calculating the relative price of Malta for the period between 1986 and 1995, when the favourable exchange rate was in effect, this exchange rate was used.

The second explanatory variable in equation 6.1 relates to real expenditure per capita, which poses the question as to whether to use the number of UK tourists to the three destinations or the UK population. Based on Papatheodorou's (1999) argument (refer to Section 3.1.2.3), the number of UK tourists was used, as this provides a reasonable estimate of real expenditure per capita on stays in the respective countries. To estimate the values for this variable the expenditure incurred by the UK tourists in all three destinations was divided by the total British arrivals in all three destinations and this was divided by the price index taking account of prices in each of the destination areas. The variables were transformed into logarithms. A linear approximation is used because Deaton and Muellbauer (1980) found that this "works well when the individual prices in the system are collinear" (Li, Song and Witt, 2004, p.142). This is the case with the data being used. The relative prices of Malta and Cyprus are highly collinear at 0.912, due mainly to the correlation between these two countries' consumer price indices. The relative prices of Cyprus and Spain are not as correlated though there still exists a certain level of correlation at 0.386. The correlation between the relative prices of Malta and Spain is, on the other hand, quite weak at 0.125. The presence of collinearity of prices further justifies the use of the linear form.

In formulating the data set for the AIDS model, a base year has to be chosen. 1984 was used as the base year when conducting this estimation. In 1984 no subsidy was in effect. If the base year chosen had a favourable exchange rate, then results would be relative to that year. Given that the test related to what the effect of the government policy was, it was important to have a base year which had no such effect.

The tourism policy adopted by government had to be incorporated in the model. Though the policy to subsidise tour operators remained the same, the instrument was amended. This was also reflected in the modelling through the inclusion of two separate dummy variables. These were included in the dataset to represent the government policy to introduce the FBR and to adopt the TOSS, respectively. The first dummy variable, denoted as D1, therefore had a value of 1 from 1986 to 1995 and 0 for the rest of the years. The second dummy variable, D2, had a value of 1 from 1996 to 2000 and 0 for the remaining years.

Additional variables were included in the model. Interactive dummies were included in the model to take into account any possible quantitative-qualitative effects that the government policy might have and which were not being captured by the addition of the dummy variable, the relative prices of destinations and the real per capita expenditure. The interactive dummies were estimated by multiplying the relative price of each destination by each of the dummy variables and similarly by multiplying the real expenditure per capita by each of the dummy variables. These interactive dummies are the

multiplication of the two variables, i.e. the qualitative variable of the policy linked to the relative price of each destination and to the real expenditure per capita. In this way eight interactive dummy variables were created. Since these variables were included in the dynamic model the lagged values of each of the variables (except the dummies for FBR and TOSS) were used to estimate these interactive dummy variables which were expected to capture any multiplicative effects. The model was originally estimated with this specification but plotting the list of residuals indicated that the model required further specification. This was particularly evident in the residuals for the early 1980s and early 1990s, which exceeded the two standard error bands. This pointed to particular points in history, such as the recession of the 1980s, the 1992 Gulf War and the 2001 terrorist attacks, all of which could have had an effect on tourist flows, as outlined in Chapter 5.

These major international events were included in the model specification. A dummy variable for each of these three events was included in the model, such that the dummy variable for the international recession had the value of one for the years in recession (1980-1982) and zero for other years, the dummy variable for the Gulf War was equivalent to one for 1992 and zero in other years, and the value of the dummy variable relating to the 2001 terrorist attacks was set at one for the post-2001 years and zero for other years.

With these variables and dataset, the modelling started to be built up using Microfit 4.0 and the seemingly unrelated regression estimation (SURE), which, as Li, Song and Witt (2004) point out, is the most

commonly used method, in comparison to ordinary least squares and maximum likelihood, for estimating these models. The following sections present the models and results.

6.2.3 The static AIDS model specification

The basic AIDS model as specified in (6.1) was extended to include a dummy variable for the FBR policy and another dummy variable for the TOSS policy. The model specification was

$$w_i = \alpha_i + \Sigma_j \gamma_{ij} \ln p_j + \beta_i \ln (x/P^*) + \delta_i D1 + \lambda_i D2 \qquad (6.3)$$

where, when applied to a tourism context, w_i is the budget share of the residents in the source market *j* allocated to tourism in destination *i*; α_i , γ_{ij} , β_i δ_i ,λ_i are the coefficients to be estimated; p_j is the effective price of tourism; *x* is the total per capita expenditure allocated in all destinations and *P** is a price index taking account of prices in the destinations, D1 and D2 are the dummy variables for the FBR policy (1 in the years 1986 to 1995, 0 otherwise) and for the TOSS policy (1 in the years 1996 to 2000, 0 otherwise) respectively. This model was attempted for the years 1973 to 2004 but the restrictions of homogeneity and symmetry did not hold, as indicated in Appendix 2, Table 1. The model specification was therefore revised to include additional variables taking into account major international events that occurred during the period under review, as shown below.

This extended static AIDS model for the whole period, 1973 to 2004, was as follows:

$$w_i = \alpha_i + \Sigma_j \gamma_{ij} \ln p_j + \beta_i \ln (x/P^*) + \delta_i D1 + \lambda_i D2 + \sigma_i R + \tau_i G + \upsilon_i T + \varepsilon \qquad (6.4)$$

where w_i is the budget share allocated by British tourists to Malta, Spain and Cyprus, each of the three destinations chosen for this analysis; α_i , γ_{ij} , β_i , δ_i , λ_i , σ_i , τ_i, υ_i are the coefficients to be estimated; p_j is the effective price of tourism for Malta, Spain and Cyprus; x is the total per capita expenditure allocated in all destinations and P^* is a price index taking account of prices in the destinations; D1 and D2 are the dummy variables for the FBR and TOSS policies respectively as for model 6.3, R is the dummy variable for the international economic recession occurring in the early 1980s, G is the dummy variable for the Gulf War of 1992, and T is the dummy variable for the effect of terrorism occurring post-2001 and resulting from 9/11; ε is the error term. The results of the static model as specified in equation 6.4, together with the Wald test results for the restrictions imposed on the parameters, are presented next. As opposed to the results of model 6.3, these restrictions did hold indicating that the model as specified in equation 6.4 is superior to the previous model.

6.2.3.1 Results of the static AIDS model

The parameter restrictions were tested and found to hold as indicated by the Chi-square values of the Wald tests for each of the restriction specifications presented in Table 6.2.

Table 6.2: Chi-square values of Wald tests for restrictions – static AIDS model

	Malta-Spain	**Malta-Cyprus**	**Spain-Cyprus**
Homogeneity restriction	1.0114 (0.603)	1.0114 (0.603)	1.0114 (0.603)
Symmetry restriction	3.5638 (0.059)	2.3722 (0.124)	3.3605 (0.067)
Homogeneity and symmetry restrictions	4.3308 (0.228)	4.3308 (0.228)	4.3308 (0.228)

The static AIDS model (equation 6.4) was therefore estimated. The parameter estimates, which are presented in Table 6.3, were then used to calculate the income, own-price and cross-price elasticities using the uncompensated price elasticity formulae for the different years when different policies were in place.

Results of the static model do not provide any conclusive evidence to indicate that the Maltese government's policies had an effect on Malta's budget share or destinations' elasticities. The parameter estimates for the dummies of the two policies (D1 for FBR and D2 for TOSS) turned out to be small values, negative in the case of Malta and Spain and positive for Cyprus. However, these results are highly insignificant.

Table 6.3: Parameter estimates – static AIDS model

Variable	Malta	Spain	Cyprus
Lnpmal84	- 0.079 (0.063)	0.062* (0.031)	0.017 (0.074)
Lnpspa84	0.062* (0.031)	-0.165*** (0.046)	0.103** (0.045)
Lnpcyp84	0.017 (0.074)	0.103** (0.045)	-0.120 (0.098)
Lnry84	-0.039*** (0.012)	0.020 (0.017)	0.019 (0.017)
Dummy1	-0.009 (0.016)	-0.013 (0.018)	0.022 (0.019)
Dummy2	-0.015 (0.019)	-0.021 (0.022)	0.036 (0.024)
Recession	0.078*** (0.012)	-0.055*** (0.018)	-0.023 (0.016)
Gulf	-0.005 (0.019)	-0.066** (0.029)	0.070*** (0.025)
Terror	-0.046*** (0.017)	0.059** (0.024)	-0.013 (0.022)
Intercept	0.264*** (0.063)	0.762*** (0.083)	-0.026 (0.087)
R^2	0.757	0.637	0.760
DW statistic	1.550	1.289	0.878
Equation log-likelihood	83.408	70.743	74.900
System log-likelihood	158.894	158.894	158.894

Notes: Standard errors are in parentheses. ***, ** and * indicate significance at the 1%, 5% and 10% levels. The first three variables are the effective tourism prices in Malta, Spain and Cyprus respectively, lnry84 is the real expenditure per capita, dummy1 refers to the FBR policy, dummy2 refers to the TOSS policy, Recession is the dummy for the years of recession, Gulf is the dummy for the Gulf war years, Terror is the dummy for the post-9/11 years.

Table 6.4: Intercept values for the four periods – static AIDS model

	1973-1985	1986-1995	1996-2000	2001-2004
Malta	0.342 (0.076) ***	0.250 (0.099) ***	0.249 (0.082) ***	0.218 (0.081) ***
Spain	0.707 (0.101) ***	0.683 (0.129) ***	0.741 (0.104) ***	0.821 (0.107) ***
Cyprus	-0.049 (0.103)	0.067 (0.132)	0.010 (0.111)	-0.039 (0.109)

Note: Standard errors are in parentheses. *** indicates significance at the 1% level.

The intercept values, shown in Table 6.4 for each of the periods under review, are particularly influenced by the international events of the recession of the 1980s, the Gulf War in the early 90s, and terrorism attacks that occurred in 2001 and beyond. One must however be cautious in interpreting these results, particularly since the intercept results for Cyprus are insignificant. The recession

affected Malta positively, Spain negatively, and Cyprus negatively though this latter parameter estimate is insignificant. The Gulf War had an insignificant effect on Malta but affected both Spain and Cyprus. The model results show that terrorism had a negative effect on both Malta and Cyprus but a positive effect on Spain. This latter result may be due to the fact that whilst the British outbound travel market to Europe still registered growth during these years (2001: 3% growth over 2000; 2002: 2% growth over 2001), preferences were probably for destinations which were more well known, were closer to home and required shorter flights. Spain retained its position as the preferred destination for the British market, possibly also due to being the most mature and frequented destination of the three.

The price and income elasticities presented in Table 6.5 were not influenced by the policies. Elasticity estimates were calculated for the four periods under review, namely 1973–1985 (the pre-policy years); 1986–1995 (the FBR policy years); 1996–2000 (the TOSS policy period); and 2001–2004 (the post-favourable exchange rate policy years). The static model results do not provide any proof that elasticity estimates may have changed over these years. It actually indicates that the destinations' elasticities did not change over time. However, this may be due to the model specification, as there is no variable that could have influenced elasticities beyond the relative tourism price of destinations (denoted through lnpmal84, lnpspa84 and lnpcyp84 which refer to the log form of Malta's, Spain's and Cyprus' relative price using 1984 as the base year).

Table 6.5: Uncompensated elasticity estimates – static AIDS model

Destination	**Price elasticities**			**Expenditure elasticities**
	Malta	**Spain**	**Cyprus**	
Malta	-2.52 (0.024)***	1.90 (0.019)***	0.39 (0.025) ***	0.23 (0.004) ***
Spain	0.07 (0.001) ***	-1.21 (0.002)***	0.12 (0.001) ***	1.02 (0.001) ***
Cyprus	0.26 (0.027) ***	1.36 (0.021) ***	-2.92 (0.032)***	1.30 (0.006) ***

Note: Standard errors are in parentheses. *** indicates significance at the 1% level.

The elasticity estimates presented in Table 6.5, whilst not far off from the elasticity estimates of the error correction model presented in the paper co-authored by the researcher and published in *Tourism Economics* of March 2005, indicate some differences. This static model shows that Malta, Spain and Cyprus are competitors. It also returns a positive but low value for Malta's expenditure elasticity.

The results of the static model may not clearly reflect the effects of adopting a favourable exchange rate policy. In using econometric modelling for policy analysis, it is important to ensure that the model reflects the manner in which the policy was implemented. The specification of the static model implies that the current value of the budget shares is related only to the current values of the explanatory variables. This does not quite reflect the manner in which the policy was implemented. One must recall that on average the Maltese Government announced the favourable exchange rate a year before it came into effect. One would therefore expect this year's tourism performance to be dependent on last year's policy announcement. This is however not reflected in the static model, highlighting a limitation of the model's specification. Furthermore, the policy statement might not only have a quantitative effect but also result in a qualitative one. The quantitative effect would be particularly related

to the announced exchange rate whilst the qualitative effect would be related to the expectations which such policy statements create. When interactive dummies were included in the static model, the parameter restrictions did not hold and therefore these variables were dropped. In view of the limitations of the static model to reflect the policy implementation, attempts were made at estimating the effect of the policy through a dynamic model, which allows for time lags and consumer adaptation.

6.2.4 The dynamic AIDS model specification

In order to capture the dynamics of the demand for tourism, showing that current changes in budget shares depend not only on current changes in the explanatory variables but also on the extent of consumer disequilibrium in the previous period, a model involving error-correction adjustment was formulated. This model specification may be considered to better reflect the implementation of the policy. Initially only the dummy variables representing the Maltese government's policy to have the FBR and the TOSS were included in the model, which was specified as follows:

$$w_{i\,t-(t-1)} = \alpha_i + \Sigma_j \gamma_{ij} \ln p_{j\,t-(t-1)} + \beta_i \ln (x/P^*)_{t-(t-1)} + \iota w_{i\,(t-1)} + \Sigma_j \kappa_{ij} \ln p_{j(t-1)} + \phi_i \ln (x/P^*)_{(t-1)} + \delta_i D1 + \lambda_i D2 \qquad (6.5)$$

where $w_{i\,t-(t-1)}$ is the change in the budget share allocated by British tourists to Malta, Spain and Cyprus, each of the three destinations chosen for this analysis; the coefficients to be estimated are α_i being the constant, γ_{ij} , β_i are the short run parameters, ι, κ_{ij} , ϕ_i relate to the long run parameters, δ_i, and λ_i are the coefficients of the government policy dummy variables; $p_{j\,t-(t-1)}$ is the change in the effective price of

tourism for Malta, Spain and Cyprus (relating to the short run) and $p_{j(t-1)}$ is the lagged value of the effective price of tourism (relating to the long run); $(x/P^*)_{t-(t-1)}$ is the change in the real expenditure per capita (relating to the short run) and $(x/P^*)_{(t-1)}$ is the lagged value of the real expenditure per capita (relating to the long run) with x being the total per capita expenditure allocated in all destinations and P^* is a price index taking account of prices in the destinations; D1 and D2 are the dummy variables for the FBR and TOSS policies respectively.

The restrictions of the AIDS model were tested but except for the symmetry restriction, the restrictions (i.e. the homogeneity restriction and the homogeneity and symmetry restriction) did not hold as shown in Appendix 2, Table 2. Additional variables (same as those added on for the extended version of the static model 6.4) representing international events were added to the dynamic model, reflecting that tourism demand may be influenced by such happenings. The extended dynamic AIDS model specification was as follows:

$$w_{i\,t-(t-1)} = \alpha_i + \Sigma_j \gamma_{ij} \ln p_{j\,t-(t-1)} + \beta_i \ln (x/P^*)_{t-(t-1)} + \iota w_{i\,(t-1)} + \Sigma_j \kappa_{ij} \ln p_{j(t-1)} + \phi_i \ln (x/P^*)_{(t-1)} + \delta_i D1 + \lambda_i D2 + \sigma_i R + \tau_i G + \upsilon_i T + \varepsilon \qquad (6.6)$$

where $w_{i\,t-(t-1)}$ is the change in the budget share allocated by British tourists to Malta, Spain and Cyprus, each of the three destinations chosen for this analysis; the coefficients to be estimated are α_i being the constant, γ_{ij} , β_i are the short run parameters, ι, κ_{ij} , ϕ_i relate to the long run parameters, δ_i ,λ_i , σ_i , τ_i, υ_i are the coefficients of the other dependent variables; $p_{j\,t-(t-1)}$ is the change in the effective price of tourism for Malta, Spain and Cyprus (relating to the short run) and $p_{j(t-1)}$ is the lagged value of the effective price of tourism (relating to

the long run); $(x/P^*)_{t-(t-1)}$ is the change in the real expenditure per capita (relating to the short run) and $(x/P^*)_{(t-1)}$ is the lagged value of the real expenditure per capita (relating to the long run) with x being the total per capita expenditure allocated in all destinations and P^* is a price index taking account of prices in the destinations; D1 and D2 are the dummy variables for the FBR and TOSS policies respectively; R is the dummy variable for the recession occurring in the early 1980s; G is the dummy variable for the Gulf War of 1992; T is the dummy variable for the terrorism occurring post-2001; ε is the error term.

The homogeneity and symmetry restrictions were tested for this dynamic specification of the model. These restrictions were not satisfied when the restrictions were imposed on the short and long run part of the model and on the short run only, as indicated in Appendix 2, Tables 3 and 4 respectively. Unrestricted estimation of the dynamic model will only satisfy the adding-up restriction, implying that the assumption of utility maximisation may not hold (Deaton and Muellbauer, 1980). The short-run specification was therefore omitted, allowing the estimation for the effect of the Maltese government's policy to be made on the long-run specification.

The final model that was used to estimate the effect of the government policy on budget shares and elasticities was as follows,

$$w_{i\,t-(t-1)} = \alpha_i + w_{i\,(t-1)} + \Sigma_j \gamma_{ij} \ln p_{j(t-1)} + \beta_i \ln (x/P^*)_{(t-1)} + \delta_i D1 + \lambda_i D2 + \Sigma_j \psi_{ij} \ln {}_{p}{}_{jt-1}\, D1 + \Sigma_j \kappa_{ij} \ln p_{j\,t-1} D2 + \sigma_i R + \tau_i G + u_i T + \varepsilon \qquad (6.7)$$

where $w_{i\ t-(t-1)}$ is the change in the budget share allocated by British tourists to Malta, Spain and Cyprus, each of the three destinations chosen for this analysis; α_i, γ_{ij} , β_i δ_i, λ_i, ψ_{ij}, κ_{ij} σ_i , τ_i, υ_i are the coefficients to be estimated; $p_{j(t-1)}$ is the lagged value of the effective price of tourism (relating to the long run); $(x/P^*)_{(t-1)}$ is the lagged value of the real expenditure per capita (relating to the long run) with x being the total per capita expenditure allocated in all destinations and P^* is a price index taking account of prices in the destinations; D1 and D2 are the dummy variables for the FBR and TOSS policies respectively; $p_{j\ t-1}$D1 and $p_{j\ t-1}$D2 are the interactive dummy variables relating to the FBR and TOSS respectively for each of the destinations(D1=1 for the years 1986-1995, 0 otherwise; D2=1 for the years 1996-2000, 0 otherwise); R is the dummy variable for the recession occurring in the early 1980s (R=1 for 1980 to 1982, 0 otherwise); G is the dummy variable for the Gulf War of 1992 (G=1 for 1992, 0 otherwise); T is the dummy variable for the terrorism occurring post-2001(T=1 for 2002-2004, 0 otherwise); ε is the error term.

6.2.4.1 Results of the dynamic model for evaluating government policy

The specification presented in model 6.7 was tested for the AIDS restrictions. The Wald test results are presented in Table 6.6.

Table 6.6: Chi-square values of Wald tests for restrictions – dynamic AIDS model

	Malta-Spain	**Malta-Cyprus**	**Spain-Cyprus**
Homogeneity restriction	13.4753 (0.061)	14.6855 (0.040)	17.3984 (0.015)
Symmetry restriction	0.98051 (0.806)	1.5288 (0.676)	4.8005 (0.187)
Homogeneity and symmetry restrictions	15.1465 (0.127)	16.4874 (0.087)	19.2252 (0.037)

The homogeneity restriction for the Malta-Cyprus and the Spain-Cyprus destinations and the combined homogeneity and symmetry restriction for Spain-Cyprus did not hold, while all the other restrictions held. Hence, three out of the nine restrictions did not hold. This is quite common in empirical studies (e.g. Cortés-Jiménez, Durbarry and Pulina, 2009), where restrictions did not hold. The theory underlying the AIDS model specifies that the unrestricted model cannot be estimated if such restrictions do not hold. Consequently, the homogeneity and symmetry conditions were imposed and the restricted model was estimated for the model specified in equation 6.7. The resulting parameter estimates are presented in Table 6.7.

As can be observed from Table 6.7, the dummy variables, which represent the presence of the Government policy, whilst returning a positive sign for Malta and Spain and a negative one for Cyprus, turn out to be insignificant. This level of insignificance could also be due to more powerful variables (such as relative price and international events) included in the model. The resulting residuals were examined and found to be acceptable.

The parameter estimates of Table 6.7 were used to calculate the uncompensated elasticities over the four periods under review. The results are presented in Table 6.8. Own-price elasticities are expected to be negative, indicating that an increase in the price of a destination leads to a decrease in the demand for that destination. Cross-price elasticities may be negative, positive or zero, depending on whether the increase of the price of one destination leads to a decrease in the quantity demanded of another destination (complementary destinations), an increase in the quantity demanded of another destination (substitute destinations), or does not have any effect on that destination's demand (unrelated destinations).

Table 6.7: Parameter estimates – dynamic AIDS model

Variable	Malta	Spain	Cyprus
Wm(-1)	-0.739*** (0.071)		
Ws(-1)		-0.739*** (0.071)	
Wc(-1)			-0.739*** (0.071)
Lnpmal84(-1)	-0.062* (0.032)	0.214*** (0.034)	-0.152*** (0.042)
Lnpspa84(-1)	0.214*** (0.034)	-0.227*** (0.047)	0.013 (0.043)
Lnpcyp84(-1)	-0.152*** (0.042)	0.013 (0.043)	0.138* (0.073)
Lnry84(-1)	-0.061*** (0.007)	0.022** (0.009)	0.039*** (0.009)
Intermfbr	-0.011 (0.052)	-0.168*** (0.045)	0.180** (0.065)
Intersfbr	-0.169*** (0.045)	0.003 (0.063)	0.166** (0.058)
Intercfbr	0.180** (0.065)	0.166** (0.058)	-0.346*** (0.107)
Interyfbr	-0.012 (0.042)	-0.056 (0.059)	0.068 (0.040)
Intermtos	0.071 (0.091)	-0.191 (0.120)	0.119 (0.098)
Interstos	-0.191 (0.119)	-0.138 (0.274)	0.329 (0.277)
Interctos	0.120 (0.099)	0.329 (0.277)	-0.448 (0.327)
Interytos	0.002 (0.061)	-0.162 (0.099)	0.159* (0.077)
Dummy1	0.069 (0.227)	0.314 (0.319)	-0.384* (0.216)
Dummy2	0.008 (0.386)	0.965 (0.628)	-0.973* (0.491)
Recession	0.025** (0.009)	-0.007 (0.011)	-0.018** (0.007)
Gulf	0.001 (0.012)	-0.037** (0.016)	0.036*** (0.011)
Terror	-0.102*** (0.017)	0.117*** (0.023)	-0.016 (0.018)
Intercept	0.360*** (0.040)	0.081*** (0.081)	-0.153*** (0.045)
R^2	0.709	0.760	0.845
DW statistic	1.348	1.693	2.499
Equation log-likelihood	98.423	88.884	103.188
System log-likelihood	201.681	201.681	201.681

Notes: Standard errors are in parentheses. ***, ** and * indicate significance at the 1%, 5% and 10% levels. The second three variables are the effective lagged tourism prices in Malta, Spain and Cyprus respectively, lnry84(-1) is the lagged real expenditure per capita, intermfbr, intersfbr, intercfbr, interyfbr, intermtos, interstos, interctos and interytos are the interactive dummies, dummy1 refers to the FBR policy, dummy2 refers to the TOSS policy, Recession is the dummy for the years of recession, Gulf is the dummy for the Gulf war years, Terror is the dummy for the post-9/11 years.

6.2.4.2 The effect of the policy on price elasticity and income elasticity

The elasticity estimates, presented in Table 6.8, are the same for the first (i.e. 1973-1985) and fourth (i.e. 2001-2004) period when the policy was not in effect but changes are registered in the estimated intercepts due to the recession in the first period and to the terrorist attacks in the fourth period. On the other hand, during the second (1986-1995) and third (1996-2000) periods, i.e. when the FBR and TOSS, respectively, were in effect, the elasticity estimates changed as a result of government policy.

Table 6.8: Uncompensated elasticities – dynamic AIDS model

Destination and period	**Price elasticities**			**Expenditure elasticities**	**Intercept**
1973-1985	**Malta**	**Spain**	**Cyprus**		
Malta	**-2.57** (0.006)***	7.11 (0.009)***	-3.92 (0.008)***	-0.61 (0.001)***	0.52 (0.066)***
Spain	0.32 (0.001)***	**-1.38** (0.002)***	0.02 (0.001)***	1.03 (0.000)***	0.71 (0.126)***
Cyprus	-3.30 (0.006)***	-0.45 (0.008)***	**1.92** (0.009)***	1.83 (0.001)***	-0.23 (0.070)***
1986-1995					
Malta	**-2.85** (0.009)***	2.91 (0.019)***	0.87 (0.015)***	-0.93 (0.008)***	0.58 (0.377)**
Spain	0.07 (0.001)***	**-1.30** (0.002)***	0.28 (0.001)***	0.95 (0.001)***	1.98 (0.563)***
Cyprus	0.49 (0.011)***	1.81 (0.016)***	**-5.59** (0.018)***	3.29 (0.006)***	-0.68 (0.368)**
1996-2000					
Malta	**-0.69** (0.025)**	1.98 (0.001)***	-0.75 (0.023)***	-0.54 (0.012)***	0.50 (0.577)
Spain	0.05 (0.002)**	**-1.37** (0.005)***	0.58 (0.004)***	0.79 (0.001)***	2.03 (0.961)**
Cyprus	-0.91 (0.015)***	3.58 (0.013)***	**-7.92** (0.053)***	5.24 (0.011)***	-1.53 (0.725)**
2001-2004					
Malta	**-2.57** (0.006)***	7.11 (0.009)***	-3.92 (0.008)***	-0.61 (0.001)***	0.35 (0.078)***
Spain	0.32 (0.001)***	**-1.38** (0.002)***	0.02 (0.001)***	1.03 (0.000)***	0.88 (0.141)***
Cyprus	-3.30 (0.006)***	-0.45 (0.008)***	**1.92** (0.009)***	1.83 (0.001)***	-0.23 (0.085)***

Note: Figures in bold indicate own-price elasticities.
***, ** and * denote 1%, 5% and 10% level of significance.

When comparing the results for Malta for the different periods, the model indicates that the own-price elasticity increased from -2.57 to -2.85 when the FBR policy was in effect but decreased drastically to -0.69 when the TOSS policy was implemented. This indicates that TOSS made the UK demand for Malta less price sensitive than when the FBR was in place and when there was no policy. The model results indicate that Malta did not remain the most price-sensitive destination for the UK outbound market when the TOSS was being implemented. These results indicate that the TOSS was more effective than the FBR in positively influencing UK demand for Malta.

Whilst Government's tourism policy objectives were the same, the manner in which the two systems were operated was different and this could possibly have led to TOSS being more effective. The TOSS was more results oriented, providing the tour operator with support on the basis of actual performance. The FBR provided support to the tour operator in advance. The tour operators' behaviour would be expected to differ given this major difference between the TOSS and the FBR. This possibly could be the reason for a less price-sensitive tourism demand by the UK market for Malta during the period 1996 to 2000 when the TOSS was in place. This points to the importance of policy implementation.

These government policies may also have had an impact on Cyprus' own-price elasticity, which increased drastically when both FBR and TOSS were in place. On the other hand, the own-price elasticity of Spain remained relatively constant ranging between -1.30 and -1.38. These results indicate that Spain was not as affected by the Maltese

Government's policy, possibly because Spain is a major destination in the market. On the other hand, Cyprus was affected possibly due to the similar characteristics of the two island destinations. This is another interesting finding, indicating that a destination's tourism policy may have an effect on the own-price elasticity of other destinations, further influencing competitiveness.

It is also worth noting that the cross-price elasticity between Spain and Malta was affected, indicating that there could be a level of influence exerted by the Maltese Government's policy. UK tourism demand for Malta was originally strongly influenced by prices in Spain and also, though to a lesser extent, by those of Cyprus, but this changed as a result of the Maltese Government's policy as indicated by the lower cross-price elasticities registered for the periods when FBR and TOSS were being implemented (2.91 and 1.98 respectively in the case of Spain, and 0.87 and 0.75 in the case of Cyprus). This is probably one of the major contributions of the policy.

The results from this dynamic AIDS model indicate that a destination such as Malta can adopt tourism policies and implement measures which influence the market. However, and possibly this is related to the size of the market share of the particular destination and that of its competitors, a small destination such as Malta is limited in its potential to influence the market in that it can influence its own performance through improving the source market's demand for it, making the destination less price-sensitive and being less influenced by changes in the price of its competitors. However it is somewhat limited in the extent of influence it can exert on the demand for other

destinations. This finding could possibly also be interpreted as an indicator of the level of market leadership of a destination.

The aim of the Maltese Government's policy in adopting the FBR and the TOSS was to become more price-competitive by reducing prices and consequently increasing tourist flows from the UK to Malta. As discussed in Chapter 5, tourist arrivals from the UK during the period when FBR and TOSS were in effect generally increased. However, one must also assess whether Malta managed to influence expenditure elasticities.

Although some variations did occur in Malta's and Spain's expenditure elasticities during all four periods, these estimates are relatively constant. Spain's expenditure elasticity hovers around 1% and is at its lowest during the period when TOSS was being implemented. This could indicate that the scheme affected the market for Spain by having a lower impact of changes in income in the UK. On the other hand, however, the results indicate that the expenditure elasticity for Cyprus increased when FBR and TOSS were effective.

Malta maintained its negative expenditure elasticity throughout the years, indicating that the subsidies did not contribute to changing the 'inferior' nature of the destination. In effect, during the period when the FBR was implemented, the expenditure elasticity is estimated at -0.93% indicating that a 1% increase in UK income would result in a 0.93% decline in demand for Malta. With the adoption of TOSS, the situation improved slightly, such that a 1% increase in UK income resulted in a 0.54% decline in demand for Malta – a situation similar

to when no favourable exchange rate policy was in effect. These results seem to indicate that the TOSS decreased the sensitivity of the origin market to Malta as price and income elasticities were improved. However, the situation is the opposite when the FBR was being implemented as the subsidy increased demand elasticities. This is a very interesting finding in itself.

The Maltese Government's policy was the same in that it wanted to provide a favourable exchange rate to tour operators generating business from the UK to Malta. The difference between the two systems of providing the favourable exchange rate is probably the main reason for the different resulting elasticities. This indicates not only that government policies can have an effect on the destination's elasticities but also that the manner in which such policies are implemented plays a major role in achieving the required results.

6.2.5 Elasticity values over time and the effect of the policy on price and income elasticities over time

The estimated coefficients obtained from this model, together with the relevant budget shares and relative prices, were used to estimate the normalised elasticities for Malta, Spain and Cyprus. The formulae that were used to estimate the normalised own-price elasticity, cross-price elasticities and expenditure elasticities were as follows.

Own-price elasticity:

$$-1+(\gamma_i/w_i)-(\gamma_{ij}/w_i) \times ((w_i+(\gamma_i \times \ln p_j))/(1+ \beta_i \times \ln p_j) \quad (6.8)$$

Cross-price elasticity:

$$(\gamma_j / w_i)-(\beta_i / w_i)*((w_j +(\gamma_i * \ln p_i)+(\gamma_j * \ln p_{ij}))/(1+(\beta_i * \ln p_j)+(\beta_j * \ln p_{ij}))) \quad (6.9)$$

Expenditure elasticity:

$$=1+((\beta_i / w_i)*(1-(((\beta_i \times \ln p_i)+(\beta_{ij} \times \ln p_{ij})/(1+(\beta_i \times \ln p_i)+(\beta_{ij} \times \ln p_{ij}))) \quad (6.10)$$

where w_i and w_{ij} refer to the budget shares of the destination and of its competitors respectively, γ_i , γ_j ,β_I β_{ii} are the calculated coefficients, ln p_i is the log of the relative price of the destination, ln p_j is the log of the relative price of the other destinations.

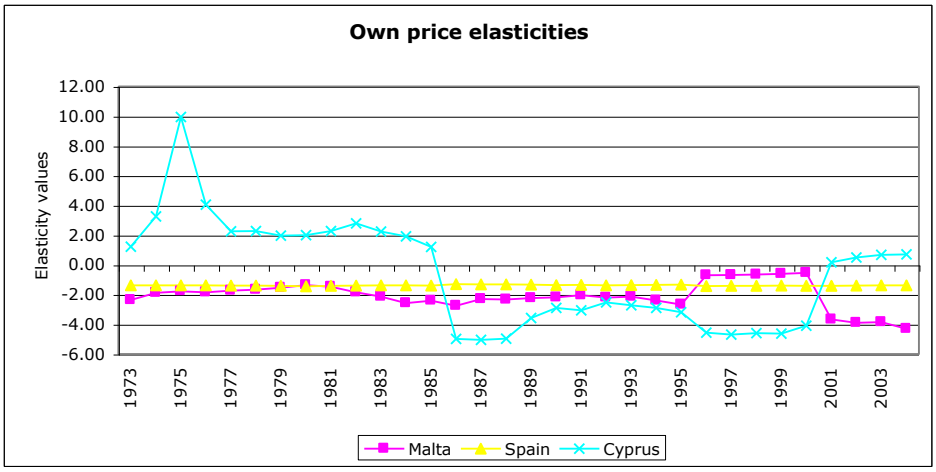
The normalised elasticity values are expected to be negative, indicating that an increase in the price of a destination leads to a decrease in the demand (measured in terms of budget share) for that destination. Cross-price elasticities can be negative, positive or zero, respectively indicating that destinations are complements, substitutes or unrelated.

6.2.5.1 Price elasticities over time

The three destinations' own-price elasticities are estimated for the period under analysis, namely 1973-2004. The graphs presented in this section show how such elasticities changed over time. Figure 6.7 provides a graphical comparison of the elasticity values of the three destinations over time. Up to 1985, the elasticity of demand for Cyprus was positive, whilst up to 1982, it seems that the elasticity of demand for Spain and Malta were quite comparable. This changed post-1982, when Malta's demand elasticity increased whilst that of

Spain remained relatively constant. From 1986 to the year 2000, Cyprus registered an elasticity of demand which was higher than that of Spain and Malta and only managed a less elastic demand post 2001.

Figure 6.7 Own-price elasticities for Malta, Spain and Cyprus 1973-2004



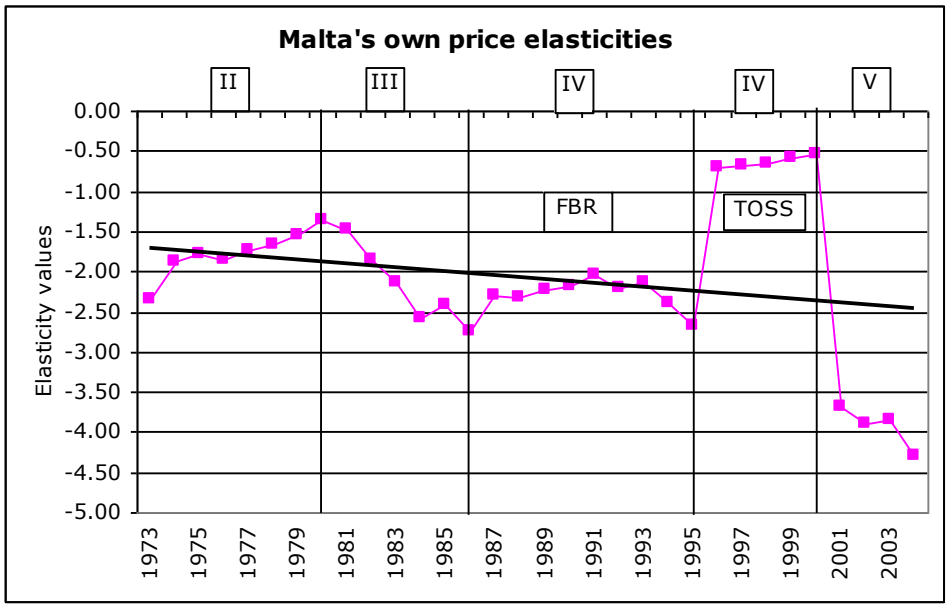
Source: Own compilation

Further to the analysis of the three destinations' own-price elasticity evolution over about 3 decades, a brief analysis of each case is presented next.

Malta's own-price elasticity varied over time. Figure 6.8 makes reference to the stages identified in Malta's tourism development and depicted in Figures 5.1 and 5.2. During Stage II of Malta's tourism development (1970-1979), demand for Malta became less price elastic, possibly because of it then being a new destination and other destinations such as Spain and Cyprus were facing political difficulties and unrest. This scenario was not retained during Stage III (1980-1985). During this period demand from the UK to Malta became more sensitive to changes in prices, resulting in a declining performance.

Implementing the FBR helped stabilise demand elasticity between 1986 and 1995, as shown in Figure 6.8 (first part of Stage IV). The second part of Stage IV, i.e. between 1996 and 2000 when TOSS was being implemented, registered the lowest own-price elasticity, whilst in contrast the post-TOSS years (Stage V) faced the highest own-price elasticity. This could be interpreted as the market's response to the removal of the favourable exchange rate.

Figure 6.8 Malta's own-price elasticities 1973-2004



Source: Own compilation

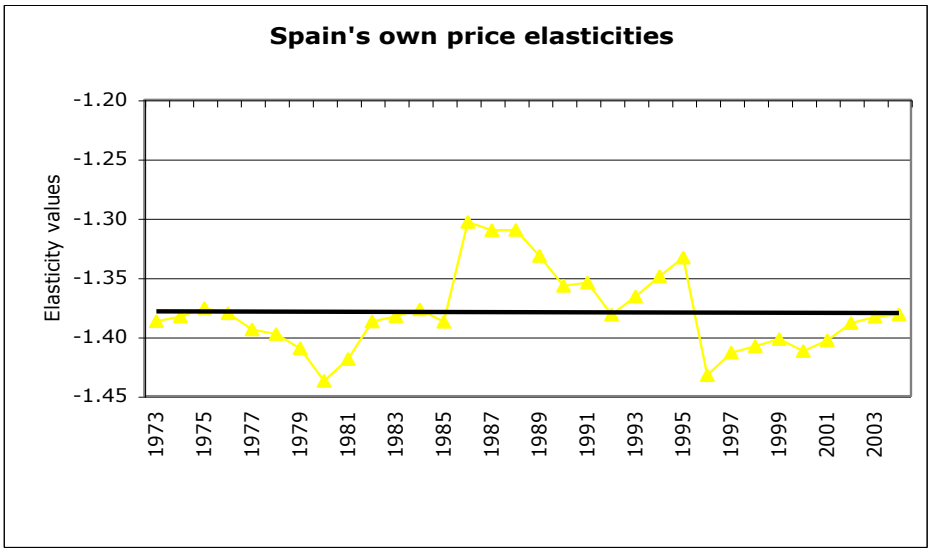
As can be observed from Figure 6.8, superimposing a trend line indicates that Malta's own-price elasticity increased over the whole time series, showing that the destination became more price-sensitive. Only the TOSS made demand for Malta less price-sensitive, as indicated by the values for the destination's own-price elasticity. As a result a trend line over the subsidised years indicates that Malta became less price-sensitive during this period. Though further policy analysis and research would need to be carried out for a

generalisation to be made, one may dare state, on the basis of the findings presented here, that a demand-side subsidy effected through price reduction does boost the sector in the short run and may, as time passes, result in making the market more responsive to changes in prices. This complements Li, Song and Witt's findings that

> "the long-run elasticities are generally greater than the short-run counterparts in terms of the absolute magnitude…This implies that in the long run, tourists are more flexible in response to price changes. In the short run, because of various reasons, such as information asymmetry and bounded rationality, tourists cannot fully adjust their behaviours when the price change occurs. This conclusion is consistent with demand theory."
>
> (Li, Song and Witt, 2004, p.147)

This extent of variation in Malta's own-price elasticity over the years is in contrast to Spain's own-price elasticity, which is the most stable, as indicated in Figures 6.6 and 6.8. Averaging -1.38, it indicates that if the price for Spain increases by 1% the budget share for Spain decreases by 1.38%. Demand for Spain was more price elastic during the TOSS years. Yet the variation was, throughout the period under review, always within a range of 0.15 points of elasticity, as opposed to a variation of 4 points in the case of Malta and 15 points in the case of Cyprus.

Figure 6.9 Spain's own-price elasticities 1973-2004



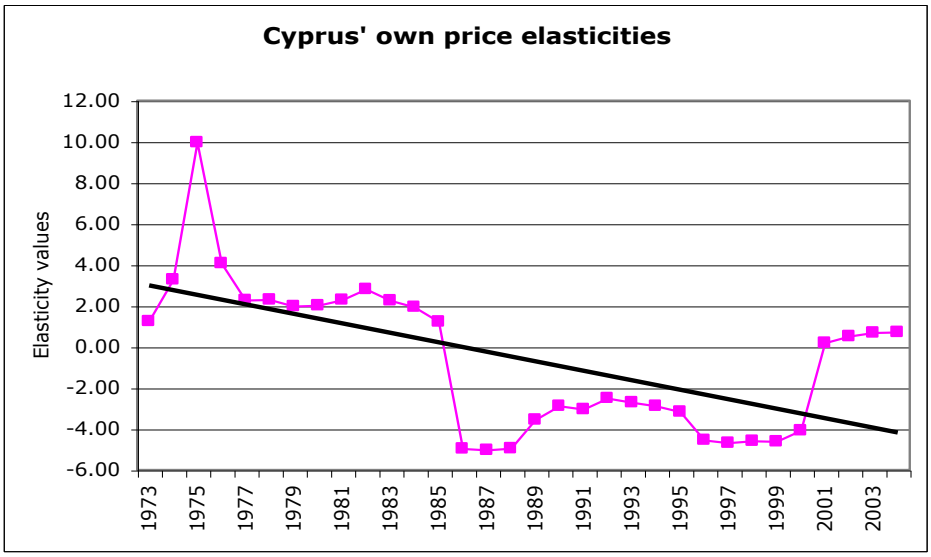
Source: Own compilation

It would be interesting to assess why the UK's elasticity of demand for Spain did not vary as much as for Malta and Cyprus. Over the years, Spain had its fair share of political and economic vicissitudes. Spain, up to 1975, was led by dictator General Franco. In 1975 Spain made the transition to democracy, holding its first elections in 1977, approving its constitution by referendum in December 1978. After this period the international recession kicked in, possibly accounting for the UK's highest price elasticity for Spain at -1.44 in 1980 to -1.39 in 1982. Subsequently, UK demand became less price elastic, reaching its lowest price elasticity in 1986 at -1.30 and which, incidentally or not, coincided with Spain's accession to the EU. UK demand for Spain during the end of the 1980s and early 1990s became more price sensitive, resulting in a declining performance over these years, possibly instigated by the inadequate and obsolete tourism product and negative image of the destination. Spain's own-price elasticity increased again, just to -1.38 in 1992, which coincides with the Gulf War and on to -1.43 in 1996. At the turn of the century

and as Spain adopted the euro in 2002, its own-price elasticity hovered around the -1.38 to -1.40 mark. Though the variation in own-price elasticity is not wide, it is interesting to note that UK demand, even for a destination such as Spain, the major European destination for the British, becomes more sensitive to price changes when negative international events such as wars or terrorist attacks happen or when the destination's tourism offer and image experience deterioration.

Cyprus's own-price elasticity fluctuated over the years and the trend line, as shown in Figure 6.10, also indicates that the demand for Cyprus became more price-sensitive over the years. The 1974 elasticity value of 10 coincides with the 1974 war in Cyprus. However, during the latter years Cyprus registered a positive own-price elasticity, becoming the least price-sensitive destination of the three in the last four years of the time series. Though further research is required to reach firmer conclusions, this level of own-price elasticity for the latter years could be due to British people buying property in Cyprus. These latter price elasticities for Cyprus are contrary to what happened during the fourteen-year period from 1986, when Cyprus registered the highest own-price elasticities when compared to those of Malta and Spain. During this period of time, Malta's own-price elasticity was probably lower due to the Maltese Government's policy to introduce favourable exchange rate schemes during this whole period. This indicates that government policy does have an effect on a destination's elasticity values.

Figure 6.10 Cyprus own-price elasticities 1973-2004

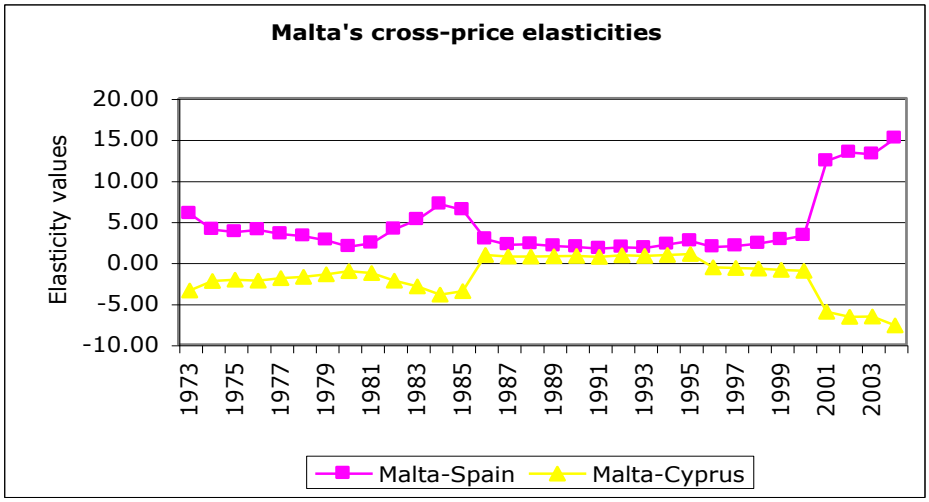


Source: Own compilation

6.2.5.2 Cross-price elasticities

The cross-price elasticities over time were estimated. One might expect to find positive cross-price elasticities for Malta, Spain and Cyprus, indicating that the destinations are substitutes, with demand (in terms of budget share) for one rising as the price of any other rises. Estimates which are close to zero indicate rather little cross-price sensitivity, whilst negative cross-price elasticities indicate complementary destinations.

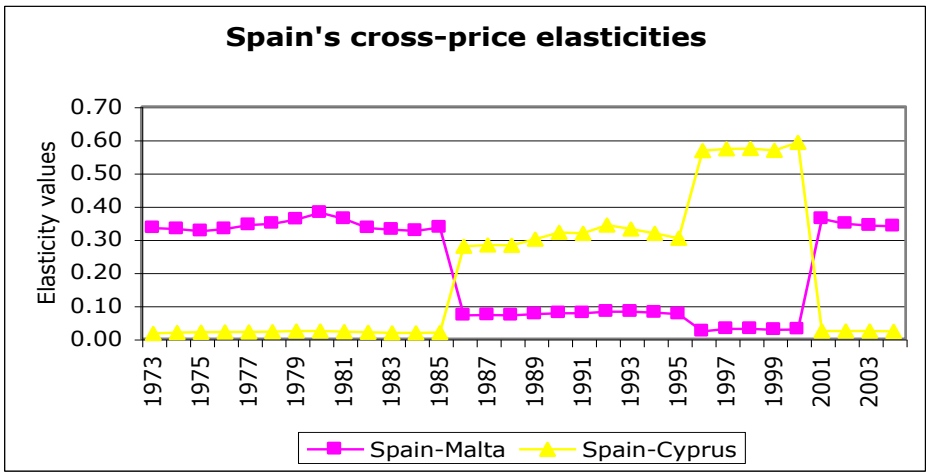
Figure 6.11 Malta's cross-price elasticities 1973-2004



Source: Own compilation

The cross-price elasticity of Malta with the other two destinations follows a pattern which is closely linked to the four policy periods. Throughout the years, Malta and Spain have remained substitutes whilst Cyprus was mainly a complementary destination (shown by the negative cross-price elasticities). During the years when the FBR was in place, the cross-price elasticity of Malta and Cyprus ranges between 0.7 and 0.9, indicating little cross-price sensitivity.

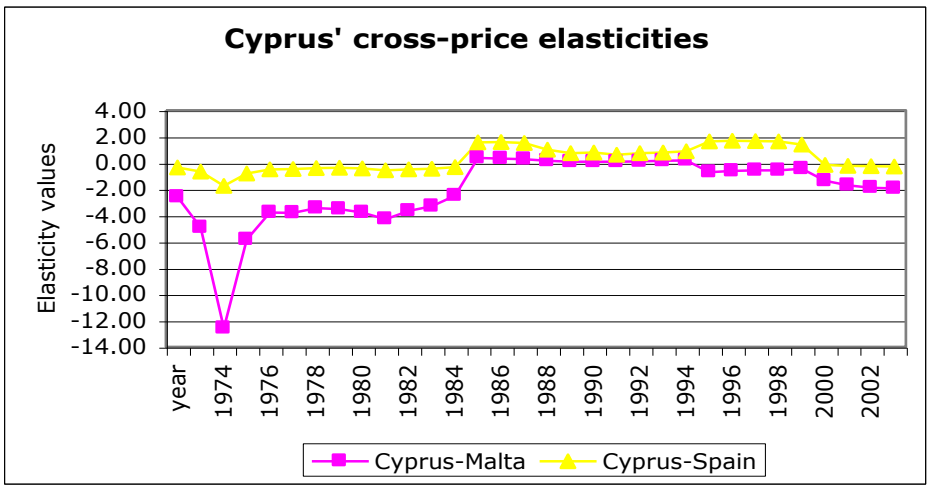
Figure 6.12 Spain's cross-price elasticities 1973-2004



Source: Own compilation

Spain's cross-price elasticities are quite close to zero and never exceed 0.6%, indicating that an increase in the price of Malta and Cyprus results in only a small increase in the demand for Spain. However, it is still worth noting that during the years when the Maltese Government was not adopting its policy of a favourable exchange rate for tourism, Spain's cross-price elasticity with Malta was higher and that with Cyprus was close to zero. The inverse of this happened during the years when FBR and TOSS were in place. This indicates that the favourable exchange rate policy reduced the sensitivity of the demand for Spain to changes in the price of Malta and increased it to changes in the price of Cyprus. One must however be cautious about generalisations on the basis of this finding, due to the cross-price elasticities being quite close to zero.

Figure 6.13 Cyprus' cross-price elasticities 1973-2004



Source: Own compilation

As evidenced by the negative cross-price elasticity estimates, Cyprus and Malta emerge as complementary destinations for the UK market. During the years when the policies for favourable exchange rates for tourism were in place, Cyprus' cross-price elasticity with Malta is

estimated to be close to zero. Whilst the yearly cross-price elasticities between Cyprus and Spain indicate that there is little cross-price sensitivity, during the policy years increases in the price of Spain had some effect on the demand for Cyprus, averaging a 1.2% increase.

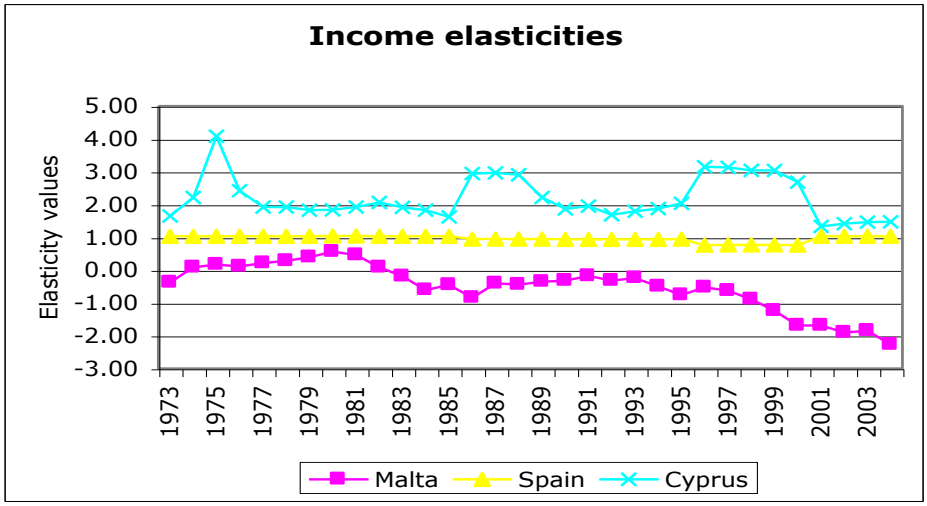
These yearly cross-price elasticity estimates indicate that Malta and Spain are substitutes whilst Malta and Cyprus may be considered as complementary destinations. These results reinforce the finding that the effect of the Maltese Government's subsidisation policy was to make Malta less sensitive to changes in its own price, with the implementation of TOSS being more effective than that of FBR. The results also indicate that the policy made Malta less sensitive to changes in the prices of Spain and Cyprus.

6.2.5.3 Income elasticities

Increases in the income of the source market are expected to result in increases in the demand for a destination. Positive income elasticities indicate that a destination is a 'normal good' whilst negative income elasticities indicate that the source market considers that destination as an 'inferior' good.

There is some evidence of changes through time in the income elasticities of Malta and Cyprus, with very little variation across the years in the case of Spain's income elasticities. This is not to say that the demand for Spain is not affected by changes in the income of the UK market but its sensitivity to such changes is relatively constant.

Figure 6.14 Income elasticities of Malta, Spain and Cyprus 1973-2004



Source: Own compilation

On the other hand, the demand for Cyprus, measured in terms of its budget share, varied over time correspondingly to changes in UK income, with increases in the UK income having positive effects on the demand for Cyprus. This is not the case for Malta, as negative income elasticities are registered for most of those years. Malta was only considered as a 'normal good' during the seventies and early eighties but this changed post-1982. Malta's income elasticity is smaller than 1, indicating that as income increases the quantity purchased increases but at a slower rate than income, leading to a decrease in budget shares. The subsidisation policy did not quite affect Malta's income elasticity, as over the years this destination maintained its 'inferior' nature. This finding, also within the context of the findings on the effect of the policy on price sensitivities, is interesting for policy makers as it could possibly indicate that a policy to provide a price subsidy has the potential to influence demand through price sensitivities, though not as much through income elasticities.

6.3 The evaluation of the subsidisation policy: considerations for destination competitiveness

What has been clearly proven through the econometric modelling presented in this chapter is that a government's policy to subsidise tourism has the potential to improve the destination's price elasticities, and to a lesser extent the income elasticity. This happened during the years when the TOSS was in place. However, this did not quite happen during the FBR years. Whilst both the FBR and the TOSS had the same objectives and provided tour operators with a favourable exchange rate, the manner in which the favourable exchange rate was set and the manner by which tour operators made their claims were different. This indicates that the manner of implementation of a policy needs to be well thought out, since it could have an impact on the effectiveness of a policy. Though this is possibly logical and to be expected, often the impact of the methodology of implementation of the policy is not considered. The research has clearly shown that two policies with the same objective and deploying the same strategy (in this case a subsidy through favourable exchange rates) but operating different mechanisms for implementation will have differing impacts, resulting in different policy effectiveness. All this highlights the fact that it is not enough to simply identify governmental tourism policy objectives and choice of instrument through which the policy is to be implemented. One has to assess that policy's effect and attainment of objectives and at the same time ensure that the manner in which such a tourism policy is implemented truly results in the desired effect on the market. Hence the need for econometric modelling.

The tests carried out to evaluate the effect of the Maltese government's policy on its competitors indicate that the policy did not influence Spain's price elasticity but it had an influence on Cyprus. The tests themselves do not provide a reason for this. However it could be that, as indicated by its market share, and as is known anecdotally and otherwise, about the culture of British Spain-bound tourism, Spain is an important destination for the UK traveller and hence would not be influenced as much by a small competitor such as Malta. One may conclude that the Maltese government's policy was more effective in influencing demand for the island than for influencing demand for its competitors.

The findings presented in this chapter indicate that a policy of subsidisation resulted in higher output levels but price elasticities in the long run increased. This is in line with Schubert and Brida's conclusion that a "subsidy to the tourism sector leads to a boom in that sector in the short run" (2008, p.74), though as time passes production of tourism falls though compared to the situation before the subsidy was implemented, "tourism production remains on a higher level" (2008, p.57). The results of this research also verify Li, Song and Witt's claim that the demand for travel by UK tourists "is also likely to be more price elastic in the long run than in the short run" (2004, p.141). This is an important consideration for policy-makers.

6.4 Conclusion

This chapter has evaluated a policy's impact on the macro environment, providing evidence based on econometric policy analysis that can be used in the process of formulating tourism policy. If such evidence is used, policies which are aimed at achieving destination competitiveness may be more effective. Further discussion on how such evidence can be applied for destination competitiveness policies is presented in Chapter 8.

This chapter has also shown that econometric modelling is a useful tool for policy analysis. This is intended as another contribution to the policy and to the tourism literature. It is evident from the case study presented here that analysing a government policy through econometric modelling provides additional information which is pertinent to ascertaining whether the policy objectives were reached. One advantage of econometric modelling, and specifically of models such as the AIDS, is that it allows for the assessment of a tourism policy's effect not only on the destination adopting the policy but also on that destination's competitors.

Another contribution to the tourism demand literature is that the AIDS model has been used to estimate the effects of a government policy. Tourism demand has been modelled using the AIDS framework and including government's policy as an explanatory variable in the model. This reflects the tourism literature, which indicates that policies can have an effect on demand and destination competitiveness (Dwyer and Kim, 2004). The AIDS model has shown

that tourism policy can influence tourism demand for a destination. The main findings are the following:

- the subsidisation policy applied through a favourable exchange rate or the provision of a subsidy on the destination's relative price increased that destination's budget share and reduced that of the competitors;
- the tourism policy adopted by the Maltese government had an effect on Malta's own-price elasticity, on Malta's cross-price elasticities and also slightly on its income elasticity;
- the tourism policy was more effective in influencing demand for own destination than for influencing demand for its competitors. This may however be dependent on whether a destination is a market leader;
- the manner in which the tourism policy was implemented affected the extent to which tourism demand for a destination was influenced.

The AIDS model presented here indicates that econometric modelling is flexible and may be adapted to provide researchers and policy makers with an additional tool for policy analysis. One may conclude that policies that are aimed at price competitiveness, at influencing tourism demand and consumers' budget allocation, or at inducing tourist behaviour and expenditure may be evaluated using the AIDS model.

It should be kept in mind that to achieve competitiveness a destination must not only adopt policies relating to price of the destination, but must also consider issues relating to quality, which can be modelled through the hedonic pricing model.

CHAPTER 7: EVIDENCE TO INFORM POLICY – THE MICRO CONTEXT

7.0 Introduction

Prices, besides being strongly influenced by inflation and exchange rates, as shown in Chapter 6, are also determined by the characteristics of the item for consumption and by the value consumers place on the individual attributes embedded within the product, according to Lancaster (1966), amongst others. Implicit in the price paid, therefore, is the value placed on each of these attributes. Policies aimed at achieving competitiveness in tourism must therefore also address the attributes of the tourism offer. This requires an understanding of which attributes in the tourism product are valued by tourists, pointing to the need for analysis of the tourism product prior to the formulation of policies. This relates to 'information for policy', the second element within the analysis for policy, as defined by Hill (2005), and which refers to research carried out to provide the policymaker with information and advice.

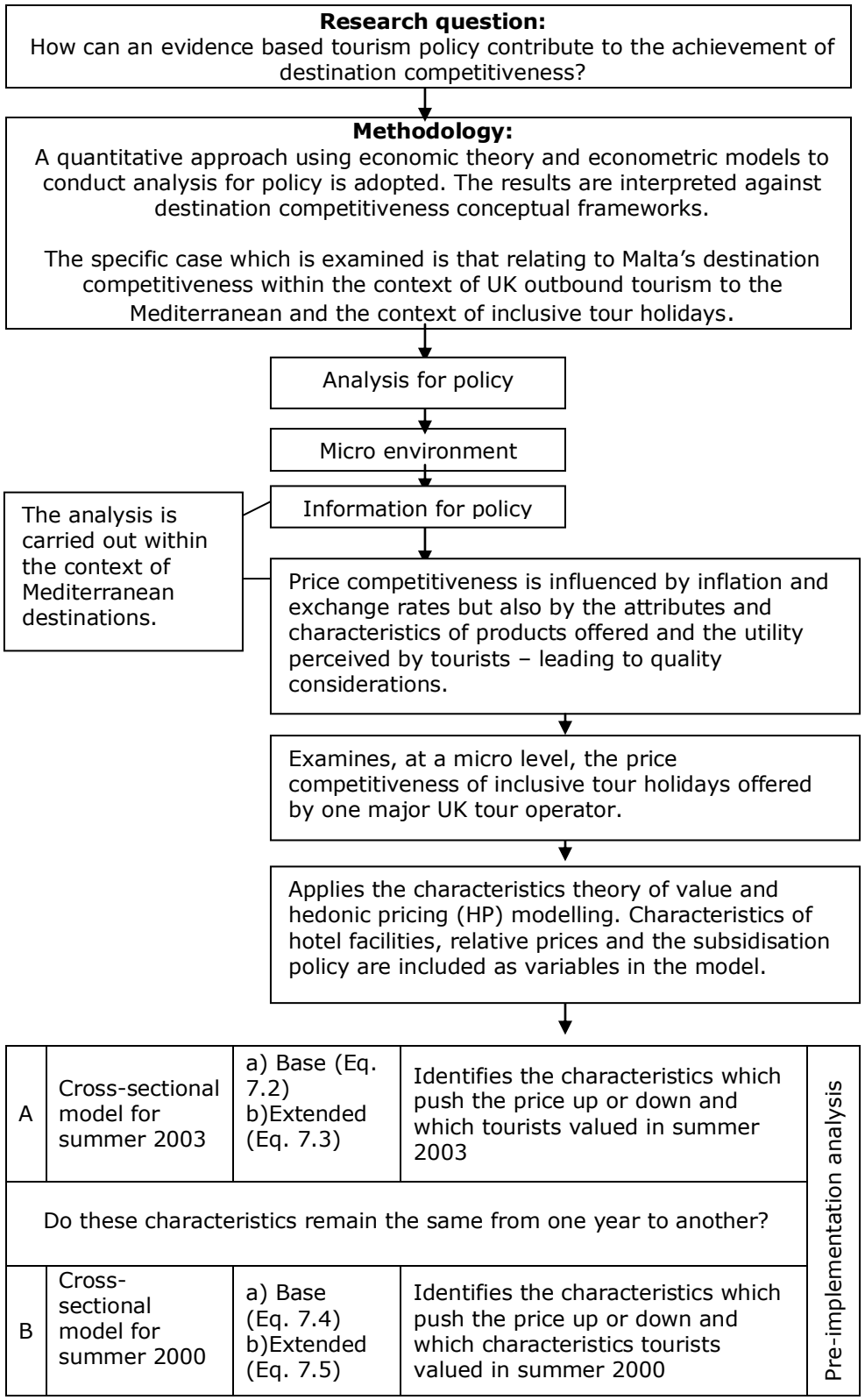
Against this context and complementing the research presented in Chapter 6, this chapter aims to present the second element in the methodology adopted for this thesis, as outlined in Figure 4.2. This chapter will show that policy analysis at a micro level can create evidence to be used in formulating policies. The microeconomic context is to be examined in view of the role firms play in tourism and in providing the tourism product. It was primarily Porter (2003), as outlined in Chapter 2 (refer to Section 2.2.2.1), who drew

attention to the importance of achieving competitiveness at a microeconomic level since at this level and on the basis of unique products and processes competitive advantages can be gained. Policies then should not only address the broader conditions provided by the macro environment within which tourism occurs, but also stimulate the micro context.

For evidence-based policy-making, rigorous scientific analysis carried out to provide information is required. The research presented in this chapter will illustrate how this can be done through the application of econometric analysis. This is a second objective of the thesis that this chapter will contribute to (referred to in Section 4.1 and Figure 4.2). It seeks to demonstrate the usefulness of econometric models for policy and how they can be utilised to assist governments and other key tourism stakeholders formulate policies aimed at achieving destination competitiveness.

The research focuses on inclusive tour holidays - an important tourism product for Mediterranean destinations - analysing and providing insights into the attributes causing variations in their prices and occurring over a period of time. Applying the characteristics theory of value, hedonic pricing models will be used to assess inclusive tour holidays to the Mediterranean. Such models break down the price of an item into separate components that determine the price. Figure 7.1, building on Figure 4.2, outlines the framework of the research presented in this chapter.

Figure 7.1 Framework of the research presented in this chapter



	Comparison of results at two specific points in time	Table 7.7	Variations from one year to another	
How much of these variations in the inclusive tour holiday prices are due to variation within hotels across time ('within') and how much is due to variation between individual hotels ('between')?				
C	Panel data 1997-2003	Base (Eq. 7.6)	Indicates extent of variations: 'within' or 'between'	
Inflation influences prices. How does it affect inclusive tour holiday prices?				
D	Panel data 1997-2003	Base + CPIUK (Eq. 7.7)	Indicates extent to which inflation in source country pushes up inclusive tour holiday price and the resulting 'within' and 'between' variations	
Do exchange rates affect inclusive tour holiday prices and to what extent?				
E	Panel data 1997-2003	Base + Exchange rate (Eq. 7.8)	Indicates the extent to which exchange rates push up/down inclusive tour holiday prices and the resulting 'within' and 'between' variations	
It has been shown in chapter 6 that relative prices influence price competitiveness. Do relative prices influence inclusive tour holiday prices?				
F	Panel data 1973-2003	Base + relative price variable (Eq. 7.9)	Indicates whether and to what extent destination's relative price affects inclusive tour holiday prices	
It has been proven that the TOSS policy had an effect on destination competitiveness. Did the same policy have an effect on inclusive tour holiday prices?				Policy analysis post-implementation
G	Panel data 1973-2003	Base + relative price + TOSS (Eq. 7.11)	Indicates whether the policy was reflected in the inclusive tour holiday price	

↓

Quantification of the effects of facilities, relative prices and the subsidization policy on price.

Note: 'Eq.' stands for equation and relates to the equation number of the relevant model presented in this chapter

The first part of the research, as presented in section 7.2.3, will identify the components of the inclusive tour holiday which give rise to higher or lower prices, assessing the price sensitivity of the characteristics making up the inclusive tour holiday for summer holidays to a number of Mediterranean destinations featured in a major tour operator's brochure. Using cross-sectional data, a base model is first presented and then extended to include additional features of the inclusive tour holiday. The results of the empirical models are then compared in order to assess whether the valued characteristics vary from one year to another.

Whilst cross-sectional data is appropriate for assessing variations at a single point in time, such data cannot be used to model dynamics. Panel data, on the other hand, by providing sequential observations for a number of individuals, distinguishes inter-individual differences from intra-individual differences (Hsiao, Hammond and Holly, 2002). Section 7.2.4 presents a hedonic pricing model using panel data to examine the variations in inclusive tour holiday price, which may be due to variation within hotels across time or due to variation between individual hotels. This is relevant information for policy-making aimed at achieving competitiveness.

Whilst some of the literature on hedonic pricing models include inflation as an independent variable, as, for instance, in the case of hedonic pricing models applied to clothes dryers (Liegey, 2003), the literature applying hedonic pricing to inclusive tour holidays misses out on this. Nevertheless, macroeconomic variables such as inflation and exchange rates may also affect such variations in inclusive tour

holiday prices and therefore this is assessed through additional models. Destinations' relative prices influence price competitiveness, as shown in Chapter 6, but little research has been carried out to investigate whether relative prices influence inclusive tour holiday prices. The hedonic pricing model presented in section 7.2.4.2 aims at contributing to these gaps in the literature.

The hedonic pricing models presented in this thesis, in section 7.2, will therefore vary from the existing literature in a number of ways. The literature has shown that inclusive tour price variations emerge from differences in the tour operators themselves, in hotel category, in the hotel's location, in hotel size, and in the number of facilities provided. This research will complement the literature by testing whether these variations also occur within a single tour operator's inclusive tour holidays as opposed to variations occurring across different tour operators;[1] whether they change over time and to what extent; whether such variations are due to variations between hotels or across time; and how destinations' relative prices affect inclusive tour holiday prices.

A further contribution to the literature will be made through the application of the hedonic pricing model to estimate the effect of the Maltese Government's subsidisation policy on the tour operator's inclusive tour holiday prices. This is presented in section 7.3 and demonstrates how a government's policy can be assessed post-implementation in terms of its effect on the micro context.

[1] Sinclair, Clewer and Pack (1990), Aguilo, Alegre and Riera (2001), Papatheodorou (2002), Haroutunian, Mitsis and Pashardes (2005), Thrane (2005) have all shown that the explanatory variable related to the tour operator was an important predictor of the package holiday price.

The findings from the research outlined above will be used to arrive at conclusions on possible policies which could be adopted to increase destination competitiveness. Following the identification of the facilities and services tourists value in an inclusive tour holiday and the effect of a subsidisation policy, the implications of these results for specific policy areas will be discussed in terms of competitiveness, taking into account both price and quality.

The rest of the chapter is structured as follows. The context of package holidays is described in brief in section 7.1. Section 7.2 focuses on the analysis to be undertaken prior to the formulation of policies. It presents an overview of the hedonic pricing model in section 7.2.1. The data and variables used for the modelling are described in section 7.2.2, whilst section 7.2.3 focuses on the empirical models developed to identify the characteristics which tourists valued in the summer inclusive tour holidays of Summer 2003 and Summer 2000. Section 7.2.4 delves into the variations in inclusive tour holiday prices by presenting hedonic pricing models using panel data for the period Summer 1997 to Summer 2003. The research then shifts from analysing inclusive tour holidays with the scope to develop policies (pre-implementation analysis) to an analysis of inclusive tour holidays aimed at assessing the effect of the Maltese government's subsidisation policy (post-implementation analysis) in Section 7.3. Section 7.4 focuses on the policy implications arising from the research findings, identifying a series of possible policies that could be adopted by destinations and/or tour operators. This leads on to the conclusions of this chapter.

7.1 The context of inclusive tour holidays

Inclusive tour holidays play an important role in the UK outbound holiday market. As can be observed from Table 7.1, inclusive tour holidays accounted for over 53% of outbound holidays from the UK between the years 1997 to 2002, generating some 20 million holidays. As potential travellers are increasingly being faced with additional options for organising their holiday, including other distribution channels such as low-cost airlines and direct online booking for non-package travel arrangements, the share and volume of inclusive holidays are suffering a decline. This is evidenced from the number of inclusive holiday visits registered in the period from 2003 to 2009, which averages a share of 42% annually. Over 80% of these inclusive tours visit European destinations. It is worth noting that, as shown in Figure 7.1, inclusive tour holidays account for 40% of all holiday visits to Europe. Particularly for Mediterranean or Mediterranean-type[2] destinations, sun and beach package holidays sold by tour operators play an important role in their tourism industry.

Though the share of inclusive tours from the UK source market is in decline, the volume of visits generated still justifies an in-depth understanding of this travel segment. This understanding should guide governments, tour operators and other stakeholders to adopt appropriate policies aimed at increasing competitiveness in this travel segment. Such policies would need to target the travel package components which have an influence on the price of the package.

[2] Examples of such Mediterranean-type destinations include the Canary Islands and Madeira.

Table 7.1 UK residents' visits abroad 1997-2009

	Outbound holidays from the UK to the world (thousands)	Outbound holidays from the UK to the world by inclusive tours (thousands)	Share of inclusive holidays out of all UK outbound holiday visits	Outbound holidays from the UK to Europe by inclusive tours (thousands)	Share of inclusive tours to Europe out of all UK inclusive tours	Outbound holidays from the UK to Europe (thousands)	Share of inclusive tour holidays out of outbound holidays from the UK to Europe
1997	29,138	15,393	53%	13,024	85%	24,278	53%
1998	32,306	17,437	54%	14,531	83%	26,568	54%
1999	35,023	19,077	54%	16,114	84%	28,747	56%
2000	36,685	20,055	55%	16,770	84%	29,961	55%
2001	38,670	20,631	53%	17,453	85%	32,197	54%
2002	39,902	20,638	52%	17,785	86%	33,761	53%
2003	41,197	19,515	47%	16,569	85%	34,834	47%
2004	42,912	19,803	46%	16,218	82%	35,353	45%
2005	44,175	18,993	43%	15,222	80%	36,180	42%
2006	45,287	18,951	42%	14,874	78%	36,931	40%
2007	45,437	18,674	41%	14,671	79%	37,159	39%
2008	45,531	17,914	39%	13,919	78%	37,015	37%
2009	38,492	14,507	38%	10,761	74%	31,041	35%
Average	39,597	18,583	47%	15,224	82%	32,617	47%

Source: Compiled from Travel Trends reports, Office of National Statistics (ONS), 1997-2009

The relationship between the characteristics of a product and its price may be modelled through a hedonic pricing model, which allows characteristics to be disaggregated in order to identify what value consumers place on each characteristic. What follows is an analysis of package holidays using hedonic pricing models to identify those attributes and characteristics within the travel package that governments need to influence in order for the packages featuring their destination to be more competitive. A brief overview of the hedonic pricing model will first be provided, followed by the data and variables used in the modelling, the empirical models and their results.

7.2 Analysing inclusive tour holidays to develop policies for competitiveness

In order to be able to develop policies for competitiveness in holiday packages and consequently contribute to achieving competitiveness at a destination level, it is important to gauge price sensitivity and market receptivity to the design of the product on offer. Hedonic pricing allows this (Tomkovich and Dobie, 1995). Holiday characteristics and the individual attributes of the product on offer influence the price to be paid by consumers, as the packages are valued for their utility-bearing characteristics. This premise is based on hedonic pricing theory, which was further elaborated upon in Chapter 3.

7.2.1 The model

The theoretical aspects of hedonic pricing have been discussed in the chapter 3 (Sections 3.1.3, 3.1.3.1 and 3.1.3.2). In an inclusive tour holiday tourism context, the hedonic price function establishes the relationship between the equilibrium prices of holidays and the different packages of characteristics supplied, thus "unbundling" the package. If the package is described as a vector of the bundle of attributes, then the hedonic price function for each hotel featured will be:

$$P(Z) = P(z_1, z_{2,} \ldots , z_{n)} \qquad (7.1)$$

where P is the observed package price, Z is the vector of attributes and $z_1 \ldots z_n$ are the individual characteristics. The partial derivative of P with respect to the particular characteristic is the hedonic price of that individual attribute.

In contrast to the Almost Ideal Demand System (AIDS) model, the theoretical background of hedonic pricing models does not provide any guidance as to the appropriate functional form. A semi-logarithmic functional form was therefore used in the models, as an appropriate means of accounting for the explanatory variables taking the form of dummies. This is in line with similar applications of hedonic pricing models in the tourism literature, which have generally adopted the non-linear functional form, following Rosen's (1974) argument that the non-linear form is appropriate when consumers are unable to demand alternative packages of characteristics to those supplied or when there is joint supply of characteristics by firms. Furthermore, as observed by Thrane,

> "Ordinary Least Squares (OLS) regression or the related log-linear form have in prior hospitality or tourism applications mostly been used to estimate this type of hedonic pricing models."
>
> (Thrane, 2007, p.316)

The log-linear regression coefficient can be interpreted as the percentage change in the dependent variable associated with a one-unit increase in the independent variable. Dummy coefficients and coefficients which are less than 0.2, however, do not permit this. In such cases, the percentage difference between the characteristic and the reference category is obtained by taking the antilog of the coefficient and subtracting 1. The interpretation of these coefficients is based on that provided by Halvorsen and Palmquist (1980). The effect on the price of the availability of a characteristic with a coefficient β is given by $(e^{\beta} -1) \times 100\%$.

7.2.2 Sources of data and variables used

In developing a hedonic price function, one of the major concerns is the choice of prices and characteristics to be included in the model. Ideally, actual package prices paid by tourists and the respective characteristics of the bought packages would be used for the analysis. However such data, particularly actual package prices, are not readily divulged by tour operators. In the absence of actual price data for all the different destinations, tour operator brochures were used as the main source of data as these can be considered as good proxies for the actual transactions. This is in line with most of the data sources utilised by the literature reviewed earlier. Sinclair, Clewer and Pack (1990), Papatheodorou (2002), Espinet, Saez, Coenders and Fluvià (2003) and Thrane (2005), whilst acknowledging

the possibility that the brochure prices may not be the exact prices finally paid by the consumer, both argue in favour of the use of brochure prices in view of better data being unavailable. The use of brochures as the data source seemed appropriate for destinations where tour operators account for the major distribution and sales channel, as in the case of the Mediterranean destinations.

It may be argued that the brochure price is not the market price, due to the discounts and special offers made by tour operators to entice customers. This is partially true, but tour operators contract rates with service providers such as accommodation establishments and then establish package prices based on the knowledge of the previous summers' sales, market information on holiday patterns, inflation and exchange rate movements. This is also evident from the results presented later in this chapter, when previous customers' ratings are shown to be significant in influencing the hotel price. Papatheodorou further argues that

> "the popularity of destination holiday package codes is believed to serve as a very useful proxy for expected future sales in that resort."
>
> (Papatheodorou, 2002, p.135)

Papatheodorou (2002), Israeli (2002) and Thrane (2005) argue that the set prices signal hotel quality and the "price-proposals" featured in the brochure can be used as the dependent variable within a hedonic price framework.

The sun and beach tour operator holiday brochure presents packages for various destinations for a particular season. The first part of the

brochure provides general information and describes the specialised holidays. Information about flights and departure times to the different destinations is provided in a separate section of the brochure, often towards the end. The main section of each brochure presents the packages, providing some basic information about the destination (generally not more than a page per destination) and highlighting the facilities provided by the accommodation establishment included in each package. Price panels accompany each featured hotel, outlining prices for different lengths of stay and for different periods in the season.

This information is complemented by photos, which mainly tend to feature a hotel building in the proximity of the sea or with swimming pool areas, a typical hotel room, other hotel facilities and images of people relaxing. Some photos depicting the destination are also included and are particularly used to introduce the accommodation in each destination. Photos featuring accommodation establishments and the facilities or experience they offer by far outnumber destination photos, which generally would not account for more than 2% of photos featured in different UK tour operator brochures. The emphasis on the accommodation establishments, as opposed to an emphasis on the destination, is understandable given that the tour operator is mainly selling transport and accommodation arrangements. The information presented in such pages in the holiday brochures was used to compile the data for the hedonic pricing models presented in this chapter.

It was decided to focus on the packages provided by one tour operator, to assess whether variations exist in a single tour operator's packages. Hence, the choice was made to use the Summer Sun brochures of TUI Thomson, which is the market leader in the UK inclusive holiday market, a position it has held since 1974. Given that summer accounts for the majority of package holidays, it was decided to focus the research on the summer period.

The tour operator's brochure presents packages which offer serviced accommodation as well as self-catering accommodation. A consideration one must make in conducting hedonic pricing modelling is ensuring that the data are homogeneous enough to make relevant comparisons. It was decided, therefore, to exclude packages which featured self-catering accommodation and focus the analysis instead on packages offering hotel-type accommodation.

Models were developed to identify the valued characteristics both at particular points in time (cross-sectional data)[1] and also simultaneously over a period of time (panel data)[2]. Hence, data was extracted from the Summer Sun 2000 and the Summer Sun 2003 brochures for the hedonic pricing models that use cross-sectional data. The choice of these two summers, besides being dependent on the availability of the brochure, was also based on an interest in looking into whether the valued characteristics were different pre- and post- the 9/11 attacks. Tour operators would have contracted the Summer 2003 packages late in 2001 or at the beginning of 2002 and

[1] Cross-sectional data refers to data in which each hotel is observed only once, giving a 'snapshot' view at a particular point in time.
[2] Panel data refers to data in which each hotel is observed repeatedly over time.

would therefore have incorporated any effects which 9/11 could have had on travel arrangements.

For the hedonic pricing models which use panel data, additional data were required since such a model utilises the same individual (for this application, the same hotel) observed repeatedly over time. Information was extracted from the Summer Sun 1997 to the Summer Sun 2003 brochures to compile the dataset for the panel data models. 83 hotels were featured annually throughout these seven summers.

Availability of the brochures was of course crucial for this analysis. Unfortunately extending the dataset to include additional years was not possible because of the unavailability of brochures for individual years to 2008. Extending the panel data set beyond Summer 2003 would have had to take into account the different scenario post 2004. Malta and Cyprus joined the EU in 2004 and introduced the euro in 2008. Furthermore, Malta adopted a policy in 2005 to actively seek to attract airlines, in particular low cost airlines, to operate new or underserved routes to and from Malta. These structural changes, which would have had to be reflected in the model, could have had an impact on tour operators and on customers' valuation of package holidays given alternative travel arrangements.

7.2.2.1 Dependent variable

In a hedonic pricing function, the dependent variable to be regressed relates to the price. The Thomson brochures include a price panel for

each of the featured hotels, generally providing prices for a seven-night, ten-night or fourteen-night holiday, departing on specified times throughout the season. The price difference between a seven-night and a fourteen-night holiday is due to a longer stay and not to changes in the package characteristics. The seven-night prices were used for the analysis.

Most of the literature uses the prices of a specific week to estimate the dependent variable. For instance, Thrane (2005) utilises the prices of a specific week during the season, whilst Espinet, Saez, Coenders and Fluvià (2003) calculate the monthly average of daily prices. Sinclair, Clewer and Pack (1990) Clewer, Pack and Sinclair (1992) and Papatheodorou (2002) utilise data relating to one or two weeks in August as the peak within the summer season as the dependent variable. However, this does not reflect the prices running throughout the season. To account for this the day-weighted average price of each package for the whole season was used as the dependent variable. The day-weighted average price is calculated by the average of the applicable package price for the relevant departure dates. It takes into account the price of the package throughout the whole season and reflects the demand flow patterns as prices are increased for departures in the peak weeks and lowered for the less popular departure weeks. Furthermore, in setting the prices the tour operator may compensate for possible lower revenues during part of the season by the higher yields in the peak weeks. The log of the average price was estimated for each hotel featured in that particular summer's brochure and used as the dependent variable in the cross-sectional data model.

A similar approach was adopted for the data required for the dependent variable in the panel data model. The day-weighted average price for each of the 83 hotels for each of the 7 summers was estimated, logged and used as the dependent variable.

7.2.2.2 Independent variables

Theory is not much of a guide for the selection of characteristics for inclusion in the hedonic function (Thrane 2005, 2007), with the result that in drawing up the models some important variables may be omitted and less important variables included. Guidance therefore had to be sought from the existing literature. As outlined in Chapter 3, section 3.1.3.3, most of the tourism literature on hedonic pricing models included variables relating to the tour operator, location, hotel category, hotel size and the number of facilities.

The holiday package price includes the cost of the flight to and from the destination. The flight characteristics were not included in the hedonic pricing model as the number of dummy variables would increase at the expense of degrees of freedom. Given that the aim of the research is not to test whether a convenient flight time results in a positive effect on the package price, this was not incorporated into the analysis. This positive effect was in any case proven by Papatheodorou (2002).

As shown by Papatheodorou (2002), one of the main influential flight characteristics on the package price is the length of flying time. A descriptive analysis of the flying time from UK's Gatwick airport to the

chosen destinations shows that in most cases flying time is between 2¼ and 3 hours. Only in the cases of Cyprus, the Canary Islands (Fuerteventura, Gran Canaria, Lanzarote, Tenerife), Madeira and Turkey is the flight time four hours or more. This could possibly cause higher prices for these destinations' packages. Destination variables were included in the hedonic pricing models and one expects these variables to pick up this effect of the additional flying time.

Since most of the hedonic pricing models relating to accommodation (Sinclair, Clewer and Pack, 1990; Taylor, 1995; Israeli, 2002; Espinet, Saez, Coenders and Fluvià, 2003; Haroutunian, Mitsis and Pashardes, 2005) included hotel category and board basis, it was decided to first formulate a base model with these key variables. Hence, as shown in Table 7.2, the base model using cross-sectional data was formulated with independent variables for each country of destination (sixteen destinations in total), the hotel category (five T, four T and three T[3]), the board basis (bed and breakfast, half board, full board and all inclusive) and the size of the hotel (number of rooms). Two other variables, namely 'exclusivity to the tour operator' and 'special labels', were also included in the base model given that it was evident that these two elements were intensely promoted through the brochure.

In order to enrich the analysis it was decided to extend the base model to include other variables representing the facilities, service and other elements described in the package. The Thomson brochures provide customers' ratings for four aspects of the tourist's

[3] Thomson uses its own classification of hotels using the nomenclature 'T' instead of 'star'

stay: the holiday, accommodation, location and food. These ratings, based on the feedback obtained from the tour operator's customer service questionnaires, are presented in the brochure in the form of a bar chart.[4] A score out of 100% is provided for each of the four elements. This is important information provided by the tour operator. The ratings were included in the model not in the form of a dummy variable but as a rating out of 100%. This inclusion of customers' ratings in the hedonic pricing model for package holidays is new for the tourism literature.

All the detailed characteristics mentioned in the Thomson Summer 2003 brochure for each package were inputted in the form of dummy variables. This resulted in over 350 characteristics - a number of variables which clearly cannot be used in a model but which indicates that the "information supplied by tour operators in brochures conveys additional quality content", as explained by Clerides, Nearchou and Pashardes (2003, p.1). The Thomson tour operator brochures group the information provided under the following titles: 'Is it for me?' or 'Suitable for', 'Location', 'Swimming Pool', 'Meals', 'Entertainment', 'Activities', 'For Families' and 'Room facilities'. Given these groupings, it seemed sensible to select characteristics reflecting these categories.

The question that arises, given all this information, is which variables to choose. The choice of variables was then based on factor analysis, which was used not to create factor variables to be included in the model as this would have made interpretation very complex, but to

[4] Tour operators would not have the previous year's ratings by customers. They feature the results of the customer service questionnaires of two years prior.

identify which characteristics were to be grouped together. This approach may be considered as a further development to the methodologies adopted in the literature for the choice of variables. The over 350 characteristics were then condensed to 50, as listed in Appendix 3, which meant that a further choice of variables had to be made. Variable addition tests, providing f-test values, were used to check for adding groups of variables. Some of these groups were consequently eliminated from the analysis or included in the model.

The variable addition tests results pointed to the inclusion of particular variables, such as star rating, board basis, customers' ratings, size of hotel, special labels – all of which were already included in the base model – and variables relating to location and facilities which possibly one could describe as having a practical use. Certain attributes, such as having a television set in the hotel room, were present in most hotels, with the result that they came close to being constants.

The choice of the final variables to be included in the extended models was based on these results supplemented by economic reasoning. For example, the variable relating to the number of sports facilities available within the hotel grounds was included on the grounds that one does expect the provision of these facilities to raise the price and the variable addition test indicated that it was significant. The provision of dancing, music and entertainment was excluded as a variable as though one could expect such entertainment to increase the price of the package, results were consistently insignificant.

A further consideration was given to Papatheodorou's (2002) and Thrane's (2005) argument that using the accommodation's star rating along objective attributes could lead to specification error and multicollinearity. Hence most of the attributes that were added in the extended model were characteristics which are not usually included in the legal requirements categorising accommodation establishments.

Table 7.2 shows the list of independent variables included in the extended models using cross-sectional data.

Table 7.2 List of independent variables included in the models

	Cross-sectional				Panel data (1997 - 2003)				
	A (Year 2003)		B (Year 2000)		C	D	E	F	G
	Eq 7.2	Eq 7.3	Eq 7.4	Eq 7.5	Eq 7.6	Eq 7.7	Eq 7.8	Eq 7.9	Eq 7.11
	Base	Extended	Base	Extended					
I	337	337	186	186	83	83	83	83	83
Malta *									
Cyprus									
Tunisia									
Costa Blanca					Costas				
Costa del Sol									
Majorca					Balearics				
Minorca									
Ibiza									
Gran Canaria					Canaries				
Lanzarote									
Fuerteventura									
Tenerife									
Algarve									
Madeira									
Turkey									
Greek Islands									
Five T									
Four T									
Three T *									
Bed & Breakfast*									
Half Board									
Full board									
All inclusive									
Exclusive to tour operator									
Special label									
Lnrooms									
Customers' ratings for holiday									
Customers' rating for accommodation									
Customers' rating for location									
Customers' rating for food									
Sandy beach									
Rocky beach									
Public transport									
Walk through									
Outdoor pool									
Saltwater pool									
Indoor pool									
A la carte restaurant									
Snack bar/coffee shop									
Kids facilities									
Money exchange									
Nice views									
Transport to beach									
Acroom									
Number of sports									

	Cross-sectional				Panel data (1997 - 2003)				
	A (Year 2003)		B (Year 2000)		C	D	E	F	G
	Eq 7.2	Eq 7.3	Eq 7.4	Eq 7.5	Eq 7.6	Eq 7.7	Eq 7.8	Eq 7.9	Eq 7.11
	Base	Extended	Base	Extended					
I	337	337	186	186	83	83	83	83	83
CPI UK									
Exchange rate									
Relative price									
TOSS									

Note: Variables marked with * were used as the reference category

7.2.2.3 Additional data for the panel data models

The panel data, as outlined earlier on, was formulated on the basis of information relating to the 83 hotels which were featured in each year's Thomson Summer Sun brochure over the seven year period. Data was collected for each of the variables included in the base model for each of the years. Some observations were grouped in order to increase the degrees of freedom in the model. Therefore, Costa Blanca and Costa del Sol were grouped under the title 'Costas'. Similarly, the packages featuring hotels in Majorca, Minorca and Ibiza were listed under the Balearic Islands whilst those packages for holidays in Gran Canaria, Tenerife, Lanzarote and Fuerteventura were grouped as the Canary Islands. This reduced the number of destination dummies from 16 to 10.

As explained in Figure 7.1 and as also indicated in Table 7.2, additional panel data models were designed for further testing. This required additional data relating to the consumer price index of the UK, exchange rates between the UK as origin source country and the respective destinations, relative prices of destinations and data relating to Malta's tourism subsidisation policy.

Data for the UK's consumer price index were sought from the World Bank's 'World Development Indicators' and was used for Model 7.6. Data on exchange rates were also required for inclusion in Model 7.8. The exchange rate dataset was laid out as an index with 1997 being used as the base year.

The AIDS model estimated in Chapter 6 of this thesis indicated that the destination's relative price is a major determinant for tourism competitiveness. Despite its relevance, this aspect has not been reflected in hedonic pricing models in the literature and an attempt was made at assessing the influence of a destination's relative price on package prices. Hence Model 7.8, which includes relative price as an additional independent variable.

The relative price data was mainly compiled using the same sources outlined in the previous chapter, namely the World Bank's 'World Development Indicators' and the IMF data. Given the destinations in the analysis, CPI and exchange rate data was required for Malta, Cyprus, Tunisia, Spain, Balearics, Canary Islands, Portugal, Turkey and Greece. Data for destinations such as Tunisia and Turkey were sought from www.oanda.com[5] since the earlier years' data could not be retrieved from the other sources. Data verification was carried out by confirming that the other destinations' exchange rate data given by OANDA matched the exchange rate data provided by the World Bank and IMF. Given that the exchange rates provided were the same, the data sourced from this website were deemed to be reliable.

[5] OANDA, though written in block letters, is not an acronym. Quoting from the website, "OANDA uses innovative computer and financial technology to provide internet-based forex trading and currency information services to everyone…..OANDA is a market maker and a trusted source for currency data. It has access to one of the world's largest historical, high frequency filtered currency databases."

As attempts to obtain data relating to the regional CPI of the Balearic Islands and the Canary Islands proved futile, Spain's data was used as a proxy for both groups of islands given that they both form part of Spain. Average annual exchange rate data was used in this analysis though the average exchange rate for the months of summer would have been more appropriate. However given that monthly data was not available for all destinations, the average annual exchange rate was used instead.

In order to assess whether the government policy to subsidise tour operators was reflected in the package prices, information on the tour operator support scheme was sought for inclusion in Model 7.10. The data that was used referred to the years when the subsidy scheme was in operation, i.e. from 1997 to the year 2000. This was readily available from the Malta Tourism Authority which ran the scheme.

The data outlined above were applied to the various models that were formulated for policy analysis. The models presented in the next two sections of this chapter, Sections 7.2.3 and 7.2.4, were aimed at assisting in the identification of policies that could be adopted in order to achieve competitiveness – hence using this modelling prior to the implementation of a policy which could be based on the information forthcoming from the models' results. Complementing this, Section 7.3 presents the results of a hedonic price model which tests whether the Maltese government's policy to subsidise tour operators was reflected in the package price, testing for the policy post-implementation.

7.2.3 Identifying the valued characteristics of holiday packages – hedonic pricing models using cross-sectional data

To formulate a policy aimed at increasing competitiveness of package holidays and consequently of a destination, it is important to understand what tourists value and which package characteristics drive the price up or down.

For this purpose, hedonic pricing models were developed to understand what tourists value. Cross-sectional data relating to the package holidays offered for summer 2003 were used. Given that the valued characteristics may change over time, the same models applied to summer 2003 were then applied to the summer 2000 holiday packages. These hedonic pricing models using cross-sectional data are presented next and then compared in Section 7.2.3.5.

7.2.3.1 The base model for Summer 2003 packages

A priori expectations and existing literature point to a number of basic attributes which could influence the package price. These include the accommodation category, the board basis and the size of the hotel proxied by the number of rooms. One does expect to pay a higher price for higher category accommodation and for full board or for an all-inclusive stay. A base model was therefore formulated with explanatory variables in the form of dummy variables for each of the destinations, for board basis, for the category of accommodation

according to the operator's rating[6], for the number of rooms in the hotel along with dummy variables for the hotel's exclusivity to the operator in the UK market and for any special labels that the hotel was featuring. The latter two variables were included in the base model because it was evident from the brochure that the tour operator was actively promoting and emphasising its exclusivity in the market of selling particular hotels and the further categorisation of the featured hotels through special labels. Each special label (such as Thomson Platinum, Thomson Gold, Thomson Superfamily) allotted to a number of hotels by the operator implies a particular level of service or types of facilities included in the package.

This base model is presented in equation 7.2 with the reference category used for the hedonic pricing models being a three-star hotel in Malta on a bed and breakfast basis.

$$\ln P = \alpha_0 + \beta_1 \text{Cyprus} + \beta_2 \text{Tunisia} + \beta_3 \text{Costa Blanca} + \beta_4 \text{Costa del Sol} + \beta_5 \text{Majorca} + \beta_6 \text{Minorca} + \beta_7 \text{Ibiza} + \beta_8 \text{Gran Canaria} + \beta_9 \text{Lanzarote} + \beta_{10} \text{Fuerteventura} + \beta_{11} \text{Tenerife} + \beta_{12} \text{ Algarve} + \beta_{13} \text{ Madeira} + \beta_{14} \text{Turkey} + \beta_{15} \text{Greek Islands} + \beta_{16} \text{FiveT} + \beta_{17} \text{FourT} + \beta_{18} \text{Full board} + \beta_{19} \text{Half board} + \beta_{20} \text{All inclusive} + \beta_{21} \text{Exclusivity} + \beta_{22} \text{Special label} + \beta_{23} \text{Lnrooms} + \varepsilon \quad (7.2)$$

where lnP refers to the log of the day-weighted average price for a seven night holiday in each hotel; α_0 is the constant; $\beta_1 \ldots \beta_{21}$ are the resulting coefficients; the names of the countries indicate that the package is for a holiday in that country; FiveT and FourT indicate a five-star hotel and a four-star hotel respectively; Full board, Half

[6] Tour operator ratings are considered to be more comparable across countries as different countries have different standards for rating hotels making the different official ratings incomparable across destinations. Clerides, Nearchou and Pashardes (2003) find that the agent's rating is a more accurate descriptor of quality than the official rating and some countries systematically under- or over–rate their hotels.

board and All inclusive indicate the lodging basis being offered by the package; Exclusivity indicates that the hotel has exclusive arrangements with the tour operator for the British market; Special label indicates that the hotel is allotted a special label by the tour operator; Lnrooms is the log of the number of rooms of the hotel and ε is the error term.

This base model was first applied to cross-sectional data from the TUI Thomson brochure for Summer 2003. This resulted in 337 holiday packages being included in the model. Reflective of the popularity with British holiday makers, the largest number of packages being offered was located in Spain, the Balearic Islands, and the Greek Islands. Details of the number of observations for each independent variable are provided in Appendix 3, Table 2.

Microfit for Windows was used to carry out an Ordinary Least Squares (OLS) estimation of the Summer 2003 dataset. Results for coefficient estimates, standard errors and t-ratios were obtained as presented in Table 7.3. This table also shows the implied percentage effects which are the percentage differentials in the standard price of a package for the reference category resulting from a particular characteristic, *ceteris paribus*. As previously stated, Malta was chosen as the base for comparison of the destinations, 'threeT' hotel as the base for accommodation categories, and 'bed and breakfast' as the base for board basis. Percentage effects are only calculated for variables which are significant up to the 10% level.

Table 7.3 The effects of package characteristics on package prices (base model) – Summer 2003

Regressor	Coefficient	Standard Error	T-Ratio[Prob]	Implied % effect
Constant	5.9932	0.0623	96.2361[.000]	
Cyprus	0.1809	0.0355	5.0941[.000]	19.82***
Tunisia	-0.1353	0.0423	-3.2028[.002]	-12.66***
Costa Blanca	-0.0487	0.0458	-1.0616[.289]	
Costa Del Sol	0.0735	0.0387	1.8999[.058]	7.63 *
Majorca	0.0420	0.0354	1.1877[.236]	
Minorca	0.1249	0.0425	2.9414[.004]	13.31***
Ibiza	0.0254	0.0394	.6457[.519]	
Gran Canaria	-0.0074	0.0444	-.1677[.867]	
Lanzarote	0.1133	0.0476	2.3825[.018]	12.00 **
Fuerteventura	-0.0035	0.0540	-.0650[.948]	
Tenerife	0.0077	0.0408	.1882[.851]	
Algarve	0.1264	0.0504	2.5067[.013]	13.47 **
Madeira	0.1547	0.0430	3.6000[.000]	16.73***
Turkey	0.0789	0.0376	2.0963[.037]	8.21 **
Greek Islands	0.0871	0.0327	2.6659[.008]	9.10***
FiveT	0.2118	0.0205	10.3072[.000]	23.59***
FourT	0.0952	0.0143	6.6755[.000]	9.99***
Full board	0.1434	0.0459	3.1238[.002]	15.42***
Half board	0.0410	0.0199	2.0583[.040]	4.19 **
All inclusive	0.2287	0.0300	7.6328[.000]	25.69***
Exclusivity	-0.0622	0.0154	-4.0519[.000]	-6.03***
Special labels	0.0060	0.0119	.5002[.617]	
Lnrooms	0.0431	0.0114	3.7825[.000]	4.31***

***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively.
F-statistic = F(23, 313) 17.9484 (.000); DW-statistic = 1.7384; Heteroscedasticity: F (1,335) = 0.059340 (.808)

The coefficient of determination for this model was R^2 = 0.57 (R-bar-squared = 0.54), indicating the model's goodness of fit. The model estimates that the mean price for a seven-night package in Malta in a three-star hotel on half board basis was £400.

The coefficient estimates and the resulting implied percentage effects indicate that some package prices are not significantly different from those of the reference category as the coefficients of Costa Blanca, Majorca, Ibiza, Gran Canaria, Fuerteventura and Tenerife are insignificant. The other destinations are more expensive than Malta with Tunisia being the only exception as it is almost 13% cheaper than Malta. Cyprus is almost 20% more expensive whilst Madeira, the Algarve, Minorca and Lanzarote command a price which is higher

than that of Malta by 16.7%, 13.5%, 13.3%, and 12% respectively. Destinations like the Greek Islands, Turkey and Costa del Sol are also more expensive than Malta with package prices being between 7.6% and 9.1% higher. These are interesting findings in that the positive and significant implied effects show a perceived desirability by tourists to visit these destinations.

As expected, differences in the categories of accommodation as classified by the tour operator have a large and highly significant effect on price, particularly for five-T hotels with a 23.6% increase and a 10% increase for four-T hotels over the price for three-T accommodation. The model also reflects significant variations in the type of board basis. Accommodation on half board for summer 2003 was 4% more expensive than a stay having bed and breakfast only. Full-board and all-inclusive packages naturally commanded prices which were higher by 15% and 25% respectively.

An interesting result relates to a hotel being featured as exclusive to the tour operator in the UK. This aspect results in a price difference of -6%, *ceteris paribus*. A priori one would expect exclusivity to a tour operator to increase the package price rather than reduce it. However the model's results indicate otherwise. A lower price would increase sales for that package but, at the same time, the hotel may obtain a lower rate when contracting with the tour operator in exchange for a level of certainty of sales. Information obtained from hoteliers in Malta indicates that tour operators are being increasingly insistent in their demands for exclusivity, possibly with a view to higher sales and therefore increased market share.

Having a special label allotted to a package does not seem to have a significant effect on price, as indicated through the results returned for the variable 'Special labels'. This may show that such labels may have a marketing effect in that the package is sold to a particular target audience but this would not have an effect on the price. Given this result and that of the variable relating to exclusivity to the tour operator, some further analysis was carried out. The correlation between the two variables, 'Exclusivity' and 'Special labels', was estimated at 0.44. Therefore, the base model was re-estimated eliminating one of these variables. Still the results showed that for summer 2003, 'Exclusivity' was significant and negative whilst 'Special labels' was not significant.

The size of the hotel appears to be valued by tourists as the variable 'Lnrooms' is highly significant and positive, as shown in Table 7.3. This result may be reflective of package tourists' preference for staying in larger hotels hosting higher volumes of tourists as opposed to, for example, the 'small and friendly' accommodation option.

The results obtained from model 7.2 and applied to the packages on offer for summer 2003 indicate that higher prices can be commanded for more facilities and services included in the package. The significant and positive results for the accommodation category and board basis reflect this. However, the package includes additional features which are described in detail in the brochure. Model 7.2 was therefore extended to include additional attributes of the package and to assess which of these are valued by tourists. The next section presents this extended model.

7.2.3.2 The extended model for Summer 2003 packages

The specification presented in the base model 7.2 takes account of the generic features of the package, namely the destination, the accommodation category, board basis, the size of the hotel, exclusivity to the tour operator and whether a special label is allotted to the hotel. However, the descriptive text in the tour operator brochure specifies a series of other features which are included in the packages on offer. To enrich the analysis, therefore, model 7.2 was extended to take account of these other attributes, in order to identify which of these are valued by tourists and obtain a better understanding of the package price differences.

As explained in Section 7.2.2.2, over 350 characteristics were mentioned in the text of the brochure but this was narrowed down through the application of factor analysis, variable addition tests and economic reasoning. Table 7.2 lists the explanatory variables included in the extended model, which was specified as follows:

$$\ln P = \alpha_0 + \beta_1 Cyprus + \beta_2 Tunisia + \beta_3 Costa\ Blanca + \beta_4 Costa\ del\ Sol + \beta_5 Majorca + \beta_6 Minorca + \beta_7 Ibiza + \beta_8 Gran\ Canaria + \beta_9 Lanzarote + \beta_{10} Fuerteventura + \beta_{11} Tenerife + \beta_{12}\ Algarve + \beta_{13}\ Madeira + \beta_{14} Turkey + \beta_{15} Greek\ Islands + \beta_{16} FiveT + \beta_{17} FourT + \beta_{18} Full\ board + \beta_{19} Half\ board + \beta_{20} All\ inclusive + \beta_{21} Exclusivity + \beta_{22} Special\ label + \beta_{23} Lnrooms + \beta_{24}\ CRHoliday + \beta_{25} CRAccom + \beta_{26} CRLocation + \beta_{27} CRFood + \beta_{28} Sandbich + \beta_{29} Rockbich + \beta_{30} Publtrpt + \beta_{31} Walkthro + \beta_{32} Outpool1 + \beta_{33} Saltpul1 + \beta_{34} Inpool + \beta_{35} Alacarte + \beta_{36} Snkbarcf + \beta_{37} Kidfacl + \beta_{38} Moneyxch + \beta_{39} Niceviews + \beta_{40} Beachtpt + \beta_{41} Acroom + \beta_{42} Nosports + \varepsilon \quad (7.3)$$

where lnP refers to the log of the day-weighted average price for a seven-night holiday in each hotel; α_0 is the constant; $\beta_1 \ldots \beta_{39}$ are the

resulting coefficients; the names of the countries indicate that the package is for a holiday in that country; FiveT and FourT indicate a five-star hotel and a four-star hotel respectively; Full board, Half board and All inclusive indicate the lodging basis being offered by the package; Exclusivity indicates that the hotel has exclusive arrangements with the tour operator for the British market; Special label indicates that the hotel is allotted a special label by the tour operator; Lnrooms is the log of the number of rooms of the hotel; CRHoliday, CRAccom, CRLocation and CRFood refer to the previous customers' ratings for the holiday overall, the accommodation, the location and the quality of food in the hotel; Sandbich indicates whether the hotel is close to a sandy beach; Rockbich indicates whether the hotel is close to a rocky beach; Publtrpt indicates whether the hotel is close to public transport; Walkthro indicates whether the hotel is on a main road or close to a promenade; Outpool1, Saltpul1 and Inpool show, respectively, whether the hotel has an outdoor pool, a saltwater pool, an indoor pool, or not; Alacarte indicates whether the restaurant offers an à la carte menu; Snkbarcf indicates whether the hotel has a snack bar or a café or a coffee shop; Kidfacl indicates whether the hotel has facilities for children; Moneyxch indicates whether the hotel has money exchange facilities; Niceviews reflects the nice views one can see from the accommodation establishment; Beachtpt means that transport is required but provided to the nearest beach; Acroom indicates that heating can be controlled in the room; Nosports indicates the number of sports facilities available within the hotel grounds; ε is the error term.

The variables that were added to the base model were generally dummy variables having a value of 1 when the facility or service was provided by the hotel and a value of 0 otherwise. However, the ratings provided by previous customers are not dummy variables but a score out of 100% as indicated in the bar chart shown in the brochure pages for each hotel. Furthermore, the variable 'Nosports' is also not a dummy variable but an actual count of the sports facilities provided by the hotel. This variable was not logged because some hotels did not have a single sports facility, rendering the absolute value as zero for some observations. The reference category was retained as a 'threeT' hotel in Malta on bed and breakfast basis.

Other characteristics, such as restaurant availability or television in bedroom, were not included as most of the hotels provided these facilities and for all the model specifications, the results were always insignificant. This does not imply that these facilities are not important but indicates that they are actually basic hotel facilities and are expected to be on offer.

Model 7.3 was estimated for the TUI Thomson Summer 2003 packages using Microfit for Windows. The OLS estimation provided the results presented in Table 7.4. The additional variables increased the goodness of fit (R-squared) to 0.67 and R-bar-squared to 0.62.

The extended model indicates that the mean price for a seven-night package in Malta in a three-star hotel on half board basis was £416. This is slightly different from the £400 resulting from the base model.

Table 7.4 The effects of package characteristics on package prices (extended model) – Summer 2003

Regressor	Coefficient	Standard error	T-Ratio[Prob]	Implied % effect
Constant	6.0331	0.0654	92.3145[.000]	
Cyprus	0.1728	0.0356	4.8597[.000]	18.86***
Tunisia	-0.1240	0.0417	-2.9767[.003]	-11.67***
Costa Blanca	-0.0182	0.0454	-.4009[.689]	
Costa del Sol	0.1035	0.0389	2.6622[.008]	10.90***
Majorca	0.0445	0.0353	1.2613[.208]	
Minorca	0.1469	0.0417	3.5272[.000]	15.83***
Ibiza	0.0159	0.0384	.4137[.679]	
Gran Canaria	0.0248	0.0445	.5581[.577]	
Lanzarote	0.1506	0.0453	3.3253[.001]	16.25***
Fuerteventura	0.0552	0.0535	1.0320[.303]	
Tenerife	0.0323	0.0401	.8049[.421]	
Algarve	0.1728	0.0495	3.4885[.001]	18.86***
Madeira	0.1459	0.0422	3.4558[.001]	15.71***
Turkey	0.0686	0.0372	1.8446[.066]	7.10 *
Greek Islands	0.0953	0.0318	2.9963[.003]	10.00***
FiveT	0.1943	0.0215	9.0293[.000]	21.45***
FourT	0.0762	0.0144	5.2831[.000]	7.92***
Full board	0.0838	0.0440	1.9048[.058]	8.75 *
Half board	0.0123	0.0199	.6189[.536]	
All inclusive	0.1976	0.0294	6.7199[.000]	21.84***
Exclusivity	-0.0416	0.0147	-2.8367[.005]	-4.07***
Special labels	0.0052	0.0115	.4581[.647]	
Lnrooms	0.0188	0.0115	1.6372[.103]	1.90 *
CRHoliday	-0.4616	0.1366	-3.3788[.001]	Score out of 1***
CRAccom	0.0442	0.1281	.3447[.731]	Score out of 1
CRLocation	0.3657	0.0758	4.8237[.000]	Score out of 1***
CRFood	0.1256	0.0422	2.9767[.003]	Score out of 1***
Sandbich	-0.0106	0.0153	-.6891[.491]	
Rockbich	0.0294	0.0200	1.4748[.141]	
Publtrpt	-0.0145	0.0133	-1.0904[.276]	
Walkthro	-0.0276	0.0161	-1.7169[.087]	-2.72 *
Outpool1	0.0828	0.0207	3.9907[.000]	8.63***
Saltpul1	0.0349	0.0243	1.4405[.151]	
Inpool	0.0031	0.0155	.1993[.842]	
Alacarte	-0.0399	0.0121	-3.2944[.001]	-3.91***
Snkbarcf	0.0187	0.0118	1.5770[.116]	
Kidfacl	0.0120	0.0095	1.2687[.206]	
Moneyxch	0.0473	0.0197	2.4033[.017]	4.84 **
Niceviews	-0.0047	0.0207	-.2287[.819]	
Beachtpt	-0.0348	0.0203	-1.7194[.087]	-3.42 *
Acroom	0.0058	0.0127	.4569[.648]	
Nosports	0.0039	0.0016	2.4123[.016]	0.39 **

***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively.
F-statistic = F(42, 294) 14.2522 (.000); DW-statistic = 1.8108; Heteroscedasticity: F (1,335) = 2.7327 (.099)

The extended model results are quite consistent with the results from the base model in that once again the coefficient estimates for Costa Blanca, Majorca, Ibiza, Gran Canaria, Fuerteventura and Tenerife are insignificant, Tunisia is cheaper than Malta by 11.7% whilst all the other destinations are more expensive than the reference destination. As shown in Table 7.4, differences in package prices to the different destinations range from -11.7% for Tunisia to +18.9% for Cyprus. This particularly higher price for Cyprus is possibly due to the two hours additional flying time and consequently higher fuel cost. Moreover, these differences may be interpreted as reflective of each destination's level of popularity with potential tourists, indicative of each destination's image.

The results for the accommodation category and board basis are quite similar to the results of the base model, though Table 7.4 shows that the coefficient estimate for 'Half board' is not significantly different. 'Exclusivity' to the tour operator once again is significant and negative, reducing price by 4%, whilst the coefficient estimate for 'Special labels' is insignificant. The coefficient estimate for 'Lnrooms' is just about significant indicating that tourists show a preference for larger hotels. The implied percentage effect is less than that estimated for the base model possibly because additional variables have been included in the extended model capturing the size of the accommodation establishment for which 'Lnrooms' was acting as a proxy in the base model.

Customers' ratings, as previously stated, were included as explanatory variables in the extended model, using the percentage

score by previous holiday makers. The four variables (CRHoliday, CRAccom, CRLocation, CRFood) as a group when added to the model produced a significant F-value but the rating for accommodation was insignificant in terms of affecting the package price. The other three variables (CRHoliday, CRLocation, CRFood) were, however, significant, with location being the most significant and having the highest effect on the price whilst customers' ratings for the holiday overall were significant but negative. The results show that tourists value previous customers' ratings, particularly on location and the quality of food in the accommodation establishment. These are interesting findings as one would expect previous customers' ratings of accommodation establishment to influence package prices, though possibly clients may rely on the tour operator's assessment and categorisation of the accommodation establishment or in today's context on blogs or websites such as www.tripadvisor.com. This result, moreover, clearly shows the importance tourists attach to the location of the destination. These results possibly also indicate that tourists heed previous customers' ratings for that which is related to the experience of the holiday and that which cannot quite be described through the text in the brochure.

A package which features a hotel situated close to a sandy beach (Sandbich) does not appear to influence price significantly. This could be because most, though not all, of the hotels featured during Summer 2003 are located close to a sandy beach (235 out of 337 hotels, 70%). Surprisingly a hotel situated close to a rocky beach (Rockbich) is not valued differently from one located near a sandy beach, as indicated by the insignificant result. This is another

interesting finding and of relevance to policy, in particular land use and planning policy, since a priori one generally expects tourists to value sandy beaches more than rocky beaches.

Hotels' proximity of public transport facilities does not seem to give rise to differences in prices, though having a hotel on a main road or near promenades (Walkthro) is negatively valued and reduces price by 2%.

The results of the extended model clearly indicate that an outdoor swimming pool is valued by tourists as this characteristic (Outpool1) is significant and results in a price differential of over 8%. On the other hand, an indoor swimming pool and a saltwater swimming pool do not command higher prices for packages.

Other characteristics were included in the model, with à la carte restaurant (Alacarte) and money exchanges (Moneyxch) being significant, with the former affecting price downwards by 3.9% and the latter increasing prices by almost 5%. As expected, the provision of sports facilities (Nosports) has a positive effect on the package price, indicating that tourists value such facilities. The other variables, namely 'Snkbarcf', 'Niceviews' and 'Acroom', are not significant.

An unexpected result is that the provision of kids' facilities (Kidfacl) does not return a significant result. One would expect tourists to value such facilities because of the convenience they provide. 268 hotels out of the 337 (80% of observations) offered these facilities and therefore this service might not be considered as a differentiating

factor providing added value. On reflection, however, this result could be due to the fact that such facilities would be used by only a segment of the tour operators' clients and would not be in general use.

The results of models 7.2 and 7.3 have not only provided information about the price competitiveness of package holidays in different destinations, but have also highlighted which facilities tourists value and which can push the price up or down. Higher category accommodation and full-board and all-inclusive stays command higher prices which tourists are prepared to pay in view of the added benefits. The results have also proven that tourists rely on previous customers' ratings and attach importance to the location of the accommodation establishment as evidenced by the results for 'CRLocation', 'Walkthro' and 'Beachtpt'. Though 'Sandbich' and 'Rockbich' are not significant, this does not imply that proximity to the beach is not valued but possibly indicates that package holiday tourists expect the beach to be nearby.

The outdoor swimming pool is possibly the hotel facility which tourists value most. Tour operators, cognisant of this, do place a lot of emphasis on swimming pools as portrayed through the numerous photos in the brochure depicting this facility. Useful facilities such as money exchange bureaux are also valued by tourists, as are sports facilities.

These results provided insights into what tourists opting for package holidays value and hence on the type of products that should be

placed on the market with implications for policy. In considering these policy implications, a question that arises following these results is whether these valued characteristics remain the same from one year to another and congruently whether these characteristics appertain solely to the specific season.

The analysis presented so far related to package holidays for Summer 2003: one point in time and, at that, a very particular point in time. The Summer 2003 brochure prices would have been contracted some 18 months previously by tour operators, putting contracting dates close to and after the September 11, 2001 events. These events may have had an impact on the valued characteristics reflected in the package prices and on tourists' preferences. To test for this and to assess whether the valued characteristics change from one summer to another, additional modelling was carried out for a summer prior to 9/11, i.e. Summer 2000.

The next section presents the results of the base and extended models for the TUI Thomson Summer 2000 holiday packages, followed by a comparison of results.

7.2.3.3 The base model for Summer 2000 packages

The TUI Thomson brochure for Summer 2000 featured 186 hotels in the 16 destinations included in the model. Details on the breakdown of observations are provided in Appendix 3, Table 2.

For ease of comparability, the same model specification used for the Summer 2003 packages was applied to the Summer 2000 packages. The model specification is reproduced below as equation 7.4.

$$\ln P = \alpha_0 + \beta_1 \text{Cyprus} + \beta_2 \text{Tunisia} + \beta_3 \text{Costa Blanca} + \beta_4 \text{Costa del Sol} + \beta_5 \text{Majorca} + \beta_6 \text{Minorca} + \beta_7 \text{Ibiza} + \beta_8 \text{Gran Canaria} + \beta_9 \text{Lanzarote} + \beta_{10} \text{Fuerteventura} + \beta_{11} \text{Tenerife} + \beta_{12} \text{ Algarve} + \beta_{13} \text{ Madeira} + \beta_{14} \text{Turkey} + \beta_{15} \text{Greek Islands} + \beta_{16} \text{FiveT} + \beta_{17} \text{FourT} + \beta_{18} \text{Full board} + \beta_{19} \text{Half board} + \beta_{20} \text{All inclusive} + \beta_{21} \text{Exclusivity} + \beta_{22} \text{Special label} + \beta_{23} \text{Lnrooms} + \varepsilon \quad (7.4)$$

where lnP refers to the log of the day-weighted average price for a seven night holiday in each hotel; α_0 is the constant; $\beta_1 \ldots \beta_{21}$ are the resulting coefficients; the names of the countries indicate that the package is for a holiday in that country; FiveT and FourT indicate a five star hotel and a four star hotel respectively; Full board, Half board and All inclusive indicate the lodging basis being offered by the package; Exclusivity indicates that the hotel has exclusive arrangements with the tour operator for the British market; Special label indicates that the hotel is allotted a special label by the tour operator; Lnrooms is the log of the number of rooms of the hotel and ε is the error term.

Table 7.5 presents the results of this hedonic pricing model. The coefficient of determination for the fitted equation was R-squared of 0.66 and a R-bar-squared of 0.62. When compared to the goodness of fit for the Summer 2003 base model, this is slightly higher, indicating that the independent variables explain the Summer 2000 prices more than they do for the Summer 2003 ones.

Table 7.5: The effects of package characteristics on package prices (base model) – Summer 2000

Regressor	Coefficient	Standard Error	T-Ratio[Prob]	Implied % effect
Constant	5.9005	0.0717	82.2694[.000]	
Cyprus	0.1987	0.0367	5.4216[.000]	21.98***
Tunisia	0.0097	0.0308	.3142[.754]	
Costa Blanca	-0.0271	0.0444	-.6101[.543]	
Costa Del Sol	-0.0028	0.0378	-.0744[.941]	
Majorca	0.0137	0.0344	.3976[.691]	
Minorca	0.0043	0.0465	.0921[.927]	
Ibiza	-0.0609	0.0377	-1.6136[.109]	
Gran Canaria	-0.0575	0.0490	-1.1726[.243]	
Lanzarote	0.1620	0.0549	2.9513[.004]	17.58***
Fuerteventura	-0.0394	0.0578	-.6823[.496]	
Tenerife	-0.0238	0.0407	-.5853[.559]	
Algarve	0.1961	0.0490	4.0048[.000]	21.66***
Madeira	0.1235	0.0443	2.7856[.006]	13.14***
Turkey	0.0744	0.0304	2.4430[.016]	7.72 **
Greek Islands	0.0318	0.0312	1.0201[.309]	
FiveT	0.1671	0.0235	7.1100[.000]	18.19***
FourT	0.0971	0.0142	6.8620[.000]	10.20***
Full board	0.0656	0.0530	1.2390[.217]	
Half board	0.0380	0.0224	1.6974[.092]	3.87 *
All inclusive	0.1965	0.0296	6.6341[.000]	21.71***
Exclusivity	0.0067	0.0151	.4425[.659]	
Special labels	0.0554	0.0154	3.6035[.000]	5.69***
Lnrooms	0.0189	0.0132	1.4292[.155]	

***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively.
F-statistic = F(23, 162) 13.9073 (.000); DW-statistic = 1.9771; Heteroscedasticity: F (1,184) = 0.71598 (.399)

The mean average price of a package in Summer 2000 was £364. This was cheaper than the mean price for the Summer 2003 packages. Most destinations' prices were not significantly different from that for Malta, though Cyprus, Lanzarote, Algarve, Madeira and Turkey command higher prices ranging from 7.7% to almost 22%.

FiveT and fourT hotels are 18% and 10% more expensive than threeT accommodation establishments. Half-board basis commanded a 4% increase in price over bed and breakfast basis, whilst the price of an all-inclusive package was 21% higher. The coefficient estimate for a package on full board turned out to be not significant. The results for the Summer 2000 hedonic price model indicates that 'Exclusivity' to the tour operator was not significant but packages which were

allocated 'Special labels' were more valued with a 5.7 implied percentage effect. As indicated in Table 7.5 the size or the number of hotel rooms made no difference to tourists' valuation of the package.

The results obtained for model 7.4 indicate that out of the 16 destinations included in this analysis, only 5 destinations' prices were significantly different to those of Malta. This could be interpreted as an indication that in Summer 2000, 11 destinations were considered by tourists as very close substitutes, whilst the other 5 destinations commanded a higher price. This, seen along with the results for the non-destination explanatory variables included in model 7.4, indicates that tourists placed more importance on the components of the package (board basis and accommodation category) and who the package was targeted at (Special labels) rather than the destination. This interpretation is further confirmed by the results obtained for the extended model (model 7.5) applied to the Summer 2000 data. This extended model and the results are presented in the next section.

7.2.3.4 The extended model for Summer 2000 packages

The specification of the extended model, reproduced hereunder as equation 7.5, was applied to the Summer 2000 packages.

$$\ln P = \alpha_0 + \beta_1 Cyprus + \beta_2 Tunisia + \beta_3 Costa\ Blanca + \beta_4 Costa\ del\ Sol + \beta_5 Majorca + \beta_6 Minorca + \beta_7 Ibiza + \beta_8 Gran\ Canaria + \beta_9 Lanzarote + \beta_{10} Fuerteventura + \beta_{11} Tenerife + \beta_{12}\ Algarve + \beta_{13}\ Madeira + \beta_{14} Turkey + \beta_{15} Greek\ Islands + \beta_{16} FiveT + \beta_{17} FourT + \beta_{18} Full\ board + \beta_{19} Half\ board + \beta_{20} All\ inclusive + \beta_{21} Exclusivity + \beta_{22} Special\ label + \beta_{23} Lnrooms + \beta_{24} CRHoliday + \beta_{25} CRAccom + \beta_{26} CRLocation + \beta_{27} CRFood + \beta_{28} Sandbich + \beta_{29} Rockbich + \beta_{30} Publtrpt + \beta_{31} Walkthro + \beta_{32} Outpool1 + \beta_{33} Saltpul1 + \beta_{34} Inpool$$

$$+ \beta_{35}\text{Alacarte} + \beta_{36}\text{Snkbarcf} + \beta_{37}\text{Kidfacl} + \beta_{38}\text{Moneyxch} + \beta_{39}\text{Niceviews} + \beta_{40}\text{Beachtpt} + \beta_{41}\text{Acroom} + \beta_{42}\text{Nosports} + \varepsilon \quad (7.5)$$

where lnP refers to the log of the day-weighted average price for a seven-night holiday in each hotel; α_0 is the constant; $\beta_1 \ldots \beta_{39}$ are the resulting coefficients; the names of the countries indicate that the package is for a holiday in that country; FiveT and FourT indicate a five-star hotel and a four-star hotel respectively; Full board, Half board and All inclusive indicate the lodging basis being offered by the package; Exclusivity indicates that the hotel has exclusive arrangements with the tour operator for the British market; Special label indicates that the hotel is allotted a special label by the tour operator; Lnrooms is the log of the number of rooms of the hotel; CRHoliday, CRAccom, CRLocation and CRFood refer to the previous customers' ratings for the holiday overall, the accommodation, the location and the quality of food in the hotel; Sandbich indicates whether the hotel is close to a sandy beach; Rockbich indicates whether the hotel is close to a rocky beach; Publtrpt indicates whether the hotel is close to public transport; Walkthro indicates whether the hotel is on a main road or close to a promenade; Outpool1, Saltpul1 and Inpool show whether the hotel has an outdoor pool, a saltwater pool, an indoor pool, respectively, or not; Alacarte indicates whether the restaurant offers an a la carte menu; Snkbarcf indicates whether the hotel has a snack bar or a café or a coffee shop; Kidfacl indicates whether the hotel has facilities for children; Moneyxch indicates whether the hotel has money exchange facilities; Niceviews reflects the nice views one can see from the accommodation establishment; Beachtpt means that transport is required but provided to the nearest beach; Acroom indicates that

heating can be controlled in the room; Nosports indicates the number of sports facilities available within the hotel grounds; ε is the error term.

This model specification provides a goodness of fit of 0.73 for R-squared and 0.66 for R-bar-squared.

Table 7.6 presents this model's results which are generally consistent with those of the base model 7.4. Once again, the results indicate that the price differences in the packages of Malta, Tunisia, Costa Blanca, Costa del Sol, Majorca, Minorca, Ibiza, Gran Canaria, Fuerteventura, Tenerife and the Greek Islands were not due to the destinations, but mainly due to differences in accommodation categories (FiveT and FourT), to packages being on an all-inclusive basis (All inclusive) and due to being allotted a special label (Special label). These special labels differentiated between packages for couples and those holidaying without children and packages for families with children, whilst at the same time differentiating amongst the quality and service provided by the hotel. This differentiation was valued by package holiday makers as evidenced by the significant result for 'Special labels' which has a positive implied percentage effect of 4.2.

Table 7.6 The effects of package characteristics on package prices (extended model) – Summer 2000

Regressor	Coefficient	Standard Error	T-Ratio[Prob]	Implied % effect
Constant	5.9938	0.0915	65.5310 [.000]	
Cyprus	0.2065	0.0394	5.2361 [.000]	22.94***
Tunisia	0.0071	0.0338	.2108 [.833]	
Costa Blanca	-0.0137	0.0478	-.2864 [.775]	
Costa del Sol	0.0448	0.0414	1.0812 [.281]	
Majorca	0.0335	0.0383	.8735 [.384]	
Minorca	0.0457	0.0497	.9194 [.359]	
Ibiza	-0.0199	0.0425	-.4689 [.640]	
Gran Canaria	0.0174	0.0538	.3237 [.747]	
Lanzarote	0.1813	0.0601	3.0171 [.003]	19.87***
Fuerteventura	0.0039	0.0597	.0660 [.947]	
Tenerife	0.0115	0.0442	.2596 [.796]	
Algarve	0.1988	0.0488	4.0749 [.000]	21.99***
Madeira	0.1470	0.0469	3.1345 [.002]	15.84***
Turkey	0.0926	0.0331	2.7966 [.006]	9.71***
Greek Islands	0.0445	0.0341	1.3049 [.194]	
FiveT	0.1402	0.0245	5.7291 [.000]	15.04***
FourT	0.0710	0.0159	4.4760 [.000]	7.36***
Full board	0.0538	0.0539	.9985 [.320]	
Half board	0.0174	0.0244	.7126 [.477]	
All inclusive	0.1721	0.0326	5.2798 [.000]	18.78***
Exclusivity	0.0015	0.0158	.0961 [.924]	
Special labels	0.0411	0.0161	2.5559 [.012]	4.19 **
Lnrooms	0.0025	0.0147	.1727 [.863]	
CRHoliday	-0.4117	0.1905	-2.1616 [.032]	Score out of 1 **
CRAccom	0.2156	0.1733	1.2439 [.216]	Score out of 1
CRLocation	0.1584	0.0814	1.9444 [.054]	Score out of 1 *
CRFood	0.0516	0.0469	1.1003 [.273]	Score out of 1
Sandbich	0.0080	0.0200	.4031 [.687]	
Rockbich	0.0062	0.0265	.2332 [.816]	
Publtrpt	-0.0197	0.0150	-1.3150 [.191]	
Walkthro	-0.0247	0.0187	-1.3182 [.190]	
Outpool1	-0.0035	0.0294	-.1205 [.904]	
Saltpul1	0.0236	0.0332	.7087 [.480]	
Inpool	0.0245	0.0164	1.4931 [.138]	
Alacarte	0.0046	0.0145	.3189 [.750]	
Snkbarcf	-0.0015	0.0125	-.1175 [.907]	
Kidfacl	-0.0035	0.0167	-.2105 [.834]	
Moneyxch	-0.0027	0.0308	-.0879 [.930]	
Niceviews	0.0295	0.0164	1.8008 [.074]	3.00 *
Beachtpt	-0.0533	0.0229	-2.3293 [.021]	-5.19 **
Acroom	0.0374	0.0142	2.6275 [.010]	3.81***
Nosports	0.0001	0.0023	.0273 [.978]	

***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively.
F-statistic = F(42, 143) 9.3978 (.000); DW-statistic = 1.9736; Heteroscedasticity: F (1,184) = 0.022675 (.880)

The results of this model highlight the value tourists attached to the accommodation establishment's location for the Summer 2000 holiday packages. This is evidenced by the significant results for the variables 'CRLocation', 'Niceviews' and 'Beachtpt'. High ratings by previous customers for the accommodation establishment's location (CRLocation) positively influence the valuation of the packages, whilst an accommodation establishment which is described as offering beautiful views (Niceviews) commanded a 3% increase in the package price. On the other hand, having to use transport to visit the beach from the hotel (Beachtpt) was considered a negative by tourists for Summer 2000 packages, resulting in an implied percentage effect of -5.

Most of the other variables added on to the base model were insignificant for the Summer 2000 packages, with the only exception being 'Acroom'. These other variables were still included in the model, not only for ease of comparability of results, but also because the F-value of the variable addition test for the whole group was highly significant.

The results of this model indicate that the differences in the prices of package holidays for Summer 2000 were mainly due to location, the accommodation category, an all-inclusive stay as opposed to bed and breakfast, half board or full board, and the special label allotted to the hotel. Whilst there are some consistencies between the results of this model and those of model 7.4, there are also some variations. This is an important finding for policy analysis as it indicates that the

valued characteristics may vary from one year to another. The next section will delve into this in more detail.

7.2.3.5 Do the valued characteristics change over time?

To better understand the differences in package prices, a comparison between the results of the hedonic pricing models for Summer 2003 and Summer 2000 packages was carried out. Table 7.7 presents the implied percentage effects for the four models 7.2 to 7.5.

The implied percentage effects estimated through the base model generally show the same trend as indicated by the same estimates for the extended model. For example, the base model indicates that the package prices of Cyprus, when compared to Malta (the reference category), though still more expensive, became relatively cheaper in Summer 2003 as the implied percentage effect fell from 22% to 20%. This pattern is also reflected in the results of the extended model, with package prices in Cyprus shifting from being 23% more expensive than Malta in the year 2000 to 19% higher in the year 2003. Given this general consistency in results between the base and extended model, the comparison between the two summer seasons will focus on the results forthcoming from the extended models.

Table 7.7 Comparison of the implied percentage effects for the two summer seasons

Regressor	Base Model		Extended Model	
	Implied % effect Summer 2000	Implied % effect Summer 2003	Implied % effect Summer 2000	Implied % effect Summer 2003
Constant				
Cyprus	21.98***	19.82***	22.94***	18.86***
Tunisia		-12.66***		-11.67***
Costa Blanca				
Costa del Sol		7.63 *		10.90***
Majorca				
Minorca		13.31***		15.83***
Ibiza				
Gran Canaria				
Lanzarote	17.58***	12.00 **	19.87***	16.25***
Fuerteventura				
Tenerife				
Algarve	21.66***	13.47 **	21.99***	18.86***
Madeira	13.14***	16.73***	15.84***	15.71***
Turkey	7.72 **	8.21 **	9.71***	7.10 *
Greek Islands		9.10***		10.00***
FiveT	18.19***	23.59***	15.04***	21.45***
FourT	10.20***	9.99***	7.36***	7.92***
Full board		15.42***		8.75 *
Half board	3.87 *	4.19 **		
All inclusive	21.71***	25.69***	18.78***	21.84***
Exclusivity		-6.03***		-4.07***
Special labels	5.69***		4.19 **	
Lnrooms		4.31***		1.90 *
CRHoliday Score out of 1			-0.4117 **	-0.4616 ***
CRAccom Score out of 1				
CRLocation Score out of 1			0.1584 *	0.3657 ***
CRFood Score out of 1				0.1256 ***
Sandbich				
Rockbich				
Publtrpt				
Walkthro				-2.72 *
Outpool1				8.63***
Saltpul1				
Inpool				
Alacarte				-3.91***
Snkbarcf				
Kidfacl				
Moneyxch				4.84 **
Niceviews			3.00 *	
Beachtpt			-5.19 **	-3.42 *
Acroom			3.81***	
Nosports				0.39 **

***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively. A blank cell indicates that the coefficient estimate was not significant.

Cyprus, Lanzarote, Algarve, Madeira and Turkey packages were all more expensive than those for Malta in Summer 2000. Whilst this remained so in Summer 2003, the price difference was narrowed. This implies that whilst Malta was more price competitive during these two seasons, its advantage was narrowed. Furthermore, whereas the package prices for Tunisia and Malta were not significantly different in Summer 2000, holidays in Tunisia become 12% cheaper in Summer 2003. These are important findings for tourism policy as they may indicate that package holidays for Malta are losing competitiveness against these destinations. However, in Summer 2003, Malta gained competitiveness in terms of package prices when compared to Costa del Sol, Minorca and the Greek Islands, whose package prices were higher than those of packages to Malta by 11%, 16% and 10% respectively, indicating that these destinations became more trendy to visit. Undoubtedly, competition among packages sold by TUI Thomson increased as evidenced by the 186 packages for Summer 2000 as opposed to the higher amount of packages (337) featured for Summer 2003 in the tour operator's brochure.

As expected, higher accommodation categories command higher prices. What is interesting is that whilst the difference between the reference category of three T hotels and four T hotels remained at about 7%, that between three T and five T hotels widened from 15% in Summer 2000 to 21% in Summer 2003. This does not necessarily mean that five star packages increased in price. It could also mean that the price of three T packages was reduced.

When comparing tourists' valuation of board basis against 'bed and breakfast', which is the reference category, it emerges that 'all inclusive' stays commanded a higher price, both in Summer 2000 and in Summer 2003, possibly indicating the increased popularity of 'all inclusive' stays. 'Full board' stays were almost 9% more expensive than the 'bed and breakfast' option in summer 2003. On the other hand, the extended models for Summer 2000 and Summer 2003 indicate that 'half board' was not significantly different from the reference category for both seasons.

A change which has occurred between Summer 2000 and Summer 2003 packages relates to 'Exclusivity'. This variable was insignificant for Summer 2000 but significant and negative (reducing price by 4%) for Summer 2003. This indicates that exclusivity to a tour operator has in the more recent years had a negative impact on the package price, indicating that hotels do not benefit much from exclusivity agreements with tour operators.

A further change occurred in relation to 'Special labels' which in Summer 2000 were valued by tourists, pushing the package price up by 4.2%. This did not remain so, however, in Summer 2003, when this variable was insignificant. This change over the two seasons may indicate that whereas originally tourists considered these special labels as indicative of the facilities and services provided by the hotel and adapted to the particular clientele, in Summer 2003 this was possibly simply seen by tourists as a marketing ploy to target particular segments of the market.

As shown by the implied percentage effects presented in Table 7.7, there seems to be a positive value attached to the size of the hotel proxied by 'Lnrooms'. This however seems to be declining over the years, with Summer 2000 registering a 4% increase in price whilst Summer 2003 barely managed a 2% increase in price. This positive implied percentage effect could imply that tourists consider a hotel with more rooms as having more facilities and spaces. However, this implied effect has declined from 4% to 2%, which could possibly reflect a shift in preference to smaller accommodation facilities. Alternatively, tour operators and hoteliers faced by a more competitive market charged a lower price.

Previous clients' ratings of the holiday, accommodation, location and quality of food offered in the hotel influenced tourists' valuation of the packages both in Summer 2000 and Summer 2003. Two major changes occurred between Summer 2000 and Summer 2003. Whereas previous clients' ratings of the quality of food in the hotel was not significant in Summer 2000, this was significant in Summer 2003, with a coefficient of 0.13. Secondly, previous clients' ratings of the location of the hotel had a higher effect on tourists' valuation of the package, as indicated by the coefficient increasing from 0.16 to 0.37.

This latter result must be interpreted along with the coefficient estimates for other variables associated with the hotel's location, namely with 'Sandbich', 'Rockbich', 'Publtrpt', 'Walkthro', 'Niceviews' and 'Beachtpt'. Whilst the first three variables were insignificant for both summers, changes were registered in the coefficient estimates

of the last three variables. 'Walkthro' was significant in Summer 2003 and had a negative implied percentage effect, indicating that tourists did not value having a hotel located close to a main road or promenade, possibly preferring a quieter and less busy location. On the other hand, 'niceviews' was significant in Summer 2000 but not so in Summer 2003. Furthermore, 'beachtpt' was significant for both summers but tourists were less bothered about having to get transport to get to the nearest beach in Summer 2003 than they were in Summer 2000.

These results and those relating to previous clients' ratings indicate that in Summer 2003 tourists placed more importance on previous clients' ratings rather than on specific location details as they did in Summer 2000. This could indicate that tourists in Summer 2003 looked more for an experience arising from the location of the hotel rather than the specific utility arising from the particular location of the hotel.

The differences in the results between Summer 2000 and Summer 2003 could reflect a number of other changing trends and preferences, as follows. There seems to be a preference for additional facilities being offered by the hotel. For Summer 2003, out of 9 variables related to facilities in the hotel, 4 were significant variables (Outpool1, Alacarte, Moneyxch, Nosports); contrastingly, there was only one significant variable (Acroom) relating to facilities in Summer 2000. Whilst all these significant variables had positive coefficients, an à la carte restaurant (Alacarte) had a negative coefficient, indicating that tourists preferred eating elsewhere or other forms of

dining. Furthermore, the implied percentage effect of the variable 'outpool1' was 8.6%, indicating that tourists placed a high value on hotels having outdoor swimming pools.

Another interesting result is that related to the number of sports facilities (Nosports) provided by the hotel. The positive and significant coefficient result of Summer 2003 as opposed to the non-significant result of Summer 2000 indicates tourists' preferences for a holiday which is more active and possibly healthier.

One possible interpretation of these results relating to the facilities offered by the hotel is that tourists in Summer 2003 tended to spend more time in the hotel than they did in Summer 2000. This interpretation of results is further supported by the increased valuation of all inclusive trips, which again indicates a more hotel-bound holiday. Alternatively tourists expected additional value, activities to participate in and relaxing facilities which they could utilise during the hours spent in the accommodation. Hence in Summer 2003 they placed a higher value on the experience the location of the hotel offered and on recreational or useful facilities provided within the hotel's grounds.

The differences in the valued characteristics of packages and in the extent of such valuations may have been influenced by a number of factors, including changes in market trends and fashions, increased competition, Thomson becoming part of the World of TUI group and 9/11. Irrespective of which exogenous factors triggered these differences in the valued characteristics of packages, what is clear is

that variations in tourists' valuations of the attributes of package holidays do occur.

The comparative analysis of the hedonic pricing models and particularly of models 7.3 and 7.5 has shown that generally competition at a destination level increased as the price differentials amongst destinations got narrower; the distinction between threeT and fiveT hotel prices increased as did that between a stay on bed and breakfast basis and an all-inclusive stay. The results have also shown that tourists respond differently to tour operators' strategies, as indicated by the different coefficient estimates relating to 'Exclusivity' and 'Special labels'. Furthermore, it is evident that tourists are becoming more influenced by previous clients' ratings. This could also be due to developments in online customer information through websites such as www.tripadvisor.com, which was founded in 2000.

As explained earlier, location has remained important but there seem changing perceptions about this. Tourists in the more recent season seem to have placed more importance on the experience they can have as a result of that location as opposed to the utility gained from having the hotel close to a particular amenity. The hedonic pricing models have also captured changes in particular market trends and preferences. These include tourists' preferences for a more active holiday (through the variable 'Nosports') and a package offering value added.

These findings which point to particular developments in the package holiday market can be used in the formulation of tourism policy by governments, tour operators and hoteliers. Prior to discussing the policy implications of these findings, further analysis aimed at understanding the variations in package prices will be presented in the next section. The policy implications emerging from all the findings will be presented in Section 7.4.

7.2.4 Variations in package prices - hedonic pricing models using panel data

Policy formulation is enhanced if it is based not solely on information relating to a single year but also on an understanding of the changes occurring in the market over a period of time. Therefore, further to identifying the characteristics which tourists value in a package holiday, it is relevant to assess whether the variations in package prices over time are due to variations between individual packages, termed as 'between' variations, or due to variations within the packages across time, termed as 'within' variations. The 'between' variation is the variation in the average price between packages. The 'within' variation estimates how much the price varies across time for each package. This implies that if every package had the same price in all the years, this measure would be zero. As Espinet, Saez, Coenders and Fluvià explain,

> "one single model can be fitted to the pooled data set including all hotels and time points, thus providing increased efficiency."
>
> (Espinet et al, 2003, p.169)

Therefore, to examine the dynamics of change in a tour operator's packages, a hedonic pricing model using panel data was developed. Panel data allows for an individual (in the case of this research application, a hotel) to be observed repeatedly over time, combining cross-section data with time-series data. As is the convention for panel data, the number of cross-section observations by far exceeds the number of time-series observations.

The panel data used in this study is what is referred to as 'a balanced panel' consisting of repeated observations on the same individual hotel over time. The hotels which were featured in each of the summer Thomson brochures from Summer 1997 to Summer 2003, and which were located in one of the destinations included in the cross-section data model, formed part of the dataset, as explained in section 7.2.2. 83 hotels were continuously featured throughout the period under analysis. This provided 581 observations resulting, however, in the loss of Madeira and the Algarve as destinations to be analysed due to the fact that only one hotel in Madeira and no hotels in the Algarve were featured continuously.

In estimating the model using panel data, a decision had to be made on whether to use a random or a fixed-effects model. The difference between the random and fixed-effects models lies in the assumptions made about the intercept, slope coefficients and the error term. The fixed-effects model (FEM) assumes that the error term follows the classical assumption of having mean 0 and variance of σ^2. As explained in Gujarati,

> "In FEM each cross-sectional unit has its own (fixed) intercept value, in all *N* such values for *N* cross-sectional units. In [Error Components Model]ECM[7], on the other hand, the intercept β_1 represents the mean value of all the (cross-sectional) intercepts and the error component ε_1 represents the (random) deviation of individual intercept from this mean value."
>
> (Gujarati, 2003, p.648)

The fixed effects model is more commonly used in estimating panel data. There are some instances in which it may be inappropriate, particularly when the model has too many dummy variables, has few degrees of freedom, faces multicollinearity, or includes variables which do not change over time. The FEM is preferred when the panel data has a large number of time-series data and a small number of cross-sectional data, as the values of the parameters estimated by FEM and REM are not likely to differ. However, when the panel data, as in the case of the dataset used in this research, has little time-series data and a large number of cross-sectional data, then the estimates from the two methods can differ significantly (Gujarati, 2003). The FEM can in this case be used if the cross-sectional units in the data are not random drawings from a larger sample. However, if these units are thought to be random drawings, then the REM is more appropriate (Hsiao, Hammond and Holly, 2002). Furthermore, FEM is more appropriate for macroeconomic models, while REM is more appropriate for microeconomic models (Judson and Owen, 1999).

For these reasons, the REM seemed to be more appropriate for the hedonic pricing models using panel data presented in this chapter. The packages chosen from the tour operator's brochures may be considered as random drawings from a larger sample and the dataset

[7] ECM is error components model or random effects model.

includes few time-series data (7 years) and a large number of cross-sectional data (83 hotels). In addition, since the data refer to hotels continuously featured rather than all the hotels featured in each brochure, this data set can be considered as a sample, accounting for about 18% of all hotels featured. Espinet, Saez, Coenders and Fluvià explain that the advantage of the random effects model lies in the possibility of

> "testing the hypothesis that the parameters remain constant for all hotels, towns or dates, and of estimating the variance of parameters across hotels, towns or dates when this hypothesis is rejected."
>
> (Espinet et al, 2003, p.169)

Therefore, random-effects models were estimated in this research and are presented in the next sections.

7.2.4.1 The base model for Summer 1997 to Summer 2003 packages

On the basis of the choice of variables made for the hedonic pricing models using cross section data, the following model specification was used.

$$\ln P_{it} = \alpha_0 + \beta_1 Cyprus_{it} + \beta_2 Tunisia_{it} + \beta_3 Costas_{it} + \beta_4 Balearics_{it} + \beta_5 Canaries_{it} + \beta_6 Algarve_{it} + \beta_7 Madeira_{it} + \beta_8 Turkey_{it} + \beta_9 Greek\ Islands_{it} + \beta_{10} FiveT_{it} + \beta_{11} FourT_{it} + \beta_{12} Full\ board_{it} + \beta_{13} Half\ board_{it} + \beta_{14} All\ inclusive_{it} + \beta_{15} Exclusivity_{it} + \beta_{16} Special\ labels_{it} + \beta_{17} Lnrooms_{it} + \varepsilon \quad (7.6)$$

where lnP refers to the log of the day-weighted average price for a seven night holiday in each hotel and in each year; α_0 is the constant; $\beta_1 \ldots \beta_{17}$ are the resulting coefficients; the names of the countries

indicate that the package is for a holiday in that country; FiveT and FourT indicate a five star hotel and a four star hotel respectively; Full board, Half board and All inclusive indicate the lodging basis being offered by the package; Exclusivity indicates that the hotel has exclusive arrangements with the tour operator for the British market; Special labels indicates that the hotel is allotted a special label by the tour operator; Lnrooms is the log of the number of rooms of the hotel and ε is the error term, i and t, representing individual and time, indicate that where applicable each variable was related to a hotel featured each year.

The variables included in model 7.6 are very similar to those of the base model specified in equation 7.2. The main difference lies in destination variables. Initially a dummy for each of the 16 destinations was included in the model to reflect model 7.2. To ease degrees of freedom, some islands were grouped such that the country dummy variables were Malta (being the reference category), Cyprus, Tunisia, Spanish Costas (grouping Costa Blanca and Costa del Sol), Balearics (grouping Majorca, Minorca, Ibiza), Canaries (grouping Lanzarote, Fuerteventura, Tenerife, Gran Canaria), Algarve, Madeira, Turkey and the Greek Islands. Grouping destinations in the model did not result in different results from the model featuring these destinations separately. Once again the reference category was a ThreeT hotel in Malta on bed and breakfast basis, with 1997 being the reference year.

Stata for Windows 8.0 was used to carry out the analysis of the hedonic pricing models using panel data. All coefficients were

exponentially transformed according to the interpretation of dummy variables by Halvorsen and Palmquist (1980).

Table 7.8 Hedonic price model using panel data from 1997-2003

Variable	Coefficient	Std Error	Z	P>|z|	Implied % effect
Constant	5.888	0.099	58.91	0.000	
Cyprus	0.176	0.045	3.90	0.000	19.24 ***
Tunisia	-0.075	0.059	-1.26	0.207	-7.23
Costas	0.007	0.044	0.17	0.869	0.70
Balearics	0.005	0.041	0.13	0.900	0.50
Canaries	0.025	0.051	0.49	0.627	2.53
Algarve	dropped				
Madeira	dropped				
Turkey	0.097	0.053	1.84	0.065	10.18 *
Greek Islands	0.040	0.039	1.02	0.306	4.08
FiveT	0.137	0.031	4.36	0.000	14.68 ***
FourT	0.149	0.019	7.99	0.000	16.07 ***
Full board	0.050	0.067	0.75	0.453	5.13
Half board	0.036	0.031	1.15	0.249	3.67
All inclusive	0.166	0.041	4.09	0.000	18.06 ***
Exclusivity	0.002	0.017	0.09	0.925	0.20
Special labels	0.058	0.013	4.48	0.000	5.97 ***
Lnrooms	0.017	0.019	0.91	0.360	1.72
R^2:	within between overall	= 0.104 = 0.647 = 0.347	Number of observations = 581 Number of groups = 83 corr (u_i, X) = 0 (assumed)		

***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively.

The results of model 7.6 are shown in Table 7.8. The coefficient of determination is not too high at 0.35, but the results of model 7.6 indicate, through the 'within' and 'between' R^2, that the variations in prices are more due to variations between individual hotels. These variations arise from the significant dummy variables, namely the destination Cyprus and Turkey, accommodation categories FiveT and FourT, Special labels and All inclusive stays. Cyprus and Turkey are respectively 19% and 10% more expensive than Malta. FiveT and FourT accommodation are around 15%-16% more expensive than the ThreeT reference category, and an 'All inclusive' stay captures a price which is 18% higher than that of a stay on 'Bed and breakfast'.

Hotels which are allotted a special label capture a 6% higher price as they are more valued by tourists.

The results of model 7.6 highlight that in order for hotels to capture a higher price reflecting tourists' increased valuation, a marked differentiation of the product on offer is needed. In the case of Cyprus the difference possibly lies in the longer flight time. The higher category accommodation possibly capture a higher price due to additional facilities and services on offer. Similarly an 'all inclusive' stay is more expensive as it covers the cost of all food and drink consumed in the hotel during the stay. This is a marked difference from just 'bed and breakfast', 'half board' or 'full board'. The 'Special labels' in themselves differentiate the packages not only through the hotel included in the package but also as a result of the target audience for that package. Differentiation of the product is an important consideration for tourism policy as indications show that tourists value such product offers more, allowing for a higher price to be captured.

Linking these results with those from the AIDS modelling presented in chapter 6, whereby it was evident that prices are influenced by inflation and exchange rates, one questions whether these macroeconomic variables also affect package prices. The models presented in the next section delve into this, presenting three separate models, one including inflation, another including exchange rates and another including relative prices.

7.2.4.2 The effect of macroeconomic variables on variations in package prices

Economic theory postulates that inflation, exchange rates and relative prices influence a destination's competitiveness - at a macro level. This was also proven through the research presented in Chapter 6. The extent of influence of these macroeconomic variables on package prices – hence at a micro level – is examined next. The findings emerging from these models will assist in the formulation of government policies.

A priori, one expects tour operators to take into account inflation when pricing holiday packages. This will be tested through the inclusion of the Consumer Price Index of the UK as the source market in the hedonic pricing model, as indicated in model 7.7.

$$\ln P_{it} = \alpha_0 + \beta_1 Cyprus_{it} + \beta_2 Tunisia_{it} + \beta_3 Costas_{it} + \beta_4 Balearics_{it} + \beta_5 Canaries_{it} + \beta_6 Algarve_{it} + \beta_7 Madeira_{it} + \beta_8 Turkey_{it} + \beta_9 Greek\ Islands_{it} + \beta_{10} FiveT_{it} + \beta_{11} FourT_{it} + \beta_{12} Full\ board_{it} + \beta_{13} Half\ board_{it} + \beta_{14} All\ inclusive_{it} + \beta_{15} Exclusivity_{it} + \beta_{16} Special\ labels_{it} + \beta_{17} Lnrooms_{it} + \beta_{18} CPI_t + \varepsilon \quad (7.7)$$

where lnP refers to the log of the day-weighted average price for a seven night holiday in each hotel and in each year; α_0 is the constant; $\beta_1 \ldots \beta_{18}$ are the resulting coefficients; the names of the countries indicate that the package is for a holiday in that country; FiveT and FourT indicate a five star hotel and a four star hotel respectively; Full board, Half board and All inclusive indicate the lodging basis being offered by the package; Exclusivity indicates that the hotel has exclusive arrangements with the tour operator for the British market;

Special labels indicates that the hotel is allotted a special label by the tour operator; Lnrooms is the log of the number of rooms of the hotel; CPI is the consumer price index of the UK and ε is the error term, i and t, representing individual and time, indicate that where applicable each variable was related to a hotel featured each year.

As indicated in Table 7.9, the inclusion of CPIUK in model 7.7 has resulted in improved values for R^2 when compared to those of model 7.6. The overall R^2 has improved from 0.347 in model 7.6 to 0.689 in model 7.7. Whilst the 'between R^2' has remained within the same range, the 'within R^2' has increased, due to the inclusion of CPIUK, from 0.104 in model 7.6 to 0.771 in model 7.7. These results indicate that the variation in package prices over the period 1997 to 2003 was more due to variation across time for each hotel, than to variation between hotels. This is to be expected since the source market's inflation has a temporal effect rather than an effect which leads to variations between hotels. It is evident that the variable CPIUK captures a lot of the variation occurring in package prices across time.

Table 7.9 Hedonic price model using panel data from 1997–2003 and including the source market's CPI

Variable	Coefficient	Std Error	Z	P>|z|	Implied % effect
Constant	3.557	0.111	32.11	0.000	
CPIUK	0.021	0.001	37.26	0.000	2.12 ***
Cyprus	0.174	0.045	3.86	0.000	19.01***
Tunisia	-0.079	0.059	-1.33	0.182	-7.60
Costas	-0.008	0.044	-0.19	0.849	-0.80
Balearics	-0.001	0.040	-0.03	0.976	-0.10
Canaries	0.038	0.051	0.75	0.453	3.87
Algarve	Dropped				
Madeira	Dropped				
Turkey	0.077	0.053	1.47	0.141	8.00
Greek Islands	0.045	0.039	1.17	0.241	4.60
FiveT	0.092	0.023	4.01	0.000	9.64 ***
FourT	0.057	0.014	4.01	0.000	5.87 ***
Full board	0.030	0.054	0.55	0.580	3.05
Half board	0.010	0.023	0.46	0.643	1.01
All inclusive	0.144	0.031	4.54	0.000	15.49 ***
Exclusivity	0.003	0.011	0.31	0.758	0.30
Special labels	0.009	0.007	1.25	0.211	0.90
Lnrooms	0.032	0.018	1.79	0.073	3.25 *
R^2:	within between overall	= 0.771 = 0.596 = 0.689	Number of observations = 581 Number of groups = 83 corr (u_i, X) = 0 (assumed)		

***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively.

This is further evidenced through the coefficient estimate and the implied percentage effect of CPIUK. The UK's Consumer Price Index, reflecting inflation, increased package prices by 2.1% within the period 1997 to 2003. This clearly shows that the UK tour operator, when pricing packages, does take into account inflation in the source market. It is worth noting that the Consumer Price Index over the period 1997 to 2003 averaged an annual rate of 1.2%, whilst if one takes the inflation rate in effect at the time of contracting (i.e. 18 months prior to the actual holiday season, the annual average increases to 1.9%. This indicates that in pricing their packages tour operators take into account the inflation rate at the time of contracting rather than expected inflation rates.

Whilst most of the results of model 7.7 are similar to those for model 7.6, one must note that the variable 'Special labels' is no longer significant, whilst the implied percentage effects for FiveT and FourT are more in line with a priori expectations such that FiveT captures a higher price than FourT accommodation. Compared with the reference ThreeT hotels, FiveT and FourT hotel prices are higher by 9.6% and 5.8% respectively.

The results of model 7.7 have shown that the source country's inflation leads to variations in package holiday prices across time. Next, the effect of exchange rates on package prices will be explored through model 7.8.

$$\ln P_{it} = \alpha_0 + \beta_1 Cyprus_{it} + \beta_2 Tunisia_{it} + \beta_3 Costas_{it} + \beta_4 Balearics_{it} + \beta_5 Canaries_{it} + \beta_6 Algarve_{it} + \beta_7 Madeira_{it} + \beta_8 Turkey_{it} + \beta_9 Greek\ Islands_{it} + \beta_{10} FiveT_{it} + \beta_{11} FourT_{it} + \beta_{12} Full\ board_{it} + \beta_{13} Half\ board_{it} + \beta_{14} All\ inclusive_{it} + \beta_{15} Exclusivity_{it} + \beta_{16} Special\ labels_{it} + \beta_{17} Lnrooms_{it} + \beta_{18} Exchrate_{it} + \varepsilon \quad (7.8)$$

where lnP refers to the log of the day-weighted average price for a seven night holiday in each hotel and in each year; α_0 is the constant; $\beta_1 \ldots \beta_{18}$ are the resulting coefficients; the names of the countries indicate that the package is for a holiday in that country; FiveT and FourT indicate a five star hotel and a four star hotel respectively; Full board, Half board and All inclusive indicate the lodging basis being offered by the package; Exclusivity indicates that the hotel has exclusive arrangements with the tour operator for the British market; Special labels indicates that the hotel is allotted a special label by the tour operator; Lnrooms is the log of the number of rooms of the hotel; Exchrate is the exchange rate between the British Sterling and

the destination's currency; ε is the error term; i and t, representing individual and time, indicate that where applicable each variable was related to a hotel featured each year.

The results as shown in Table 7.10 for model 7.8 are consistent with those for model 7.6 – the base model - indicating that the variation in the prices of the package holidays is mainly due to the hotel category, the board basis, particularly 'all inclusive' stays and the allocation of a special label. Hotels in Cyprus are more expensive than the reference category of Malta by 21.83%. The overall result for R^2 is 0.36 and indicates that the variation in package prices is mainly due to variations between hotels as opposed to over time. 'Exchrate' is highly significant but the implied percentage effect is just 0.03. When comparing the results in Table 7.10 with those in Table 7.8, one may conclude that whilst the variable 'Exchrate' given its high level of significance contributed to a better goodness of fit, it increased the 'within' R^2 whilst the 'between' R^2 decreased. This suggests that exchange rates account for some of the variation in package prices across time. This is an expected result given that the data for 'Exchrate' is an index, using 1997 as the base year for each destination.

Table 7.10 Hedonic price model using panel data from 1997–2003 and including exchange rate

Variable	Coefficient	Std Error	Z	P>|z|	Implied % effect
Constant	5.843	0.100	58.350	0.000	
Exchrate	0.0003	0.000	4.230	0.000	0.03 ***
Cyprus	0.197	0.045	4.370	0.000	21.83 ***
Tunisia	-0.054	0.060	-0.910	0.365	-5.25
Costas	0.027	0.045	0.610	0.541	2.78
Balearics	0.023	0.041	0.570	0.569	2.37
Canaries	0.046	0.052	0.910	0.364	4.80
Algarve	Dropped				
Madeira	Dropped				
Turkey	0.011	0.056	0.190	0.845	1.11
Greek Islands	0.059	0.039	1.500	0.134	6.05
FiveT	0.136	0.031	4.350	0.000	14.62 ***
FourT	0.147	0.019	7.940	0.000	15.89 ***
Full board	0.060	0.067	0.900	0.370	6.19
Half board	0.047	0.031	1.510	0.132	4.85
All inclusive	0.180	0.041	4.440	0.000	19.73 ***
Exclusivity	0.007	0.017	0.440	0.660	0.75
Special labels	0.056	0.013	4.390	0.000	5.81 ***
Lnrooms	0.014	0.019	0.760	0.446	1.46
R^2:	within between overall	= 0.139 = 0.633 = 0.360	Number of observations = 581 Number of groups = 83 Corr (u_i, X) = 0 (assumed)		

***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively.

The results of models 7.7 and 7.8 clearly show the importance and influence of inflation and exchange rates on package holiday prices. The destination's relative price already came up as a major determinant for tourism competitiveness through the results forthcoming from the AIDS models. Policies addressing relative price may therefore not only influence the destination's competitiveness at a macro level but also possibly affects competitiveness at a micro level. Prior to testing whether a policy addressing relative price influences package prices, one must first assess whether relative prices affect the prices of package holidays. Another hedonic pricing model (model 7.9) was therefore developed and estimated using the panel dataset. This is a contribution to the literature since relative prices are hardly, if ever, incorporated in hedonic pricing models.

$$\ln P_{it} = \alpha_0 + \beta_1 Cyprus_{it} + \beta_2 Tunisia_{it} + \beta_3 Costas_{it} + \beta_4 Balearics_{it} + \beta_5 Canaries_{it} + \beta_6 Algarve_{it} + \beta_7 Madeira_{it} + \beta_8 Turkey_{it} + \beta_9 Greek\ Islands_{it} + \beta_{10} FiveT_{it} + \beta_{11} FourT_{it} + \beta_{12} Full\ board_{it} + \beta_{13} Half\ board_{it} + \beta_{14} All\ inclusive_{it} + \beta_{15} Exclusivity_{it} + \beta_{16} Special\ labels_{it} + \beta_{17} Lnrooms_{it} + \beta_{18} Relatpr_{it} + \varepsilon \quad (7.9)$$

where lnP refers to the log of the day-weighted average price for a seven night holiday in each hotel and in each year; α_0 is the constant; $\beta_1 ... \beta_{18}$ are the resulting coefficients; the names of the countries indicate that the package is for a holiday in that country; FiveT and FourT indicate a five star hotel and a four star hotel respectively; Full board, Half board and All inclusive indicate the lodging basis being offered by the package; Exclusivity indicates that the hotel has exclusive arrangements with the tour operator for the British market; Special labels indicates that the hotel is allotted a special label by the tour operator; Lnrooms is the log of the number of rooms of the hotel; Relatpr is the relative price between the UK and the respective destination; ε is the error term; i and t, representing individual and time, indicate that each variable was related to a hotel featured each year.

The relative prices for each of the destinations were included in the panel dataset as the variable 'Relatpr' and were estimated through the formula

$$\left(\frac{CPI_i}{CPI_j}\right) \Big/ \left(\frac{Exch_{ij}}{Exch_{ijb}}\right) \quad (7.10)$$

where CPI is the consumer price index, Exch is the exchange rate for the destination's currency relative to the source country's, i is the

destination, j is the source market, b is the base year. 1997 was chosen as the base year. Given that Malta offered a favourable exchange rate to British tour operators through the Tour Operator Support Scheme, the relative price data for Malta was estimated using the applicable favourable exchange rate for the years 1997 to 2000 – the years when the subsidy was in place. The results of model 7.9 are presented in Table 7.11.

Table 7.11 Hedonic price model using panel data from 1997–2003 and including relative prices

Variable	Coefficient	Std Error	Z	P>|z|	Implied % effect
Constant	5.873	0.100	58.880	0.000	
Relatpr	0.002	0.001	4.100	0.000	0.22 ***
Cyprus	0.193	0.045	4.280	0.000	21.30 ***
Tunisia	-0.057	0.060	-0.950	0.343	-5.50
Costas	0.024	0.045	0.530	0.596	2.40
Balearics	0.019	0.041	0.470	0.639	1.94
Canaries	0.043	0.052	0.830	0.406	4.39
Algarve	(dropped)				
Madeira	(dropped)				
Turkey	0.032	0.055	0.570	0.566	3.21
Greek Islands	0.057	0.039	1.450	0.146	5.86
FiveT	0.136	0.031	4.330	0.000	14.56 ***
FourT	0.148	0.019	7.940	0.000	15.90 ***
Full board	0.056	0.067	0.840	0.400	5.81
Half board	0.044	0.031	1.390	0.164	4.46
All inclusive	0.176	0.041	4.340	0.000	19.25 ***
Exclusivity	0.008	0.017	0.490	0.626	0.84
Special labels	0.057	0.013	4.400	0.000	5.83 ***
Lnrooms	0.015	0.019	0.800	0.425	1.53
R^2:	within between overall	= 0.136 = 0.637 = 0.360	Number of observations = 581 Number of groups = 83 corr (u_i, X) = 0 (assumed)		

***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively.

The results indicate the influence and extent of the destinations' relative prices on the implicit price of packages. Relative prices (Relatpr) are highly significant and have a positive relationship with package prices and an implied percentage effect of 0.22. From a comparison of the results of this model and that of the base model (7.6) it transpires that relative prices explain variation across time.

This is indicated through the higher within R^2 (0.136 as opposed to 0.104). However, the other values for R^2 once again indicate that the variation in the package prices is mainly due to variations between hotels, though there is some variation across time, indicating consistency in results.

As indicated in Table 7.11, package holidays in Cyprus are 22% more expensive than those in Malta, which is the reference category. Once again accommodation categories higher than three star hotels command a higher price as do all-inclusive stays when compared to 'bed and breakfast' packages. Hotels with a special label are valued more by tourists, as indicated by the 5.83 implied percentage effect.

To recapitulate, the findings presented in section 7.2.4, relating to the period 1997 to 2003, are:

- Variations in package holiday prices exist.
- Variations in package holiday prices are mainly due to variations between hotels, though variations across time are also present.
- The variations between hotels are due to the accommodation category, an 'all inclusive' stay and a special label being awarded to a hotel.
- The variation in package prices is not due to differing destinations except in the case of packages for Cyprus which consistently are about 20% more expensive than Malta's packages.
- Macroeconomic variables, particularly inflation and exchange rates, are significant and are positively related to holiday package prices.
- Inflation influences package prices by 2% and results in variations in package prices across time.

- The variations in exchange rate between the source market and the destination has a significant effect on package prices resulting in an implied percentage effect of just 0.03.
- Package prices are affected by relative prices of destinations which have an implied percentage effect of 0.22. Relative prices explain variations across time.

These findings have important policy considerations. However, before delving into these policy considerations, an analysis of the effect of the Maltese government's policy to subsidise tour operators on package holiday prices will be carried out. This will provide further insights into whether and how government policy influences package prices and hence competitiveness. The policy implications arising from these findings will then be presented in Section 7.4.

7.3 Analysing the effect of the Maltese government's subsidisation policy on package prices

Models 7.7, 7.8 and 7.9 included independent variables for macroeconomic variables, namely for inflation, exchange rates and relative prices of destinations. The results from these models have indicated that all these variables are highly significant and have a positive relationship with package prices. The signals are that package prices may be affected by government policies which influence these macroeconomic variables, particularly the destination's relative price. Whilst it has been proven, through the results of Chapter 6, that a government policy affecting a destination's relative price affects a destination's competitiveness at a macro level, the research will now delve into whether and to what

extent that same government policy influenced package prices. The model presented in this section will also demonstrate how a policy's effect can be assessed post-implementation.

The Maltese government, for a number of years, adopted a policy of subsidising tour operators. This policy and the mechanism adopted for the Tour Operator Support Scheme was explained in Chapter 5. The intention of the Maltese government was to reduce the price of package holidays to Malta in order to attract more business to the island. The Maltese government was sometimes criticised for not reaching this aim as it was claimed that tour operators simply took the subsidy and improved their bottom line, without any benefit forthcoming from the subsidy being passed on to the consumer. The hedonic pricing model using panel data was therefore adapted to test whether the Maltese government's policy of subsidisation affected the package price or tourists' valuation of the individual characteristics embedded in the package.

Model 7.11 extends the base model 7.6 to include a dummy variable 'TOSSMT' to indicate the Maltese government's policy of subsidising tour operators and the destinations' relative prices.

$$\begin{aligned}\ln P_{it} = {} & \alpha_0 + \beta_1 Cyprus_{it} + \beta_2 Tunisia_{it} + \beta_3 Costas_{it} + \\ & \beta_4 Balearics_{it} + \beta_5 Canaries_{it} + \beta_6 Algarve_{it} + \beta_7 Madeira_{it} + \\ & \beta_8 Turkey_{it} + \beta_9 Greek\ Islands_{it} + \beta_{10} FiveT_{it} + \beta_{11} FourT_{it} + \\ & \beta_{12} Full\ board_{it} + \beta_{13} Half\ board_{it} + \beta_{14} All\ inclusive_{it} + \\ & \beta_{15} Exclusivity_{it} + \beta_{16} Special\ labels_{it} + \beta_{17} Lnrooms_{it} + \\ & \beta_{18} Relatprm_{it} + \beta_{19} TOSSMT_{it} + \varepsilon \qquad (7.11)\end{aligned}$$

where lnP refers to the log of the day-weighted average price for a seven night holiday in each hotel and in each year; α_0 is the constant;

$\beta_1 \ldots \beta_{19}$ are the resulting coefficients; the names of the countries indicate that the package is for a holiday in that country; FiveT and FourT indicate a five star hotel and a four star hotel respectively; Full board, Half board and All inclusive indicate the lodging basis being offered by the package; Exclusivity indicates that the hotel has exclusive arrangements with the tour operator for the British market; Special labels indicates that the hotel is allotted a special label by the tour operator; Lnrooms is the log of the number of rooms of the hotel; Relatprm is the relative price between the UK and the respective destination using the market exchange rate; TOSSMT refers to the Maltese government's policy to subsidise tour operators, ε is the error term; i and t, representing individual and time, indicate that each variable was related to a hotel featured each year.

The dummy variable 'TOSSMT' took the value of 1 for packages to Malta for those years when the subsidisation policy was in effect and 0 for other years and for packages to other destinations. The relative prices were once again estimated using the formula specified in equation 7.10 and using the market exchange rates for all destinations. Though the effective exchange rate during the years 1997 to 2000 for Malta was the favourable exchange rate applicable through the TOSS, the relative price for Malta for this model was calculated using the market exchange rate since the TOSS is represented through the dummy variable 'TOSSMT' and over-representation of the policy could otherwise occur.[8] The results of model 7.11 are presented in Table 7.12.

[8] A model including 'TOSSMT' and 'Relatpr' (relative price data calculated using the favourable exchange rates) was also estimated. The results were very similar to those presented in Table 7.12.

Table 7.12 Hedonic price model using panel data from 1997–2003 and including relative prices and policy for TOSS

Variable	Coefficient	Std Error	Z	P>|z|	Implied % effect
Constant	5.941	0.100	59.250	0.000	
Relatprm	0.002	0.001	3.880	0.000	0.22 ***
TOSSMT	-0.157	0.049	-3.210	0.001	-14.51 ***
Cyprus	0.121	0.050	2.430	0.015	12.86 **
Tunisia	-0.130	0.063	-2.070	0.038	-12.21 **
Costas	-0.050	0.050	-1.000	0.315	-4.86
Balearics	-0.053	0.046	-1.140	0.253	-5.14
Canaries	-0.031	0.056	-0.560	0.577	-3.06
Algarve	(dropped)				
Madeira	(dropped)				
Turkey	-0.034	0.058	-0.590	0.556	-3.35
Greek Islands	-0.017	0.045	-0.380	0.706	-1.68
FiveT	0.139	0.031	4.490	0.000	14.91 ***
FourT	0.149	0.018	8.150	0.000	16.12 ***
Full board	0.067	0.066	1.010	0.311	6.93
Half board	0.053	0.031	1.710	0.087	5.48 *
All inclusive	0.190	0.040	4.720	0.000	20.91 ***
Exclusivity	0.006	0.017	0.370	0.715	0.62
Special labels	0.057	0.013	4.430	0.000	5.82 ***
Lnrooms	0.015	0.019	0.780	0.438	1.46
R^2:	within between overall	= 0.161 = 0.622 = 0.366	Number of observations = 581 Number of groups = 83 corr (u_i, X) = 0 (assumed)		

***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively.

The results indicate that the Maltese government's subsidisation policy lowered package prices as the model returns a negative coefficient of -0.157, which is highly significant, having an implied percentage effect of -14.51%. The relative price of destinations, as in model 7.9, is also highly significant and with an implied effect of 0.22.

It is interesting to note that the characteristics which were significant in the previous models are also significant in this model, though in some cases the coefficient results vary. Cyprus packages are still significantly more expensive than those of Malta, capturing a 13% higher price. On the other hand, whereas in all the previous models Tunisia was not significant, in this model, Tunisia is shown as

significantly cheaper than Malta (-12%). Consistent results are returned for accommodation categories ('FiveT' and 'FourT'), 'All inclusive' stays and 'Special labels'. The higher accommodation categories are more expensive than the reference category of ThreeT hotels. Packages which have a special label assigned to them are valued more by tourists, capturing a 5.8% higher price. Whilst 'All inclusive' stays are 20% more expensive than the reference category of 'Bed and breakfast', 'Half board' stays in this model are 5.5% more expensive than the reference category.

Given these findings one may conclude that the Maltese government's policy had the desired effect on the package prices to Malta with the direct benefit of a cheaper price accruing to the consumer. However it is worth noting that the coefficient for 'Relatprm' in model 7.11 is not different from that for 'Relatpr' in model 7.9. This may indicate that whilst the policy did improve Malta's relative price, the effect of the improved relative price on the package price was the same. When one reviews these results with that for 'TOSSMT', one may conclude that the effect on the package price was not particularly due to the difference between the favourable and the market exchange rate, but more the effect of having a policy addressing tour operators. This is an interesting finding as it points to the qualitative effect of a policy. Here the policy statement becomes more important than the manner of implementing the policy.

These results manifest that a government policy can affect package prices and consequently tourists' valuation of the characteristics of

those packages. This is another important finding as it highlights the effect of government policy at a micro level. The policy implications of these findings, together with those from section 7.2, are further discussed in the next section.

7.4 Policy implications

It is notable that the hedonic pricing models presented in this chapter provide important insights to possible government policies. Dwyer and Kim (2004), Ritchie and Crouch (1993, 2000), and Go and Govers (2000) specifically mention destination policy as one of the determinants for destination competitiveness. In this section the researcher relates the results derived from the model analysis described in this chapter to their implications on tourism policy which supposedly seeks to achieve competitiveness.

Table 7.13 shows how each variable included in the hedonic pricing models relates to at least one possible policy area. The specific policy areas identified focus on price competitiveness, destination management, hotel standards, land use and planning considerations, marketing strategies, achieving tourist satisfaction and stakeholder relations.

Table 7.13 Policy areas

Variable	Theme	Policy area
Malta	Destination	Destination Management
Cyprus		
Tunisia		
Costa Blanca		
Costa del Sol		
Majorca		
Minorca		
Ibiza		
Gran Canaria		
Lanzarote		
Fuerteventura		
Tenerife		
Algarve		
Madeira		
Turkey		
Greek Islands		
FiveT	Facilities	Hotel standards
FourT		
ThreeT		
Full board	Facilities	Hotel standards
Half board		
Bed and breakfast		
All inclusive		
Exclusivity	Target market	Marketing strategies
Special labels		
Lnrooms	Size of hotel	Hotel standards Land use and planning
CRHoliday	Previous clients' ratings	Tourist satisfaction and recommendations
CRAccom		
CRLocation		
CRFood		
Sandbich	Location	Land use and planning
Rockbich		
Publtrpt		
Walkthro		
Outpool1	Facilities	Hotel standards
Saltpul1		
Inpool		
Alacarte		
Snkbarcf		
Kidfacl		
Moneyxch		
Niceviews	Location	Land use and planning
Beachtpt		
Acroom	Facilities	Hotel standards
Nosports		
CPI	Macroeconomic variables	Price competitiveness
Exchrate		
Relatpr/Relatprm		
TOSSMT	Policy	Stakeholder relations

Source: Own compilation

Price competitiveness through macroeconomic policies

The macroeconomic variables of inflation at the source market, exchange rates between the source market and the destination, and the relative prices of destinations turned out, in models 7.7, 7.8 and 7.9 respectively, to be highly significant with positive effects on package prices. It has also been proven, through the results of model 7.11, that a government policy which offered a favourable exchange rate to tour operators affected package prices.

Governments of destinations may want to influence prices of package holidays in order to be more competitive. Not much can be done by governments of destinations to influence the source market's inflation rate, which has the highest implied percentage effect of the assessed macroeconomic variables. Whilst some governments may still be in a position to influence exchange rates, EU member states are limited in this. Destinations' governments however have a level of control over the inflation in their own country and can in this way influence their destination's relative price. Policies which control inflation could therefore be beneficial to improve competitiveness of holiday packages to a destination. However, one must bear in mind that the implied effect of relative price is just 0.22, indicating that such policies may not be as effective as desired.

The scenario within which the Maltese government is now operating, post-EU membership, is different from that present between 1997 and 2000 (when the TOSS was applicable) and to 2003 (when Malta was still not a member of the EU). Given the present scenario, where the free market is allowed to operate and where state aid is not

allowed — except if it complies with particular exemptions — it appears that other policies have to be adopted if competitiveness of package holidays is to be influenced. These policies would need to address the various attributes of the package. Hence destination management policies, development policies, regulatory policies, marketing policies, policies to address tourist satisfaction and policies addressing stakeholder relations in today's scenario play an even more important role.

Destination management

The price differentials of destinations estimated through the hedonic pricing models using cross-sectional data show that competition among destinations increased from Summer 2000 to Summer 2003. Particularly in 2003, package prices were significantly affected by the destination, possibly in terms of what they offer and tourists' perceptions of these destinations, besides macroeconomic considerations. This highlights that destinations influence package prices and consequently tourists' choices – more so in Summer 2003 than Summer 2000. These results could possibly reflect how trendy a destination is and tourists' perceived eagerness to visit each destination. This has important policy implications in terms of destination management as the way the destination is marketed, branded and developed could have an impact on package prices. Public service provision of facilities and services, environmental policies and communication policies would all contribute to making the destination a trendy place, an 'in' place to visit.

The results forthcoming from the hedonic pricing models using panel data have indicated that generally destinations, with the exception of Cyprus, did not account for variations between hotels or over time. Contrary to what might be thought, this is not as contradictory to the findings from the cross-sectional models as may initially seem. Panel data comprises the same individual observations over a period of time and therefore allows assessment of whether changes have occurred over time. The result that almost all destination variables have turned out as insignificant actually reinforces the lack of differentiation of destinations over time, pointing to the need for further destination differentiation.

The tour operator brochures themselves indicate this through the shift in the approach used to depict the destinations. Whereas previously destination descriptions were no longer than a few paragraphs accompanied by a single photo, the tour operator in recent years allocates more space to the destination's description and images, highlighting sites to visit and the ambience of localities in the destination.

Variations in package prices that occur over time and across hotels are caused either by changes in tourists' valuations of the characteristics of package holidays or by macroeconomic variables. The research presented in this chapter has demonstrated that most of the variation is across hotels, indicating that the characteristics included in the package are the cause for such variation. This implies that a differentiated product is valued by tourists and is key to commanding a higher price. The models using cross-sectional data

provided information on the effect of destinations on the package price, the location of the hotel, the facilities provided by the hotel, the tour operator's marketing strategy and the ratings provided by previous clients. Further evidence for the importance of product differentiation is provided by the results of the hedonic pricing models using panel data whereby different accommodation categories and an 'all inclusive' stay were always significant variables. The importance of product differentiation is further substantiated by the positive effect of 'special labels' on package prices, which indicated that tourists valued such special labels. Product differentiation, therefore, must be the factor underlying tourism policies if competitiveness is to be achieved.

At the macro level, therefore, destinations would reap benefits in seeking to differentiate their offer from that of other destinations, not only in terms of the facilities and services on offer but also in terms of the attractions, ambience and "air of sophistication" referred to by Papatheodorou (2002), which is created through destinations having historical monuments, traditions, natural attractions, manmade attractions and other characteristics which contribute to a destination's identity. This helps to build a destination's brand name, which is becoming increasingly important.

Land use and planning – development policies

The variables related to location (shown in Table 7.13) included in the hedonic pricing models are of utmost relevance to urban and tourism planners, as well as to the authorities responsible for issuing development planning permits.

These authorities' decisions may have an impact on the prices captured. For example, in summer 2003, the hedonic price function indicated that an outdoor pool increased price by 8%, highlighting the importance of providing this facility and implying increased spatial demand. Contrary to the findings of Espinet, Saez, Coenders and Fluvià (2003) and Thrane (2005), proximity to a sandy beach was insignificant in both summers. However, having to use transport to get to a beach reduced price by 5% in Summer 2000 and by 3% in Summer 2003. These findings imply that tourists' valuation of a hotel's location next to a sandy beach is particularly related to the convenience of not having to use transport to get to the beach. The declining effect over the two summers and the high implied percentage effect for the outdoor pool could also imply a shift in preference for swimming pools as opposed to a sandy beach. This has implications for land use and urban planning policies in view of allocation of land for tourism purposes. One would need to assess the cost of land vis-à-vis expected revenues.

As referred to in the comparative analysis in section 7.2.3.5, in the formulation of development policies or locality plans, it is not just the specific amenities in the proximity of the hotel that have to be considered but more importantly the general experience that the overall location of the hotel provides to the tourist. The findings clearly have implications for the authorities establishing locations for hotel development and for urban and tourism planners drawing up development policies.

Hotel standards – regulatory policies

Some destinations have established standards for accommodation establishments. These standards need to specify physical criteria for what categorises a hotel as five-star, four-star or three-star, along with the facilities accommodation establishments should offer. These criteria should also include elements of quality and service to ensure tourist satisfaction.

This strategy, which could lead to higher prices, must however be supported at the micro level. Hoteliers, through the hedonic pricing model results, can identify which facilities are basic, expected and must be provided. Hoteliers can also identify those facilities and services which the hotel should offer in order to achieve better rates, not only in terms of simply providing them but also in terms of their quality. This is clearly indicated through the significant customers' ratings for location, holiday, food and accommodation. Although the latter was not significant in either Summer 2000 or Summer 2003, the customers' ratings as a group (of four) was highly significant. This once again highlights the importance that tourism service providers must attach to providing a proper service which will result in positive recommendations, not only to friends and relatives by the customers but also to potential tourists seeking to choose a destination through the tour operator's brochure.

Investors in accommodation can also use the findings of hedonic pricing models as an indication as to which additional facilities would attract better prices and to what extent. For example, a hotel owner may be considering investing in his/her establishment by upgrading

to a five-star hotel. The first issue that must be addressed is to assess whether that country's standards for classification of accommodation are close to those of tour operators. Assuming this, hedonic pricing could provide indications as to whether the upgrading to a five-star hotel would be profitable given that the increase in prices has to be matched to the investment made.

Both at the micro and the macro level, awareness of possible changing trends is important. The results from summer 2000 to summer 2003 indicate that changes occurred within these 3 years. For example, some characteristics which were highly significant and affected price in summer 2000 became insignificant in summer 2003. The crucial question to ask is whether this is because that characteristic has become a basic requirement or for some other reason. Discussions with operators and monitoring of competitors could shed some light on this.

Marketing strategies – marketing policies

National tourism authorities generally engage in joint marketing efforts with tour operators. Changing tourist preferences and market trends need to be reflected in these marketing efforts. Hence, for example, if package holiday tourists are valuing sports facilities and the destinations' hotels do provide such facilities, it would be beneficial to adopt a marketing strategy to target this segment and highlight what the hotels have to offer. Marketing campaigns need to emphasise the facilities that are present in the destination and are highly valued by tourists.

Tour operators can also use the findings of hedonic price models, which can assist in formulating their pricing policies. Unknowingly tour operators, basing on perception, may push for package characteristics which are not highly valued by tourists, as was the case for 'Exclusivity'. Furthermore, tour operators, through these findings, can identify those attributes of high added value which customers desire and include them in the packages featured in their brochures. It may be possible that tour operators understand what their clients value and consequently make these characteristics a standard for each package they offer.

Tourist satisfaction

It is often stated that recommendations by friends and relatives are the most influential factor in choices on destinations. The results of the hedonic pricing models also show that previous clients' ratings are influential on tourists' valuation of a package. Destinations, tour operators and hotels must therefore adopt and implement policies which ensure tourists' satisfaction. Policies relating to promoting a service culture and to ensuring that tourists return home with an enriching experience from their stay, whether it was hotel-bound or exploratory, can also contribute to achieving competitiveness. Ratings and comments provided on websites could be a good measure for monitoring this.

Relations with tour operators

The coefficient estimates of TOSSMT and Relatprm in model 7.11 have shown that the Maltese government's policy to provide a favourable exchange rate and hence subsidise tour operators resulted

in a reduced package price but a similar implied percentage effect for relative price as that returned in model 7.9. This implies that whilst the difference between the market exchange rate and the TOSS rate affected relative price which in turn affected the package price though not substantially, the TOSS policy had a qualitative effect on tour operators which resulted in a reduced package price.

Understanding tour operators and their operations can assist in formulating policies and programmes which focus on this particular and important stakeholder. This, combined with the financing offered to tour operators, as shown, resulted in a reduced package price.

To achieve destination competitiveness, policies must therefore not only address the destination's price competitiveness, but also focus on destination management to enhance quality, provide value added and offer a differentiated experience, while communicating an image which offers allure to the target market, builds alliances with stakeholders and results in a satisfied tourist who recommends the destination. Such policies would address the main elements of competitiveness for destinations as outlined by Dwyer and Kim (2004), focusing on destination management and demand conditions.

7.5 Conclusion

The research presented in this chapter has highlighted within a hedonic price framework, the extent of information that can be obtained for policy formulation. The results forthcoming from the hedonic pricing models, used to analyse the prices of package

holidays from the UK to Mediterranean destinations, provided insights into possible policies relating to price competitiveness, destination management, development policies, regulatory policies, marketing policies, tourist satisfaction and stakeholder relations. Hence, the research presented here can contribute to the tourism policy literature since this chapter demonstrates how econometric modelling can be used to formulate policy, at both the macro and micro level, and eventually also assess the implications of the set policies.

These policy implications emerged from the comparison of package holiday prices of two summers that were analysed and through which the key characteristics tourists valued were identified. An assessment of how tourists' valuations changed between these two summers was also presented. The findings of this research demonstrated that competition increased from one summer to another and that there were changes in tourists' preferences. Hotel location, category of accommodation and board basis were confirmed as characteristics which the British tourist visiting Mediterranean destinations values, whilst facilities such as sports facilities appear to have become valued more highly. One may conclude that the characteristics that tourists value are those which distinctly offer better quality, have a practical use and provide a special level of service or facilities. This is however also influenced by previous clients' evaluation of the experience once the purchased package was availed of. These results show that hotel product differentiation is important even within a single tour operator's brochure if competitiveness is to be attained.

The variations in package prices across time and between hotels were further analysed through hedonic pricing models using panel data. The effect of macroeconomic policies and of government policy on package prices was also assessed. These have potential as contributions to the existing literature on hedonic pricing of package holidays and to the literature on tourism policy.

A consistent result of the analysis presented in this chapter is that tourists' valuation of packages varies across packages, indicating a certain level of heterogeneity across packages, indicating that better quality will attract a higher valuation by tourists.

This chapter has shown that it may be possible to gain insights, using the hedonic pricing technique, into a consumer's choice of one holiday package as opposed to another. It follows that such information may be used to advise policy-makers on strategies related to boosting tourism demand to a destination or hotel in view of strong competition from other destinations and accommodation establishments, all vying to attract more business. Differentiation of the tourism experience offered, defining also improved quality, seems to be the key strategy in making tourists value one package over another, leading to increased competitiveness for tourism service providers.

CHAPTER 8: DISCUSSION

8.0 Introduction

Amongst other aspects, the study of public policy involves seeking to get an understanding of the consequences of policy decisions and identifying appropriate policies to achieve set goals (Lester and Stewart, 2000; Dye, 2005). The research in this thesis has presented findings which measured the effect of the Maltese government's subsidisation policy on tourism demand at a macro level and on the prices of inclusive tour holidays at a micro level. On the basis of these findings, a better understanding of the consequences of that policy decision on destination competitiveness can be acquired. In addition, this information, along with the findings presented in Chapter 7, whereby the implicit prices of the valued characteristics in inclusive tours were estimated, can inform future policies. Using such findings generated through econometric analysis has the potential of leading to evidence-based tourism policy. Yet knowledge of such findings will not automatically lead to achieving the goal of destination competitiveness.

In view of this, the aim of this chapter is to address the third objective of this thesis, namely to depict how such policy analysis interpreted against destination competitiveness frameworks can be utilised at both government and firm level to formulate policy on the basis of this evidence. In so doing, this chapter brings together the more important aspects of the relevant literature, particularly the

destination competitiveness frameworks, the econometric modelling results and the Maltese tourism industry context.

The next section presents a discussion on policy-making based on evidence provided through an application of econometrics policy analysis. The chapter then proceeds with a discussion on achieving destination competitiveness through tourism policy.

8.1 On policy and evidence-based policy making

The policy process is a complex one. It requires information and involves taking into account resource limitations, political considerations and the balancing of stakeholder interests. Evidence-based policy-making can contribute to this complex process. However this approach to policy-making should be adopted throughout the whole process of policy formulation if "what governments do, why they do it, [and the]…difference it makes" (Dye, 2005, p.1) is to result in distinct positive consequences.

Importantly, lessons must be learnt from the past (Johnston, 2006), exploring what has worked and what has not, preferably also understanding why. In addition, insights into what aspects require policies, the types of policy required, the possible alternatives and their potential effect and how the policy is to be designed and implemented for increased effectiveness, need to be obtained. If this information is to act as the basis for policy decisions, certainly what is then crucial is that such evidence is reliable and based on high-

quality research. The research presented in Chapters 6 and 7 demonstrates the strength of such research as well as the depth of information it can provide for policy-making. The research presented in Chapter 6 provided, through the econometric analysis, quantitative estimates of the effects of policy on destination competitiveness and tourism demand, which were specific desired outcomes of the policy, and suggested what worked and how it worked in the past. Furthermore, the hedonic pricing models' results provided insights into areas that require government intervention or strategic pricing by the private sector for improved competitiveness. The policy implications discussed in each of these chapters and the further discussion that follow in the next section on destination competitiveness throw light on the directions and actions of governments (recalling Dye's (2005) "what governments do") and also of the private sector.

Market failure and/or achieving redistribution have been cited as justifications for government intervention and therefore for public policy (Weimer and Vining, 2005) – it is linked to the key "why they do it" question (Dye, 2005, p.1). There are of course various ways of affecting tourism markets and therefore destination competitiveness. These include, to name a few, investing in infrastructure and in human resources, increasing accessibility, using exchange rates, influencing price and real wage levels, adopting fiscal measures and charging fees, recasting environmental policies, regulations and legislation.

Fiscal measures, including subsidies, have often been used to alter relative prices and direct behaviour to address market failure or achieve redistribution. The Maltese government, as outlined in Chapter 5, has throughout the years resorted to the provision of subsidies to achieve such redistribution. The specific policy of financially supporting tour operators through the provision of a favourable exchange rate between 1986 and 2000 was aimed at increasing sales by tour operators, inducing the UK market to opt for Malta as a holiday destination. Definitely, as indicated by the result of model 7.11, this policy was reflected in a reduced price charged by tour operators for an inclusive tour holiday to Malta. The justification for such a government intervention was not related to market failure but to achieving redistribution in favour of Malta. Through reductions in the relative price, demand for Malta was boosted in the short run and the market became more responsive to changes in prices which were reduced. The policy of subsidising tour operators not only affected Malta's demand elasticities but also had some impact, though limited, on other destinations, as the results of the AIDS modelling show.

Such a conclusion – about "what difference it makes" (Dye, 2005, p.1) - could not have been reached if policy analysis had not been conducted. Neither could the insights forthcoming from the research presented in Chapter 7 have been made available if such analysis had not been carried out. It is therefore not surprising that the literature on the policy process consistently makes reference to the policy analytical procedure (Easton, 1965; Sabatier, 1999; Lester and

Stewart, 2000; Birkland, 2005; Hill, 2005; Dye, 2005), recognising the value of information forthcoming from such policy analysis. It is also therefore understandable that evidence-based policy-making places emphasis, as in the definitions provided by Davies (2004), Head (2008) and Dunworth, Hannaway, Holahan and Turner (2008), on the requirement of rigorous analysis.

The literature distinguishes between the different types of policy analysis, with 'analysis of policy' focusing on how the policy was formulated and its content, whilst 'analysis for policy' involves policy and process advocacy, information for policy and policy evaluation (Hogwood and Gunn, 1984; Gordon, Lewis and Young, 1997; Hill, 2005). It would be interesting to carry out analysis of policy based on evidence, examining the processes by which the content of such policies is determined. The strength of analysis for policy has been shown through the research presented in this thesis, as the 'scientific hardness' achieved to understand the effect of the policy, to provide information and to then move to a higher quality of policy-making is evident.

Evidence-based policy is however not as common (Davies, Nutley and Smith, 2000; Nilsson, Jordan, Turnpenny, Hertin, Nykvist and Russel, 2008). The use of policy appraisal tools, particularly the more advanced tools and academic research, is very limited (Nilsson, Jordan, Turnpenny, Hertin, Nykvist and Russel, 2008; Farrell and Morris, 2009), this in spite of increased academic interest in the policy field (Jenkins in Hill, 1997). Moreover, in tourism, it is

practically non-existent — the policy literature has not published articles on evidence-based policy in tourism and congruently the tourism literature makes little, if any, reference to evidence-based policy-making. The reasons for this may be varied. Tourism policy may be reactive to economic situations or crisis or solely a result of stakeholder lobbying. Another reason for the lack of evidence-based policy-making in tourism could be that a rigorous scientific approach using high-quality research evidence is required for evidence-based policy-making. Such evidence, and the skills to produce such evidence, may not always be available. What is surely available is descriptive tourism analysis, yet it is not always effectively disseminated (Nutley, Davies and Walter, 2002). Evidence-based policy-making considers evidence to be central to the design, implementation and evaluation of policies. However there exists little suggestion of evidence informing policy, particularly in tourism, in spite of the benefits of such policy making.

The research presented in this thesis has put forward one type of evidence: rigorous scientific and technical analysis. Evidence originating from Head's second and third lenses, namely practical and professional management experience and political judgement (Head, 2008), has not been sought as the latter two elements are covered in the literature. However, as already stated, little quantitative tourism policy analysis is available in the policy or tourism literature, a gap which this thesis seeks to help redress.

Econometrics has been used in this thesis as the tool providing the required scientific and quantitative evidence. As long as its limitations are recognised, it is a valuable tool for policy formulation, particularly for policies aiming at achieving or maintaining competitiveness. The potential of econometrics for policy analysis has long been recognised by scholars in the field (ranging from Tinbergen, 1936 to Lucas, 1976 to Heckmann, 2001 to Cho and Rust, 2008). Econometrics has gained this recognition because it can quantitatively analyse cause-and-effect relationships. Whilst recognising the potential of econometrics, the debate in the literature has tendentially placed emphasis on two main elements.

First, emphasis is placed on the importance of the proper formulation of the econometric model to inform policy. In carrying out the research presented in this thesis, attention has been paid to ensuring the proper choice and formulation of the applied models. The two econometric models, namely the AIDS and the HP models that have been applied to evaluate the effect of the Maltese government's policy to subsidise tour operators, are grounded in economic theory (consumer behaviour theory and the characteristics theory of value, respectively). This comes from consistently strong recommendations made in the literature, based on the seminal critique by Lucas (1976) and intended to avoid misguiding policy through the inappropriate use of econometrics for policy analysis:

> "…much demand modelling to date has been ad hoc, with inadequate microfoundations. In addition, the discussion has argued that empirical studies might benefit from

> theoretical contributions from branches of economics…The potential of such theoretical analysis and developments has not yet been fully realised."
>
> (Stabler, Papatheodorou and Sinclair, 2010, p. 74)

The strength of the two chosen econometric models has been expounded upon in Chapter 3 and in the methodology chapter (Chapter 4) and illustrated in Chapters 6 and 7 for the AIDS and HP models, respectively.

Secondly, the literature discusses the applicability of econometric models for policy analysis. Yet, few illustrations of such an application are available in the literature. The strength of econometric analysis, particularly in terms of the additional knowledge obtained from the results both for policy evaluation and for providing information for policy, as presented in this thesis, is noteworthy. Appendix 4 shows the additional information provided through the applied econometric models. It is worth mentioning that most of the additional information arose as a result of directly integrating policy into the econometric models, making this approach a valuable tool for policy formulation.

All the additional information would not be forthcoming if only descriptive and graphical analyses were carried out. Through descriptive and graphical analyses, one can only limitedly conclude what the results of a policy were - and this on the assumption that the result was a direct effect of the particular policy. However such an assumption is flawed since other factors may come into play. For example, in the case of tourism, a government may adopt a policy following which tourism's performance improves. This result may not

be instigated by that policy but by international factors or a source market's policy. On the other hand, econometric analysis takes into account these other factors. The additional knowledge obtained from the econometric results surely enriches the information for tourism policy-making, supporting evidence-based policy-making in tourism.

There are situations (such as where time-series data are unreliable, where historical data do not exist or where it is not appropriate to assume that the historical trend will extend to the future due to, for example, rapidly changing environments) where econometrics may not be the appropriate tool for the provision of evidence. In such scenarios, qualitative analysis may be best used. In more ideal circumstances, the mix of both quantitative and qualitative analysis would provide, possibly, enhanced evidence.

Notwithstanding the additional information forthcoming from such evidence, in the process of formulating policy, lobbies, ideologies and opinions may be more influential on the policy-makers' final decision. Experience and own judgement, considered by Head (2008) as evidence, may be considered as stronger policy-relevant knowledge than the findings from any econometric or technical analysis. What may or may not be construed as evidence will be the subject of long debate, one I would not wish to enter here except to acknowledge that these other influences will undoubtedly impinge on the policy-making process. It is why econometric analysis in itself will never quite be the sole determining or overriding factor in decision-making.

In such situations, which surely are realistic and common, the public sector's governance role is crucial, particularly in tourism, where the economic and social impacts are broader and where the private sector lobby is vociferously active. If evidence, defined as scientific and high-quality research, is to be better integrated in the policy-making process, then the findings need to be more widely and effectively disseminated and explained, not only to the policy-makers but also to the various stakeholders, including the strongest lobbies. Supporting this, an appropriate institutional environment needs to be created to build capacity and encourage the undertaking and dissemination of such research. This would act as a platform for interaction between policy-makers, stakeholders and econometricians or other researchers, whereby each could source the other's judgement and knowledge. Importantly, these players must be aware that tools (such as econometric modelling) for evaluating policies and for obtaining insights into particular issues do exist and can be adapted to the specific policy analysis that is required. Eventually, Don's (2004) proposal for an iterative trial-and-error approach to modelling could then be taken up. This network could then make more informed decisions, based on evidence, whatever form that takes - as long as it is well-founded - leading to more effective policies. Timeliness (or lack of it) in the provision of evidence may act as a barrier to such an approach. However, as suggested by Nutley, Davies and Walter (2002), priority areas requiring in-depth analysis could be identified so that the evidence could be provided.

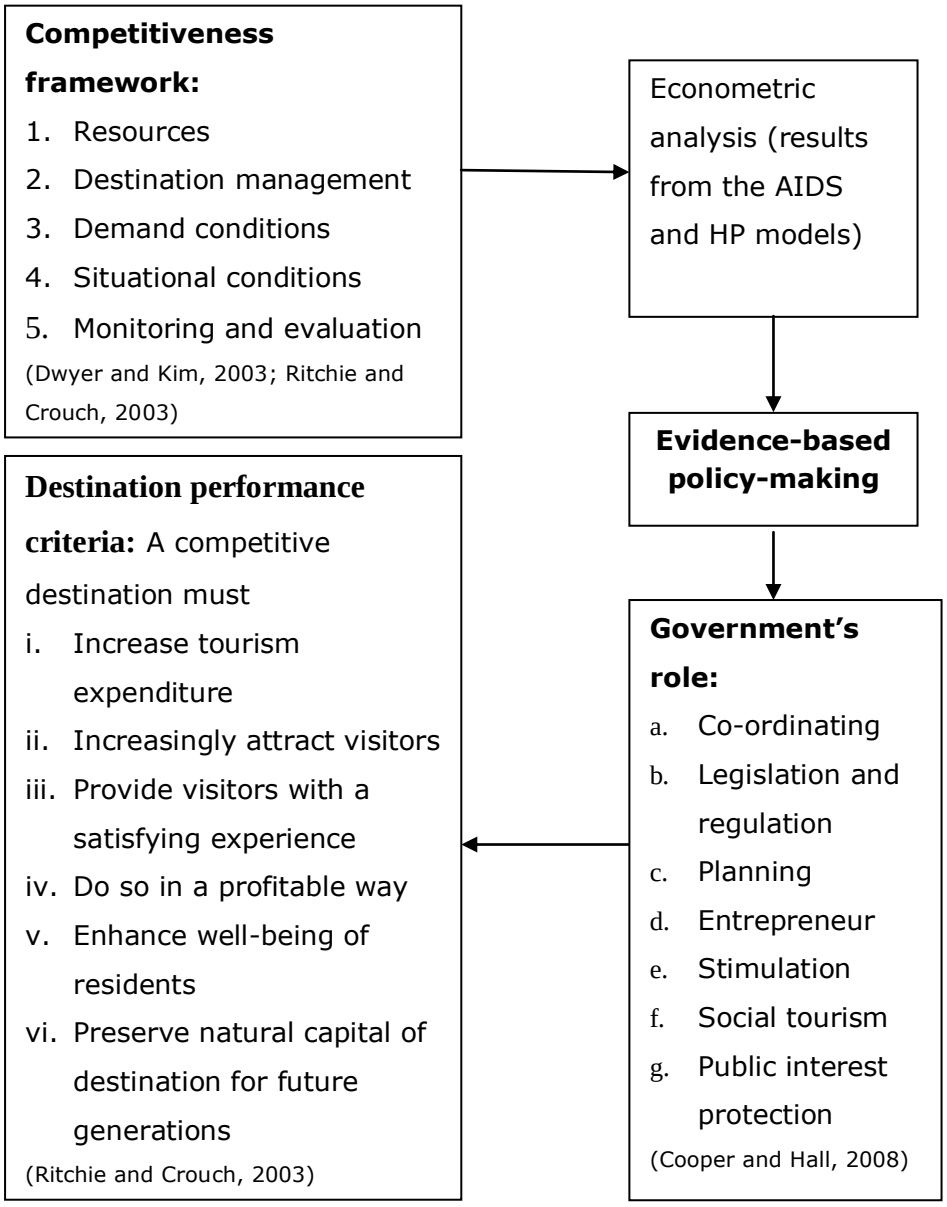
Interest in measuring the impact of a policy is increasing; yet it remains a challenge. For policies that target destination competitiveness, in addition to showing through econometric modelling the effect resulting from such a policy, it would be interesting to examine whether the WEF's *Travel and Tourism Competitiveness Report*, or Forsyth and Dwyer's (2009) Tourism Trade Weighted Index and the Aviation Trade Weighted Index (if these were developed for the destination) reflect any improvements in competitiveness. The best argument for evidence-based policy would be the positive consequences it can demonstrably result in.

8.2 On achieving destination competitiveness through tourism policy

Policy-makers in tourism, on the basis of this additional knowledge provided through econometric modelling, can formulate policies through which destination competitiveness can be achieved. The results shed light on elements which contribute to competitiveness at a destination level and highlight components of the tourism product valued by tourists and which therefore are essential for a destination to be competitive. Dwyer and Kim's competitiveness framework (2003) and Ritchie and Crouch's conceptual model of destination competitiveness (2003), reproduced as Figure 2.4 and 2.5 in Chapter 2, respectively, provide the key factors for destination competitiveness. Some factors, such as resources and destination management, are referred to in both models, whilst other factors are afforded more importance in one model or another. On the basis of

the similarities and differences of the Dwyer and Kim (2003) and Ritchie and Crouch (2003) frameworks, these factors are here amalgamated into a Competitiveness Framework (shown in Figure 8.1). It incorporates five fundamental aspects governments must consider if they aim to achieve destination competitiveness.

Figure 8.1 Achieving destination competitiveness through evidence-based policy-making



Source: Own compilation linking Dwyer and Kim, 2003; Ritchie and Crouch, 2003; Cooper and Hall, 2008 and empirical research presented in this thesis.

The Competitiveness Framework can be linked with the results from the empirical analysis. The results forthcoming from the econometric modelling are set against the Competitiveness Framework and interpreted in terms of the five key factors. Subsequently, policies relating to the Competitiveness Framework factors can be formulated based on the rigorous scientific evidence. Through the roles identified by Cooper and Hall (2008), a government can then implement such policies to achieve destination competitiveness. Such policies should be designed to meet the six performance criteria (Figure 8.1, i to vi) identified by Ritchie and Crouch (2003) in order for a destination to be competitive. These stages are depicted in Figure 8.1, indicating how destination competitiveness can be achieved through evidence-based policy-making.

This approach towards destination competitiveness is applied to the case of Malta using the results from the econometric models to inform tourism policy. What follows is therefore mainly based on the quantitative evidence presented in the thesis. However, in such a discussion, elements of Head's three lenses are inevitably brought together. Quantitative evidence is weaved into the knowledge gained as a result of analysing tourism in Malta, the experience of working within the same industry and the exposure to tourism policy-making. The next sections will therefore seek to interpret the rigorous scientific evidence against the five factors of the Competitiveness Framework to identify the policies required to achieve destination competitiveness.

8.2.1 Resources

A fundamental requirement to achieve competitiveness, particularly comparative advantage, is that a destination must have core and supporting resources that make the destination attractive (Dwyer and Kim, 2003; Ritchie and Crouch, 2003). The budget shares, which have been examined through the AIDS model, indicate that a higher budget share can be captured by destinations, such as Spain, which have more resources, at least as a result of being a large country. This, however, does not imply that smaller countries, such as Malta and Cyprus, cannot be competitive. Such countries, besides having their own natural endowments, can develop supporting factors and resources that act as a foundation for the tourism industry. A policy which encourages such supporting factors and resources could assist a destination achieve competitiveness. However it could be more effective if it specifically supports not just any type of creation of resources but only those that truly make the destination attractive to visit.

The price differentials of destinations that have resulted from the estimates of the HP models highlight the importance for a destination to truly differentiate itself from other destinations, particularly within the context of inclusive tour holidays. A destination needs to do much more in terms of presenting to the market the attractors (e.g. elements of physiography and culture, natural capital, a mix of activities, special events, the tourism infrastructure and superstructure) which differentiate it from other destinations.

Moreover, it can promote particular ties the country has with the source market it is targeting. In the case of Malta, for example, historical as well as present ties with the UK could be further exploited. Malta's heritage, including a high density of UNESCO World Heritage Sites and of Natura 2000 sites, could be increasingly brought to the forefront. Malta's differentiation lies in the mix of activities tourists could engage in (from diving in the third best diving destination in the world (Diver magazine, March 2009) to walking in garigue landscapes which are very different from landscapes in the UK) without wasting much time travelling from one place to another.

The tourism facilities offered by the private sector are evidently an important resource for a successful and competitive tourism industry. The hedonic pricing models' results have shown that better quality facilities, such as five-star and four-star accommodation, are valued by tourists and have become increasingly so over the years. These physical facilities are crucial and must seek to provide enhanced service and experience. A positive experience will lead to further recommendations from clients. This could translate into higher customer ratings, which as shown by the results of the hedonic pricing model, are significant in influencing the package price.

Destinations should look into adopting policies and implementing actions which seek to make the destination more attractive for potential travellers. This is particularly important for Malta, which has a lower expenditure elasticity as estimated through the AIDS model. Malta, despite having a land area of just 316 square kilometres, has

an intensity of resources (natural, cultural, created), some of which are still largely unknown in tourist markets. This possibly calls for an assessment of what truly differentiates the destination, ensuring that such differentiating resources are well presented and deployed for tourism purposes. This may require improved networking between government and the private sector for improved co-ordination, planning and investment. At this stage, if this is done, one can expect the destination to increasingly attract visitors, enhance the well-being of residents and preserve the destination's natural and cultural capital. To achieve the other three performance criteria (mentioned by Ritchie and Crouch, 2003), these policies and actions relating to resources must be complemented with the other factors from the competitiveness framework. These are discussed below.

8.2.2 Destination management

The two destination competitiveness models make destination management central to achieving competitiveness. Destination management incorporates factors that will enhance the appeal of the core resources and attractors, strengthen their quality and effectiveness, and lend adaptability to changing circumstances.

Two main aspects are crucial in destination management: first manage what exists, second make notable improvements. Considering both the demand side and the supply side, managing what exists implies a wide scope. It ranges from management of visitors, to that of private enterprises, of public infrastructure, of

human resources and of the destination's planning processes, all of which also affects the overall tourism offer.

On the supply side, existing tourism service providers need to adapt to the challenges of the market or the context in which they operate. The hedonic pricing results have indicated that tourists value different characteristics of the inclusive tour holiday over time. It is therefore important to identify and know about such changing preferences (e.g. increased value being attached to outdoor swimming pools). Policies need to support such knowledge acquisition and adaptation to the market's valuation of facilities and services.

The results from the hedonic pricing modelling have provided indications of how important certain services, such as the food provided by the accommodation's restaurants and the hotel's location, are for clients' satisfaction. Proper management is necessary if such satisfaction levels are to be increased. Additionally, the hedonic pricing results have indicated the importance of public infrastructure, which of course does not only need to be present and available but also well maintained. All of this has distinct impacts on the brand image and tourists' perception of a destination.

Policies addressing destination management must also take into account a number of structural changes which are or will be characterising the market in which tourism service providers operate. These include emerging destinations entering the market, increased use of information and communication technology by consumers,

demographic trends whereby 20% of the population in 2020 will be over 65 years of age, and the effects of economic and financial crises. Policies which instigate or support adaptability to such scenarios are crucial if operators are to remain in the market and if destinations are to secure competitiveness. This could also possibly require identifying what such tourists (the ICT consumers, the 65+ consumer) value and adopting policies to encourage the provision of such facilities and services. Malta, for example, could adopt a policy to increase facilities for people with reduced mobility in view of the 65+ consumer.

The second important element requires that notable improvements be registered in the tourism product, in the service offer, in tourists' satisfaction levels and in tourists' expenditure. The results from the hedonic pricing modelling have shown that improved quality is truly valued by tourists. This means that policies which promote the further improvement of that which makes the destination attractive would lead to increased competitiveness. Possible services could include, for example, promoting greater social interaction among tourists and locals. Thus, this policy may not necessarily require measures which need high investment levels to create new or improved services but could simply require a change in atmosphere or ambience.

The research results that compared tourists' valuations over the years (refer to Chapter 7) show that higher value is being placed by tourists on the experience gained from the holiday rather than on the intrinsic value of the attraction or resource. Tourists also valued the

activities they can participate in and the relaxing facilities available within the accommodation's premises. This has implications in terms of the accommodation's location, still a key component of the tourism offer. Whilst location generates a certain level of utility, tourists seem to be valuing location more in terms of the experience that location can provide rather than, as in previous years, in terms of the proximity to amenities. The results (e.g. the positive implied effect of the number of sports facilities in the accommodation facility) have also shown a shift in tourists' preferences towards a more active holiday. This has implications for destination management, particularly in terms of land use planning and development as explained in Chapter 7 and in terms of environmental management. Planning policies could, over time, instigate and result in a marked improvement in the destination.

An interesting but somewhat surprising finding from the analysis of the package holiday prices is that the implied effect on price of sandy and rocky beaches turned out to be insignificant. This also has implications for destination management as often major efforts and investments are made by Mediterranean tourism authorities in relation to beach management. One would need to further assess to what extent such investments are of value to the inclusive tour holidaymaker. This result could possibly be explained by the fact that outdoor swimming pools are very much valued by tourists, acting as a substitute for the beach offer. Such results can be very powerful in guiding policy-makers towards more effective policy options.

Improvements in the destination appeal and its quality could also contribute to addressing the negative expenditure elasticity which, for example, Malta had over the years under review. Destinations which can satisfy such preferences could be perceived by tourists as not being of an 'inferior' nature. Once such improvements are being made and are available, the market needs to be informed and the negative perception corrected. This would require effective marketing to highlight the improvements that have occurred and the 'new' tourism experience the destination can offer. Tour operators would need to be informed of such improvements and the destination should ensure that the message of an improved destination offering a better experience is passed on to potential travellers.

This approach should be adopted not only by tourism authorities but also at the micro level by tourism service providers, particularly since tourism is a composite of various services. The approach should make the destinations more desirable for tourists, as what would be on offer would be value-for-money destinations experienced by satisfied customers, who would then recommend the destinations to others - a very strong influential factor in the tourism industry. The strong influence of recommendations or ratings by previous clients is evident from the results of the hedonic pricing modelling presented in Chapter 7.

Destination management therefore requires an approach which incorporates marked improvements in the destination's tourism offer both in terms of the product itself and in terms of the quality of

service, accompanied by effective marketing which is aimed at changing negative potential travellers' perceptions of the destination. Such an approach could benefit from increased interaction between the private and public sectors through partnership collaboration (Cooper and Hall, 2008). Government would take up a governance role, creating and leading networks towards achieving destination competitiveness.

8.2.3 Demand conditions

The third set of factors that make up the competitiveness framework relates to demand conditions. Tourism demand, brand awareness, potential travellers' perception and tourists' preferences need to be considered in this respect. The results presented in this thesis shed quite some light on demand conditions, particularly with respect to tourism demand and tourists' preferences.

Through the estimations done through the AIDS model in Chapter 6, the results show the interrelationship among the three destinations, Malta, Spain and Cyprus, enabling policy makers to compare one destination's results with those of the others. This reflects consumers' choice processes leading to tourism demand. This is very important, particularly in view of increasing competition among Mediterranean destinations.

The results show that the UK is a price-sensitive market for all three destinations. In line with economic theory's predictions, inflation and

exchange rates have an influence on tourism demand, measured through the budget shares of destinations. As has been shown through the research presented in this thesis, a destination's competitiveness is influenced by effective prices, which consist of relative rates of inflation and relative exchange rates, between the origin countries and destinations. The AIDS model results have shown how relative prices and any policies which influence such prices impact destination competitiveness. Relative prices not only affect tourism demand at the macro level, but also significantly impact inclusive tour prices, as shown by the results from the hedonic pricing modelling. Tour operators also take into account the source market's inflation in establishing package prices. Government policies have therefore an important role to play in influencing both inflation rates and exchange rates - ultimately relative prices between source market and destinations. Knowledge of the effects that these elements and any related policies have on competitiveness is necessary if adverse repercussions on tourism are to be avoided, along with the spillover effects on other sectors of the economy.

It is not enough simply to estimate one's own destination's elasticity values, as expenditures on different tourist destinations, goods and services are interrelated. Therefore, attention should also be afforded to the cross-price elasticities, which allow for an essential feature of consumer demand theory, namely the interdependence of interrelated commodities (de Mello and Sinclair, 2000). Cross-elasticity measures are even more important for tourism demand than for other goods and services, given that potential travellers

assess the relative merits of different destinations when deciding where to take their next holiday (Stabler, Papatheodorou and Sinclair, 2010). The result is that, in aggregate, cross-elasticities for competing destinations may be relatively high, as indicated through these empirical findings. The cross-price elasticities of Malta, Spain and Cyprus indicate that Spain is a very strong competitor for both Malta and Cyprus, particularly for Malta, but that Malta and Cyprus are not such strong competitors for Spain, although Cyprus is slightly more so than Malta. Without the estimates for cross-price elasticities, the outcome of pricing policies can be unpredictable, even when sound estimates of own-price elasticities are available. This highlights the importance of basing such information on rigorous analysis.

Within today's scenario where all three destinations have adopted the euro, the relative price between each of these destinations and the UK will be influenced by the consumer price index within each destination relative to that in the UK. This implies that one tool that destinations therefore have is to seek to keep their country's price levels down. This can be done by, for example, reducing government-induced costs and the private sector providing services at a reasonable, as opposed to an exorbitant, profit. Destinations such as Malta could, prior to adopting a policy to address this matter, assess tourists' expenditure and evaluate whether such categories of expenditure are characterised by prices which are relatively more expensive than in the UK, Spain and Cyprus. The hedonic pricing models' results could also provide input to such a policy through the elements within the inclusive tour that are valued by tourists.

The results of the AIDS model also provide insights on tourism demand through the expenditure elasticity values, which indicate a stable distribution of tourists' total expenditure budget between the three destinations, reflecting each destination's market share. Whilst the expenditure elasticity of Spain and Cyprus was positive, that for Malta was negative, indicating that Malta was perceived as an 'inferior' destination, possibly also reflecting that during the years under review Malta captured the lower income bracket of the UK market. Such a situation needed remedying.

A policy response to addressing demand conditions would need to incorporate destination management elements, particularly those relating to marketing and planning, leading to an overall improved tourism offer. A policy of identifying and tapping other less price-sensitive segments within the source markets, combined with a policy of providing and promoting services to which tourists attach high priority, could lead to positive effects on the tourism industry and consequently the wider economy. Further research is therefore required to estimate the expenditure and price elasticities pertaining not only to the macro level but also to the level of different segments of the market. Identification of the facilities and attractions required by higher income tourists and the provision of increased opportunities for higher expenditure by tourists could be a first step towards increasing expenditure elasticities.

Brand awareness, potential travellers' perception and tourists' preferences play an important role in a destination's competitiveness,

as identified in the competitiveness framework models. Image and word of mouth recommendations resulting from positive experiences of previous visitors and trends, would influence these demand conditions. Destination variables in the hedonic pricing models were significant, indicating that tourists equate a destination to a particular 'value'. Such 'value' probably is influenced by their knowledge, image and perception of the destination, by previous visitors' comments on the destination and by the in-places to visit. Furthermore, changing trends in travellers' preferences, such as a shift in favour of outdoor swimming pools (a finding from the hedonic pricing modelling), also forms part of demand conditions and represents very important information for both the public and the private sector. These factors and results confirm that Malta needs to enhance its image, meet the requirements imposed by evolving demands and preferences and ensure positive experiences for its visitors.

Tourists' choices and valuations as evidenced by the results of the hedonic pricing modelling are strongly influenced by word-of-mouth recommendations, which now have far wider reach through, for example, travel blogs. Influencing demand conditions at an international level is not easy for a destination like Malta, particularly in view of its small size and market share. However, it could attempt to influence the specific demand conditions for Malta as a tourist destination. This it could possibly do by adopting a policy which emphasises a service culture, promoting a concerted effort by all to ensure enriching holiday experiences. This policy's aim would be to give precedence to obtaining highly positive and effective word-of-

mouth recommendations. Furthermore, Malta could market itself more effectively to address demand conditions by reviewing such word-of-mouth recommendations to identify the positive experiences and eventually manage that which led to less favourable recommendations.

8.2.4 Situational conditions

Factors from the wider environment that influence the potential of destination competitiveness also need to be managed and appropriate policies adopted accordingly. The results from the AIDS and HP models have shown how influential international events, economic recessions and terrorist attacks are on tourism demand. Such situations influenced both the macro and the micro level. Destinations must be prepared to quickly respond to such situations given the travel market's sensitivity to such scenarios.

The EU estimated that in 2009, as a consequence of the economic and financial crises, the overall decline in tourism in member states averaged 5.9%, with some regions declining by 8%. EU member states, including Malta, reacted to the economic and financial crises by providing additional assistance to the private sector through funding mechanisms, easing regulations or using other stimulation strategies.

Evidently different situations require different approaches and solutions. Remaining competitive may not be easy but the

combination of a rapid response, understanding and acting upon demand conditions combined by continuous destination management could assist destinations.

8.2.5 Monitoring and evaluation

Monitoring a destination's competitiveness is essential in order to assess progress. The results from the AIDS model have shown that prices are significant determinants for destination competitiveness, particularly so in the case of Malta. As Song and Li advise,

> "if tourism prices and substitute prices are identified as significant determinants, the destination concerned should pay close attention to its competitors' pricing strategies."
> (Song and Li, 2008, p.211)

Malta should therefore closely monitor its competitors' pricing strategies. The reasons for Spain being such a strong competitor for Malta and Cyprus need further investigation. A strategy which the two islands could adopt is to identify the competitive advantage of Spain and move away from that market segment by tapping other market segments or niches where Spain does not have such a strong competitive advantage. The presence and strong business interests of tour operators in Spain, together with the size of Spanish resorts, are strong points for the Spanish tourism industry.

Destinations, as well as tour operators, may profit from redesigning inclusive tours more along the preferences of travellers and in a way that destinations' distinctiveness is presented to the market. Such

redesigning of inclusive tours has commenced with for example, shifts being registered in recent years from a preference for half-board basis to bed and breakfast bookings. These shifting preferences need to be monitored in order for destinations to be able to satisfy their visitor. More proactively, options for determining and shaping future demand could be explored.

8.3 Conclusion

This chapter has sought to weave the destination competitiveness frameworks presented in the literature with the empirical results from this research with the aim of illustrating how econometrics can be used to evaluate and inform policy. Through this approach, evidence-based policy-making in tourism would be recommended as a means to achieving destination competitiveness.

The discussion presented in this chapter has shown that through econometric analysis valuable additional knowledge of relevance for the policy-making process is gained. This knowledge can be useful to both the private and public sector, both for macroeconomic decisions and for micro level choices and decisions. The interaction of all relevant stakeholders and seeking an agreement on what destination competitiveness should result in, namely the destination performance criteria, would take destinations along the competitiveness and sustainability route.

CHAPTER 9: CONCLUSION

9.0 Introduction

This thesis has argued for evidence-based policy whose value proposition is that "policy settings can be improved on the basis of high-quality evidence" (Head, 2009). Studies applied to a number of sectors have shown that evidence-based policy-making results in positive consequences (e.g. Thorns, 2006; Béhague and Storeng, 2008; Brownson, Chriqui and Stamatakis, 2009). It is hypothesised that if applied to the tourism context, evidence-based policy-making could lead to increased policy effectiveness and consequently contributes to the achievement of destination competitiveness, which is a prime goal of destinations.

This was the theme explored in this thesis, which is based on three postulations forthcoming from the literature. First, policy is an influential factor on destination competitiveness (Dwyer and Kim, 2003; Ritchie and Crouch, 2003; Enright and Newton, 2005; Lee and King, 2009; Crouch, 2010); secondly, macro level policies need to be complemented by policies targeting the micro level and instigating implementation at the firm level (Porter, 2003); thirdly governments intervene to address market failure or to achieve redistribution (Weimer and Vining, 2005). Building on these foundations, the thesis explored the link between evidence-based policy and destination competitiveness.

9.1 Advancing evidence-based policy-making

To further evidence-based policy, more attention to the measurement and evaluation of outcomes of policies must first be afforded (Weimer, 1998; Brownson, Chriqui and Stamatakis, 2009; James and Jorgensen, 2009). This thesis demonstrated that econometric policy analysis provides the opportunity for such measurement and evaluation of policy. Its edge is its capacity to capture, estimate and quantify the effect of past policies and its ability to provide information to direct policy.

The policy evaluation research carried out through the application of the AIDS model has exemplified how such measurement and evaluation of policies can be carried out. The effect of the Maltese government's subsidisation policy on destination competitiveness was assessed through estimating how price and income elasticities changed over time and for the periods before, during and after the policy was in effect. The results of the AIDS model showed that the subsidisation policy adopted by the Maltese government had an effect on Malta's own price elasticity, on Malta's cross-price elasticities and also slightly on its income elasticity, affecting Malta's competitiveness.

However, an important finding from this policy evaluation concerned the extent to which tourism demand for a destination was influenced by, and the resulting demand elasticities dependent on, the manner in which the tourism policy was implemented. Although this might appear self-evident, the analysis has actually estimated the effect of

the two different systems of implementing the same policy. It demonstrated that the effect on the market and on demand elasticities differed. When the FBR policy was in place, Malta's own price elasticity increased from -2.57 to -2.85 but decreased drastically to -0.69 when the TOSS policy was implemented, suggesting that the UK demand for Malta was less price-sensitive. One reason for this difference in the effect of the policy implemented through two systems could be that the TOSS provided the tour operator with support on the basis of actual performance, whereas the FBR provided the support in advance. This finding strengthens the argument posed by Heckman (2001), Schmidt (2007) and Head (2008) that policy design is crucial for more effective implementation and requires knowledge and evidence about what has worked in the past.

For policy evaluation and for evidence-based policy-making, "speculative conjecture" (Davies, 2004, p.3) needs to be replaced by objective or at least quasi-objective assessments. Economics can provide such an objective evaluation as it seeks to separate the impact of a policy from the effects of other factors (Schmidt, 2007). This cannot be done by assessing a policy against the classical indicators of tourism (arrivals, guestnights and tourists' expenditure). As the research presented here has shown, the subsidy resulted in higher output levels but in the long run price elasticities increased, as per Li, Song and Witt's (2004) findings. The econometric analysis also showed that the tourism policy was more effective in influencing demand for own destination than for influencing that for its competitors. This may be due to Malta not being a market leader and

capturing only a relatively small market share. Such important information about the effect of the subsidisation policy would not have been forthcoming if the econometric analysis was not conducted and if opinion-based research was carried out instead.

The research findings have shown that the subsidisation policy influenced price competitiveness at both the macro and micro level. The policy's effect on the macro level was assessed through the AIDS model whilst the HP model was applied to examine the effect at the micro level, specifically its effect on the price of inclusive tour holidays. These results emphasise not only the importance of evaluating outcomes at both the macro and micro level but also the complementarity between policies addressing these two levels (Porter, 2003).

A second element which is important for the furthering of evidence-based policy is the provision of information based on objective scientific analysis. The research presented in this thesis illustrated the value of such rigorous analysis for the design and content of a policy aimed at achieving destination competitiveness. Based on the characteristics theory of value and applying hedonic pricing modelling, the research has shown the relationship between the price and attributes of inclusive tour holidays through an estimation of implicit prices of the valued characteristics. This analysis provides important information for tourism policy since destinations, tour operators and hotels can lose demand as a result of inefficient pricing, be it by over-valuing or under-valuing attributes when compared to competitors, with the attendant risks to competitiveness

(Bull in Dwyer and Forsyth ed., 2006). The analysis also provided useful information about the changes that occurred in the market over time. A comparison of the results from these hedonic pricing models indicated that the inclusive tour holidays to Malta were more price competitive than those for some of the other destinations. However, Malta's advantage narrowed from one summer to the other, indicating loss in competitiveness. The comparison also indicated that changes do occur from one season to another in tourists' valuations of the inclusive tour holiday attributes. For example, tourists valued having outdoor swimming pools, money exchange facilities and more sports facilities in the accommodation establishment in summer 2003 when compared with summer 2000 results. Moreover, the results forthcoming from the hedonic pricing model using panel data indicated that price differences were mainly due to variations between the hotels featured in the brochure, pointing to hotels needing to offer a markedly differentiated product if they are to capture a higher price that reflects tourists' increased valuation.

These findings clearly indicate that government and the private sector both have a key role to play for a destination to achieve competitiveness. The link between the macro and micro contexts is evident, as is the influence of macroeconomic variables on the competitiveness at a micro level. The findings from this research thus provide reasons for establishing policy networks as expounded by Cooper and Hall (2008), Scott, Baggio and Cooper (2008). The advantage of such policy networks in combination with an evidence-based approach to policy-making would lie in disseminating sound policy analysis with a view to strengthening stakeholder involvement

and more importantly assisting in the reaching of consensus and deciding on policy objectively rather than solely on the basis of unverified opinion. For this to happen, mechanisms such as those presented by Nutley, Davies and Walter (2002) and Davies (2004) may need to be in place to further stimulate an evidence-based approach to policy-making.

Government, in line with its governance role (Hill, 2005; UNWTO, 2008), would provide direction, invite participation that seeks appropriate buy-in and co-ordinate efforts, whilst ensuring public interest protection. This would be in line with the current thinking on governance and policy networks, whereby governments adopt a more decentralised approach whilst the private sector takes on a more important role as a player within a partnership. The hedonic pricing analysis and the subsequent discussion on the results (refer to Chapter 7) have shown that there is much the private sector can do to contribute to destination competitiveness alongside government's actions. Yet without such evidence forthcoming from these econometric analyses little insights would have been available in this regard.

In examining how evidence-based policy-making can assist destinations achieve competitiveness and on the basis of the empirical results, it may be concluded that destinations can benefit significantly in terms of competitiveness by adopting an evidence-based approach to tourism policy-making. The benefits mainly arise from the fact that such an approach utilises the additional knowledge and information which otherwise would remain untapped and which

can better inform the decision-making process. No research, however complete or rigorous, will secure competitiveness unless it is persuasively, sensitively and strategically deployed. In this particular instance and in the context analysed by this thesis, the best-case scenario would envisage evidence being interpreted by a policy network (including the public and private sectors) in terms of a conceptual model for destination competitiveness for an enhanced discussion on policy implications. This would then lead to policy decisions which can be more effective in assisting destinations achieve their goals, if such evidence is utilised.

Such evidence may be provided through multiple approaches (Kerr, 2003; Dredge and Jenkins, 2003; Pforr, 2005; Bramwell and Meyer, 2007), but this thesis revealed that econometrics is a very powerful tool for analysis for policy, as also shown by Cho and Rust (2008) in their application to private sector policies. In tourism too, econometrics can provide more robust insights when combined with descriptive and graphical analysis. The main advantage of econometric policy analysis lies in divulging, through quantitative means, the extent to which a policy has been effective or can be effective. As shown in this research, some econometric models also have the power to estimate the effect of a policy on the destination's competitors.

These important insights relating to evidence-based tourism policy-making and to the econometric approach for providing evidence have been gained as a result of the research presented in this thesis.

Accordingly, some potential contributions to the literature have been attempted. In particular, the following are worth mentioning.

9.2 Contributions from this thesis

The thesis examined evidence-based policy-making within the tourism context, an application which to date is frequently lacking in the literature. It has delved into content and impact of policy aimed at achieving destination competitiveness, whereas generally the tourism literature on policy focuses on the policy formulation process or on stakeholder involvement. In contrast, this thesis has adopted an econometric analysis approach for policy analysis, illustrating its potential in analysing and improving policies for destination competitiveness. This it has done by interpreting such results against the conceptual destination competitiveness models, which so far, have not been applied in the literature.

The literature is limited in research that quantifies policy impacts on destination competitiveness, or which examines the cause and effect relationship of policy. Hence, additional contributions have been made in the course of this thesis through the applied econometric models. Here, the main contribution lies in including policy as an explanatory variable in both the AIDS and HP models. Whilst AIDS models are presented in the literature to examine tourism demand, policy factors have not yet been included in such modelling. Similarly, the HP models applied to tourism have not taken policy measures into account. In addition, the effects of relative prices and macroeconomic variables on inclusive tour holiday prices have not been examined in

the literature on hedonic pricing, a gap which this thesis sought to contribute to. Furthermore, part of the HP modelling is based on panel data, few applications of which are present in the literature. The findings, forthcoming from the empirical analysis, are appealing and intriguing in themselves.

The contributions made through the research presented in this thesis are outlined in Tables 9.1, 9.2 and 9.3, which list the gaps identified in the literature and the specific contributions that have been made to the policy, tourism and applied economics literature, respectively.

Table 9.1 Literature gaps and contributions to policy literature

Gap	**Contribution**
The policy literature includes articles on evidence-based policy making. Such articles are however generally descriptive in nature, outlining how policies were formulated and exploring the extent to which evidence was used in the formulation process. The literature does not address content or impact of policy.	The thesis looks at evidence-based policy-making in terms not of the process of formulating the policy but the content and impact of such policy. It provides scientific research to evaluate past policy and provide information to direct policy.
The evidence-based policy literature does not include many articles on tourism.	The thesis presents research for evidence-based policy-making in the specific context of tourism.
Econometric analysis is not often presented as a tool for policy analysis in the policy literature.	Econometric analysis is here recognised and used as a powerful tool for policy analysis. The thesis shows the potential and the additional knowledge gained as a result of applying econometric policy analysis.

Source: Own compilation

Table 9.2 Literature gaps and contributions to tourism literature

Gap	**Contribution**
Tourism policy analysis is limited in the tourism literature.	The thesis presents tourism policy analysis on two fronts: (1) policy evaluation (2) information for policy.
Little if any reference is made to evidence-based policy-making in the tourism literature.	The thesis presents evidence-based policy-making in tourism.
Few articles assess the impact of generic or specific tourism policies on destination competitiveness.	The research presented in the thesis focuses on assessing the impact of specific tourism policies on destination competitiveness and looks at providing information for policy with a view to achieving destination competitiveness.
Tourism literature does not frequently indicate how findings resulting from econometric models can direct tourism policy. Often journal articles conclude that 'these findings have important policy implications' but do not specify or discuss such implications.	This thesis shows what the implications of the econometric models' results are for tourism policy. Based on the evidence provided through the research and utilising the destination competitiveness frameworks, it expands on the type of policies that need to be adopted to achieve destination competitiveness.
The literature shows that variations in the prices of inclusive tour holidays result from differences in tour operators, in hotel category, in location, in hotel size, in number of facilities provided but does not examine whether such variations arise from within or between packages.	The thesis tests whether such variations also occur within a single tour operator's packages, whether they change over time and to what extent, whether such variations are due to variations between hotels or across time, how destinations' relative prices affect package prices.

Source: Own compilation

Table 9.3 Literature gaps and contributions to applied economics literature

Gap	**Contribution**
It is widely accepted that econometrics can assist policy-making. Yet, a gap exists in illustrating how econometrics can be useful for policy-making.	Illustrates how econometrics can be useful for policy making. It shows how econometrics can improve policy making both in the public sector and at firm level.
The literature lacks econometric models which integrate tourism policy and which link to competitiveness.	The thesis presents econometric models which include policy within the model.
Almost Ideal Demand System (AIDS) and Hedonic Pricing (HP) models: these models have not been used to evaluate tourism policy measures.	The specific policy relating to providing financial support to tour operators is incorporated in each of the econometric models. AIDS and HP models are therefore used in the analysis for policy.
AIDS model: has not been used to assess tourism policy but generally applications have sought to model tourism demand and estimate price and income sensitivities.	The AIDS model examines how a destination's subsidisation policy influenced the price competitiveness of specific tourism destinations. The government policy is included in the AIDS model as an explanatory variable. The effect of the policy on tourism demand sensitivities is estimated.
HP model: little research is available which uses panel data for hedonic price analysis. Secondly, hedonic pricing applications in tourism have not taken into account inflation, exchange rates or relative prices. Thirdly, policy has not been included in HP models.	Panel data is used for the HP model. Inflation, exchange rates and relative prices are included in the HP model. The subsidisation policy is incorporated in the HP model to assess whether, and the extent to which, the price of inclusive tours was affected.

Source: Own compilation

Moreover, the research throws light on considerations for a broader application. Three main points are noteworthy. First, there is much to be gained from working across the diverse literatures on evidence-based policy, policy analysis, econometric modelling, and destination competitiveness. Eclectic and interdisciplinary approaches to research are desirable, particularly in fields such as policy and tourism, where monodimensional perspectives and evaluations are always limiting and restrictive.

Secondly, as in the case of tourism, other economic sectors are faced with competition — at least to some extent — and may require policy interventions, particularly where the market fails or where it is beneficial to redirect the market. Relative prices and the effect of policy on demand elasticities or on pricing is an important consideration for any market. As shown in Chapters 6 and 7, econometric policy analysis is a strong tool in understanding the resulting dynamics of the market. The appropriate economic theory and corresponding econometric model(s) will need to be identified and adapted for particular policy needs. When economic theory informs the choice of econometric modelling the resulting benefits for policy analysis are considerable.

Third, achieving destination competitiveness requires an in-depth understanding of the market the destination is operating in and of the various factors influencing such destination competitiveness. Policy options need to be well evaluated and considered in terms of market responses and these various factors to ensure effectiveness. The

approach adopted in this thesis is applicable to other policies, to other market segments and to other destinations.

Limitations of the research

This thesis was limited to policy-making based on evidence forthcoming from econometric analysis. The research could possibly be strengthened through a comparative assessment of multiple approaches to measuring and evaluating policy outcomes. This in recognition of the fact that no one approach can yield fully holistic analysis. In particular, one limitation of this research is that the findings are not referred back to or discussed by policy networks. The research may be considered to be constrained by the set context. Malta is a very particular destination, with characteristics that both facilitate and hinder econometric modelling. Extending the research to cover other destinations and other policies could enhance the basis for generalisations drawn from the research. These limitations point to some recommendations for future research. Recommendations for further research, as well as some last reflections and conclusions, bring this thesis to a close.

9.3 Recommendations for further research

From a general perspective, there is a need to extend the literature on evidence-based policy-making in the tourism literature. It would be interesting to explore why evidence-based policy-making is not adopted in tourism and not referred to in the tourism literature. Research such as that by Nilsson, Jordan, Turnpenny, Hertin, Nykvist, and Russel (2008), whereby analysis is carried out among

destinations to assess the use and non-use of policy analysis tools, could shed light on the current status of evidence-based policy-making and its potential and on barriers limiting evidence-based tourism policy-making. The literature could also debate what constitutes evidence for tourism policy-making and identify the mechanisms that could be adopted to promote such policy-making.

Further illustrations (relating to different destinations, different market segments and different tourism policies) of how evidence-based tourism policy-making can contribute to destination competitiveness could highlight additional benefits of such an approach and the usability of econometric modelling for policy analysis. To complement this, there is also a need to improve econometric policy analysis in the field of tourism, particularly including policy as a variable in the econometric models. For example, research analysing and quantifying the impact on destination competitiveness of policies relating to route development by low-fare airlines could be particularly interesting. Policies relating to budget cuts for tourism authorities could also be assessed in terms of their effect on destination competitiveness.

Once a comprehensive body of literature on evidence-based tourism policy-making is created, some generalisations could be made. This could lead to the development of a theory for evidence-based policy-making, indicating the elements that are required in the formulation of a policy for it to be more effective for destination competitiveness.

There is scope for more research that examines the extent of the difference in effectiveness, if any, of an evidence-based policy when compared to an opinion-based policy.

Research which can lead to a further understanding of the inclusive tour holiday market and the changes it is undergoing, and consequently the implications for policy, is another potential research area. In particular, research may delve into how this changing market may respond to government policies identifying the market signals that require a policy response from government.

In the specific context of destination competitiveness, there is still scope for research linking policy with the other factors influencing destination competitiveness. Such research could lead to further debate on destination competitiveness frameworks. In addition, it would be interesting to examine the time lag between policy adoption and implementation and the effect on destination competitiveness. Combining the OECD Tourism Trends and Policies 2010 report with the results presented in the next WEF's Travel and Tourism Competitiveness Report could provide some insights into this new research question. It is hoped that this thesis will prompt further research on evidence-based policy-making, econometric policy analysis and competitiveness, particularly within the tourism field.

9.4 Conclusion

As the interest in the study of public policy increases as a result of a demand for more effective policies and evaluation of outcomes,

analysis for policy, it is hoped, will receive growing recognition. As demonstrated, much can be garnered from an evidence-based approach to tourism policy-making as a means to achieving destination competitiveness.

In the end some of the imponderables facing econometricians emerge from the lack of attunement and amenability, whether deliberate or otherwise, on the part of policy-makers to the contribution that econometric studies can make to an enhanced and better briefed policy process. It has been beyond the scope of this thesis to evaluate the circumstances that might lead to the demonstrable benefits of econometric modelling being overlooked in the policy process. For econometricians, however, as for the author of this thesis, concern about those benefits remains strong and encourages commitment towards further demonstration of how studies such as this, and what might positively emerge from them, could be urged upon the appropriate fora.

Two last points. Policy makers do value the possibility, if pressed or as necessary, to be able to cite or invoke the study that makes their decisions more defensible and cogent. In ideal scenarios, concerted action between researcher and policy-maker would occur; when the circumstances are less than ideal, the obligation for sound econometrics and policy analysis to be produced remain, if only to make them available should they be sought. It is in this spirit that this thesis has been conceived, researched and submitted.

APPENDIX 1: CHARACTERISTICS INCLUDED IN HEDONIC PRICING MODELS APPLIED TO TOURISM

Table 1 Characteristics included in hedonic pricing models for package holidays

	Sinclair, Clewer and Pack (1990)	Clewer, Pack and Sinclair (1992)	Papatheodorou (2002) – core regions	Papatheodorou (2002) – periphery regions	Thrane (2005) – model 1	Thrane (2005) – model 2	Espinet , Saez, Coenders and Fluvià (2003)	Mangion, Durbarry and Sinclair (2005) – summer 2000 model	Mangion, Durbarry and Sinclair (2005) – summer 2003 model	Mangion, Durbarry and Sinclair (2005) – panel data model
Tour operator	Y*	Y*^	Y*	Y*	Y*^	Y*^				
Destination					Y*^	Y*^		Y*^	Y*^	Y*^
Resort	Y*		Y*	Y*	Y*	Y				
Hotel chain affiliation			Y*	Y*						
Exclusive to tour operator								Y	Y*	Y
Special label								Y*		Y
Customer satisfaction ratings								Y*^	Y*^	
Hotel category/star rating	Y*	Y*	Y*	Y*		Y*	Y*	Y*	Y*	Y*
Location	Y*									
Located near the sea							Y*			
Located near								Y	Y	

	Sinclair, Clewer and Pack (1990)	Clewer, Pack and Sinclair (1992)	Papatheodorou (2002) – core regions	Papatheodorou (2002) – periphery regions	Thrane (2005) – model 1	Thrane (2005) – model 2	Espinet , Saez, Coenders and Fluvià (2003)	Mangion, Durbarry and Sinclair (2005) – summer 2000 model	Mangion, Durbarry and Sinclair (2005) – summer 2003 model	Mangion, Durbarry and Sinclair (2005) – panel data model
sandy beach										
Located near rocky beach								Y	Y*	
Located near town centre							Y			
Number of rooms	Y*	Y	Y*	Y*	Y	Y	Y		Y	Y
Board basis	Y*		Y*	Y*				Y*	Y*	Y*^
Picturesque spot	Y*							Y*		
Transport to the beach								Y*		
Proximity to public transport								Y	Y	
Proximity to park/garden								Y		
Money exchange facility	Y*							Y	Y*	
Availability of one or more restaurants		Y			Y*	Y		Y	Y*	
TV in room		Y			Y*	Y	Y			
Telephone in room										
Airconditioning in		Y*			Y	Y	Y	Y*		

	Sinclair, Clewer and Pack (1990)	Clewer, Pack and Sinclair (1992)	Papatheodorou (2002) – core regions	Papatheodorou (2002) – periphery regions	Thrane (2005) – model 1	Thrane (2005) – model 2	Espinet , Saez, Coenders and Fluvià (2003)	Mangion, Durbarry and Sinclair (2005) – summer 2000 model	Mangion, Durbarry and Sinclair (2005) – summer 2003 model	Mangion, Durbarry and Sinclair (2005) – panel data model
room										
Mini-bar in room							Y			
One or more swimming pools/Children's pool	Y*	Y*^			Y	Y	Y	Y	Y*^ (depends on type of pool)	
Nursery	Y*									
Discos/nightclub	Y									
Car parking/Garage	Y	Y*^					Y*			
Freebies	Y	Y^*								
Lift	Y				Y	Y				
Hairdresser	Y									
Children's park	Y									
Doctor	Y									
Custody of valuables	Y									
Facilities for disabled	Y									
Facilities for kids								Y	Y	
Reading room	Y									
Cinema	Y									
Sports facilities	Y				Y	Y	Y		Y	

	Sinclair, Clewer and Pack (1990)	Clewer, Pack and Sinclair (1992)	Papatheodorou (2002) – core regions	Papatheodorou (2002) – periphery regions	Thrane (2005) – model 1	Thrane (2005) – model 2	Espinet , Saez, Coenders and Fluvià (2003)	Mangion, Durbarry and Sinclair (2005) – summer 2000 model	Mangion, Durbarry and Sinclair (2005) – summer 2003 model	Mangion, Durbarry and Sinclair (2005) – panel data model
Shops	Y									
Bingo	Y									
Hotel with garden or terrace							Y			
Recently renovated							Y			
Breakfast without price surcharge					Y*	Y*				
Bar at the hotel					Y	Y		Y	Y*	
Extra kitchen equipment					Y*	Y*				
Minimarket					Y	Y				
Hotel built after 1990					Y	Y				
Bungalow or apartment					Y	Y				
3 or 2 room apartment					Y*	Y*				
24 hour reception service					Y	Y				
Noise					Y	Y				
Distance to beach					Y*	Y*				

	Sinclair, Clewer and Pack (1990)	Clewer, Pack and Sinclair (1992)	Papatheodorou (2002) – core regions	Papatheodorou (2002) – periphery regions	Thrane (2005) – model 1	Thrane (2005) – model 2	Espinet , Saez, Coenders and Fluvià (2003)	Mangion, Durbarry and Sinclair (2005) – summer 2000 model	Mangion, Durbarry and Sinclair (2005) – summer 2003 model	Mangion, Durbarry and Sinclair (2005) – panel data model
Distance to shopping area					Y	Y				
Year							Y*			Y*
Month							Y*			
Flights			Y	Y						
Flights by day			Y(Thursday *, Friday and Saturday not significant)	Y(Sunday, Monday and Saturday *)						
Good incoming flight time			Y*	Y*						

Y indicates that the variable was included as an explanatory characteristic.
* indicates significant variable.
*^ indicates that variable was significant in some cases and insignificant for other cases.
Source: Own compilation using the referenced articles

Table 2 Characteristics included in hedonic pricing models for the hotel product

	Cox and Vieth (2003)	Thrane (2007) single room	Thrane (2007) double room	Hamilton (2007)	Rigall-i-Torrent and Fluvià (2007)	Rigall-i-Torrent and Fluvià (2010)
Resort/region located					Y*^	
Hotel chain affiliation		Y*	Y			
Hotel category/star rating				Y*	Y*	Y*
Where district lies				Y*		
Board basis				Y*		
Number of rooms		Y	Y*		Y*	Y*
Area of beach				Y		
Hotel located in front of beach					Y*	Y*
Length of open coast in km / % of coastline				Y*^		
Length of cliffs in km / % of coastline				Y		
Length of dikes in km/ % of coastline				Y*^		
Area of heathland/moorland/ heathland/agricultural land				Y*^		
Proximity to the ocean	Y*					
Open area quantity	Y*					
Pool index	Y*					
Spa area	Y					
Employees per room	Y*					
Room services		Y*	Y*		Y*	Y*
Garden or balcony					Y*	Y*
Car park		Y*	Y*		Y*	Y*
Swimming pool		Y	Y		Y	Y
Sports facilities					Y*	Y*
Minibar in room		Y*	Y*			
Restaurant in hotel		Y	Y			

	Cox and Vieth (2003)	Thrane (2007) single room	Thrane (2007) double room	Hamilton (2007)	Rigall-i-Torrent and Fluvià (2007)	Rigall-i-Torrent and Fluvià (2010)
Hairdryer in room		Y*	Y*			
Distance to Central Station		Y	Y*			
Period of the year					Y*	Y*
Population in jurisdiction				Y		Y*
Number of cultural facilities available						Y
Marina in the jurisdiction						Y*
Rooms per sq km in the jurisdiction						Y*
Police in the jurisdiction						Y*
Restaurants in the jurisdiction						Y*
Sports facilities in the jurisdiction						Y
Coves in the jurisdiction						Y*

Y indicates that the variable was included as an explanatory characteristic.
* indicates significant variable.
*^ indicates that variable was significant in some cases and insignificant for other cases.
Source: Own compilation using the referenced articles

APPENDIX 2: WALD TEST RESULTS FOR AIDS MODELS

Table 1: Wald test results for the static AIDS model, including the dummy variables for FBR and TOSS, as specified in equation 6.3 in section 6.2.3

$$w_i = \alpha_i + \Sigma_j \gamma_{ij} \ln p_j + \beta_i \ln (x/P^*) + \delta_i D1 + \lambda_i D2$$

	Malta-Spain	Malta-Cyprus	Spain-Cyprus
Homogeneity restriction	6.6239[.036]	6.6239[.036]	6.6239[.036]
Symmetry restriction	3.6160[.057]	0.4095[.522]	0.6316[.427]
Homogeneity and symmetry restrictions	6.7357[.081]	6.7357[.081]	6.7357[.081]

Table 2: Wald test results for the dynamic model with short and long run specification and including the dummy variables for FBR and TOSS, as specified in equation 6.5 in section 6.2.4

$$w_{i\,t-(t-1)} = \alpha_i + \Sigma_j \gamma_{ij} \ln p_{j\,t-(t-1)} + \beta_i \ln (x/P^*)_{\,t-(t-1)} + \iota w_{i\,(t-1)} + \Sigma_j \kappa_{ij} \ln p_{j(t-1)} + \phi_i \ln (x/P^*)_{(t-1)} + \delta_i D1 + \lambda_i D2$$

	Malta-Spain	Malta-Cyprus	Spain-Cyprus
Homogeneity restriction	10.2850 (0.036)	10.6408 (0.031)	12.4627 (0.014)
Symmetry restriction	2.0405 (0.360)	6.7243 (0.035)	1.1439 (0.564)
Homogeneity and symmetry restrictions	12.7681 (0.047)	13.2170 (0.040)	14.8818 (0.021)

Table 3: Wald test results for the dynamic model including the dummy variables for FBR and TOSS and variables for major international events, as specified in equation 6.6 in section 6.2.4

$$w_{i\,t-(t-1)} = \alpha_i + \Sigma_j \gamma_{ij} \ln p_{j\,t-(t-1)} + \beta_i \ln (x/P^*)_{\,t-(t-1)} + \iota w_{i\,(t-1)} + \Sigma_j \kappa_{ij} \ln p_{j(t-1)} + \phi_i \ln (x/P^*)_{(t-1)} + \delta_i D1 + \lambda_i D2 + \sigma_i R + \tau_i G + \upsilon_i T + \varepsilon$$

	Malta-Spain	Malta-Cyprus	Spain-Cyprus
Homogeneity restriction	13.2286 (0.010)	11.8760 (0.018)	13.5356 (0.009)
Symmetry restriction	4.0584 (0.131)	1.3425 (0.511)	0.4263 (0.808)
Homogeneity and symmetry restrictions	13.3557 (0.038)	12.0745 (0.060)	13.9318 (0.030)

Table 4: Wald test results for the short run part of the dynamic model including the dummy variables for FBR and TOSS and variables for major international events, as specified in equation 6.6 in section 6.2.4

$$w_{i\,t-(t-1)} = \alpha_i + \Sigma_j \gamma_{ij} \ln p_{j\,t-(t-1)} + \beta_i \ln (x/P^*)_{t-(t-1)} + \delta_i D1 + \lambda_i D2 + \sigma_i R + \tau_i G + \upsilon_i T + \varepsilon$$

	Malta-Spain	**Malta-Cyprus**	**Spain-Cyprus**
Homogeneity restriction	4.8694 (0.088)	4.8694 (0.088)	4.8694 (0.088)
Symmetry restriction	0.0722 (0.788)	2.7317 (0.098)	3.8676 (0.049)
Homogeneity and symmetry restrictions	7.4821 (0.058)	7.4821 (0.058)	7.4821 (0.058)

APPENDIX 3: INCLUSIVE TOUR CHARACTERISTICS AND OBSERVATIONS IN HP MODELS

Table 1: List of facilities and characteristics included in inclusive tour holidays

Titles used in tour operator brochure	Variable code	Description	Used in the model
Location	Noisy	Located close to noise disturbance	
	Sandbich	Located close to sandy beach	✓
	Rockbich	Located close to rocky beach	✓
	Niceviews	Hotel has nice views	✓
	Publtrpt	Located close to public transport	✓
	Walkthro	Located close to main road or promenade	✓
	Centlife	Located close to the centre and nightlife	
	Barshops	Located close to bars and shops	
	Sitestpt	Sites accessible by transport	
	Beachtpt	Beach accessible by transport	✓
Swimming pool	Supvise	Children must be supervised on the beach	
	Outpool1	Outdoor pool	✓
	Out	Whirlpool bath outside	
	Saltpul1	Saltwater or seawater pool	✓
	Freshw	Freshwater pool	
	Heatpul1	Heated pool	
	Inpool	Indoor pool	✓
Meals	Restbar	Restaurant	
	Nonsmkgr	Non-smoking (part of) restaurant	
	Aircondr	Air conditioned (part of) restaurant	
	Alacarte	A la carte restaurant	✓
	Buffet	Buffet breakfast/lunch/dinner	
	Speclc	Speciality cuisine including vegetarian	
	Snkbarcf	Snack bar/café	✓
	Ukbfast	UK breakfast/hot breakfast	
	Contbfast	Continental breakfast	
	Occasion	Occasion meals	
	Flexydin	Flexible dining	
Entertainment	Recr	Bars for recreation	
	Loungrm	Lounge, card room, tv room	
	Dancmusi	Dancing, music, entertainment	
	Pmamfolk	Organised evening, morning entertainment, folklore	
Activities	Nosports	Number of sports facilities	
	Walking	Walking	
For families	Kidfacl	Kids facilities	✓
Other facilities	Beautsho	Beauty parlour, hairdresser, shop	
	Heatall	Heating or airconditioning throughout the hotel	
	Moneyxch	Money exchange	✓

Titles used in tour operator brochure	Variable code	Description	Used in the model
Room facilities	Radphdry	Radio, phone or hairdryer in room	
	Tcpaybar	Tea/coffee making facilities, or pay tv or minibar or fridge	
	Cabletv	Cable TV in room	
	Stlitetv	Satellite TV in room	
	Acroom	Air conditioning in room	✓
	Familyrm	Family rooms available	
	Refurbrm	Recently refurbished rooms	
	Nocotspc	No cot space when room is full	
	Roomsrvc	Room service available	
	Negvroom	Negative aspect of room	
Special offer	Offersav	Offers available	
Other	Goodhr	Good welcoming service and staff	

Source: Own compilation based on information presented in the brochures

Table 2: Number of observations per independent variable

Regressor	**Number of observations**	
	Summer 2003	**Summer 2000**
Total number of packages	337	186
Malta	13	5
Cyprus	40	14
Tunisia	14	7
Costa Blanca	15	11
Costa del Sol	21	11
Majorca	38	23
Minorca	13	5
Ibiza	21	14
Gran Canaria	12	5
Lanzarote	9	3
Fuerteventura	6	3
Tenerife	17	9
Algarve	8	5
Madeira	15	6
Turkey	24	17
Greek Islands	71	48
FiveT	52	22
FourT	181	81
ThreeT	104	83
Bed and breakfast	75	22
Full board	10	5
Half board	226	140
All inclusive	26	19
Exclusive to tour operator	105	80
Special label	151	65
Lnrooms	337 observations (255 rooms on average)	186 observations (256 rooms on average)
CRHoliday	251	167
CRAccommod	251	167
CRLocation	251	167
CRFood	241	162
Sandy beach	235	145
Rocky beach	37	14
Public transport	86	58
Walkthro'	53	28
Outdoor pool	294	162
Salt water pool	33	21
Indoor pool	90	45
A la carte restaurant	38	63
Snack bar/coffee shop	174	104
Kids facilities	268	141
Money exchange	39	10
Niceviews	35	36
Beachtpt	38	21
Acroom	214	117
Nosports	312	167

Source: Own compilation based on information presented in the brochures

APPENDIX 4: ADDITIONAL INFORMATION FROM THE ECONOMETRIC MODELS

Table 1 Additional information provided through the AIDS model for policy evaluation

Type of analysis	Information provided
Descriptive Analysis	• When the FBR system was in place, arrivals from the UK to Malta increased. Once it was removed, declines were registered. • Additional tourists visited Malta from the UK during the period when TOSS was in place. • Earnings and guestnights followed the same pattern. • Higher rates of change were registered during the FBR period (3.8% average annual growth in UK arrivals) than during the TOSS period (average annual growth of 1.8% in UK arrivals). • No conclusive evidence that the increase in arrivals was a result of the FBR and TOSS policies. However one tends to assume that this performance was a result of these policies.
Graphical Analysis	• The relative price of Malta was lower during the subsidisation policy years. • The policy made Malta more price competitive in terms of relative price than Cyprus and Spain in the UK market. During the FBR period, Cyprus' relative price was higher than Malta's. • As relative price increased, the budget share decreased and vice versa, generally, but this was not always the case. • No conclusive evidence that the policy directly resulted in an improved budget share for the destination and reduced the share of competitors is provided.
Econometric Analysis (AIDS)	• A subsidy on the destination's relative price increased the destination's budget share and reduced that of competitors. • Estimates of price and income elasticities are provided. • Own price elasticity estimates changed as a result of the policies. When FBR was in effect, own price elasticity increased from -2.57 to -2.85. When TOSS was in effect, it decreased drastically to -0.69. • TOSS made the UK demand for Malta less price sensitive than when the FBR was in place and when there was no policy. TOSS was more effective than the FBR in influencing UK demand for Malta. • The policy had an impact on other destinations, hence it influenced competitiveness. ▪ The policy had an impact on Cyprus' own price elasticity which increased drastically during the FBR and TOSS years. ▪ The own price elasticity of Spain remained relatively constant ranging from -1.3 to -1.38. • Cross-price elasticities were lowered.

	• These results have shown that destinations, even though small, can adopt tourism policies which influence the market. It can influence its own performance by making demand less price sensitive and less influenced by changes in the price of competitors. Small destinations, such as Malta, might be somewhat limited in the extent of influence they can exert on the demand for other destinations. • Expenditure elasticities remained relatively constant. The subsidisation policies did not help to change the 'inferior' nature of the destination. However, TOSS helped to slightly improve the expenditure elasticity for Malta, whilst FBR resulted in making the expenditure elasticity worse. • Malta's own price elasticity increased over time showing that it became more price sensitive. • A demand side subsidy affected through price reductions does boost the sector in the short run but may, as time passes, result in making the market more responsive to changes in prices. • Malta and Cyprus are complementary destinations. Malta and Spain are substitutes. • The same policy with the same objective but operating different mechanisms for implementation will have differing effects.

Source: Own compilation

Table 2 Additional information provided through the HP model for policy evaluation and as information for policy

Type of analysis	**Information provided**
Descriptive Analysis	• A descriptive analysis of inclusive holiday prices could indicate which characteristics have been included and excluded throughout the years; the differences in prices over time and variations in prices on the bases of averages.
Econometric Analysis (HP model)	• The analysis identifies the components of the package which give rise to higher or lower prices, indicating the characteristics which tourists value (e.g. outdoor swimming pool). • It assesses the price sensitivity of the characteristics making up the package. • It showed that there are changes in tourists' preferences from one summer to another. • Hotel location is valued by the British. • Higher category accommodation, full board and all inclusive stays command higher prices in view of the added benefits for tourists. • Sports facilities are being valued. • Tourists value characteristics which offer a better quality, have a practical use and provide a special level of service or facilities. This is influenced by previous clients' evaluation of the experience. • Better quality will attract a higher valuation by tourists. • There is a level of heterogeneity across inclusive tours, though offered by one tour operator ▪ The analysis examines the variations in package price which may be due to variation within hotels across time or due to variation between individual hotels. • Insights into possible policies relating to price competitiveness, destination management, development policies, regulatory policies, marketing policies, tourist satisfaction and stakeholder relations. • It indicates the extent to which macroeconomic variables, such as inflation and exchange rate, influence variations in package prices. • It shows that relative prices, besides affecting price competitiveness, also influences package prices. • Inflation in the source market also affects package prices. • It provides information to evaluate past policy: ▪ TOSS had an effect on package prices

Source: Own compilation

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