MODELLING TOURISM DEMAND FOR MEDITERRANEAN DESTINATIONS

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TO MY PARENTS

CONSTANTINOS AND VASILIKI

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For the completion of this thesis, I have been heavily indebted to a number of people. However, I dedicate this work to my parents, as a least recognition for their moral and financial support to me constantly throughout my studies. Without them, this work would have never been realised.

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ABSTRACT

The thesis uses two alternative theoretical and econometric approaches to model tourism demand, focusing on tourism flows originating from major European countries -the UK, West Germany, France, Sweden -as well as the USA- to major Mediterranean destinations -Greece, Spain, Portugal, Italy and Turkey.

The first approach formulates dynamic single equation models, based on specific origin-to-destination features, and applies the "general to simple" econometric methodology. The short and long-run impact on tourism receipts of variables such as income, inflation, exchange rates and political instability is estimated and discussed. The second approach draws upon the most recent developments in consumer behaviour theory and complete systems of equations econometric models are estimated, based on the functional form of the Almost Ideal Demand System (AIDS) model. The impact of changes in effective prices and tourism expenditure to each tourism destination on the allocation of the consumer's predetermined tourism budget is studied. Predictions of tourism demand are estimated and related policy implications are considered.

[T]he European Mediterranean world [is] the site of classical civilisations, the sunlit paradise of passionate rationality and sensuous pleasure. Love, wine and fruit, a simple table to eat from, good bread, good green oil: a world of severe order and luxurious calm. The towns beautiful and on a human scale; the villages quiet and well-kept, the countryside rich and productive, ordered vineyards, olive groves, orchards and gardens. And always a blue sea, glimpsed through hills, an ever-present gleam.

From the colder north we flock in milions, busily killing the thing we love, but still amazed and enthralled at the beauty, still astonished that it is still there, a pastoral paradise not yet quite lost. We see what we want to see, and what we need to see.

[A] longing for another world, fertile and peaceful, a place where the human potential for pleasure and play might be realised.

"PAINTERS' PARADISE", M. Gooding,
The Sunday Times Magazine, 3 June 1990, p. 42.

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INTRODUCTION

During recent years international tourism has been paid increasing attention by national governments as well as international organisations. It has been widely recognised that tourism can play an important role in alleviating balance of payments constraints, in generating income, employment and tax revenue, and in contributing to regional and national economic development, particularly when an alternative resource endowment is lacking. On a world scale, tourism is an increasingly important source of export receipts and in 1989, for example, 405 million international visitors spent approximately US dol. 210 billion (excluding transport) -about 6 per cent of all world trade on current account (WTO, 1990). The World Tourism Organisation forecasts an annual growth rate of 9 per cent in tourism receipts by the year 2000 (The Courier, 1990; p. 50). The industrialised world occupies the dominant position in world tourism. Within the industrialised world, Western Europe holds a key position, with 60 per cent of tourist expenditure and 75 per cent of tourism receipts (WTO, 1987). One foreign tourist out of three visits the Mediterranean region (OECD, 1988).

However, tourism has been criticised as a strategy for economic development because it is associated with dependency upon external sources of growth (De Kadt, 1979). The demand for tourism and the choice of tourist destinations may be susceptible to large fluctuations, due to a number of reasons, including variations in income and exchange rates, and in unexpected events such as major political changes. Ambivalent attitudes towards the growth of the sector have also been raised by the inconsistent and inconclusive findings provided by past empirical studies of tourism demand.

The study of the demand for tourism in the main tourist destination countries is important for assessing the sector's potential growth and for predicting trends for its future development. Empirical evidence concerning tourism demand is necessary for efficient public planning and budgetary allocation (eg. for investment in infrastructure) at the national, regional and local levels.

The topic is also relevant to the private sector and, in particular, to those productive units involved with the tourism industry either directly, such as airlines, hotels, and tour operators, or indirectly, such as food, beverage and handicraft units.

Although most studies of the demand for tourism were carried out during the 1980's, a number of earlier studies also attempted to model tourism demand, identifying variables which were significant determinants of tourism demand and estimating their impact. The empirical evidence is mixed; a variety of diversified findings has not allowed for overall conclusions. More importantly, most of the past models suffer from theoretical limitations and empirical inadequacies. Many previous models of tourism demand lack, or fail to specify explicitly a sound theoretical framework. Their weakest aspects, however, are related to econometric issues, concerning the methodology applied, poor diagnostic checking, and statistically unreliable estimation results.

1. The Contribution of the Thesis

The present thesis aims to contribute to the study of tourism demand in a number of ways. A rigorous examination of the determinants of the demand for tourism is provided by undertaking a disaggregated analysis of tourism expenditure allocation to major Mediterranean destinations, namely Greece, Spain, Portugal, Italy and Turkey, by major tourist generating countries, the United Kingdom, West Germany, France, Sweden and the USA. The effects on demand of possible variables that can affect foreign tourism receipts, such as changes in income, prices, exchange rates and political shocks are studied, and the impact on the relative competitiveness of the Mediterranean destinations is considered. The role of the explanatory variables is theoretically explained and justified, and their quantitative impact on tourism demand is econometrically estimated.

In the thesis, two alternative econometric approaches to tourism demand are applied. First, the demand for tourism is studied on the basis of individual, origin-to-destination-country dynamic equations -the single equation approach. Second, a model of tourism demand based on consumer preferences is estimated -the system of equations approach. The first approach permits more rigorous and in depth study of certain variables such as income, prices, exchange rates and political shocks and provides estimates of their impact. It is based on recent developments in the modelling of dynamic econometric relationships. It appears that no past studies of the demand for tourism have followed the theoretical and econometric methodology applied here. The methodology which is used has been proposed and advanced by Davidson, Hendry, Srba and Yeo (1978), Hendry and Richards (1982) and Hendry (1983), among others, and is the well-established "general to simple" approach. This approach leads to dynamic specifications of econometric relations that take into account not only the long-run effects of the variables considered but also their short-run impact; it appears to be particularly appropriate for application to the demand side of a highly dynamic sector of the economy such as tourism.

The second approach to be applied is a rigorous theoretical framework which relates tourism demand to consumer behaviour theory. A complete system of equations model is proposed in order to link consumer preferences with tourism expenditure allocation to major Mediterranean destinations. This approach is based on the shares of the tourist expenditure allocated to the Mediterranean destinations by major tourist origin countries. It investigates the impact of changes in effective exchange rates and tourism expenditure to individual Mediterranean destinations on the allocation of the consumer's predetermined tourism budget. The stages of consumer expenditure allocation are explicitly described, certain theoretical restrictions, suggested by consumer theory, are tested in the specific context of tourism demand and relations of complementarity and substitutability among the destinations concerned are investigated. The theory and the empirical results from the two approaches are compared and contrasted in order to examine their relative advantages and limitations.

Past research on tourism demand has mainly been based on macro-models of aggregate tourism demand, usually studying the USA and Europe as tourist origin areas and applying standard, static, multiple regression models. As regards the single equation approach, the framework which is applied here contrasts with that followed in past empirical work and, to our knowledge, has not previously been applied in the study of demand for tourism. It aims to overcome various theoretical and empirical limitations of previous work (for example, absence of a theoretical framework relating specifically to the economics of tourism, lack of rigorous statistical diagnostics of the models proposed), and to provide a number of new insights into tourism demand in Southern European countries. Moreover, it is worth pointing out that the greatest gap in tourism demand research appears to be at the level of micro-analysis (Sheldon, 1990). In addition to contributing to tourism demand analysis based on multiple regression models, this thesis also attempts to contribute to filling the gap in research at the micro-level, and to bridging the gap between research at the micro and macro-levels.

The thesis focuses on the demand for tourism in main South European (Mediterranean) tourism destination countries (Greece, Spain, Portugal, Italy and Turkey) by main European tourism origin countries (the UK, West Germany, France, Sweden) as well as the USA. The Mediterranean destinations have traditionally been popular holiday resorts offering a range of touristic characteristics; "sea - sun - and sand", blended with a variety of cultural, historical and natural characteristics. Surprisingly, there are no studies of the demand for tourism in some of the countries and the studies of the others are inadequate in many respects. These countries were chosen owing to their high shares of international tourist flows; Greece, Spain, Portugal, Italy and Turkey together accounted for 20 per cent of total world tourist arrivals and tourism receipts in 1987, for example, (WTO, 1989).

The final part of the thesis contributes to a variety of insights regarding projections of tourism demand in the Mediterranean, which have useful policy implications. It is worth pointing out that this appears to be the first study in the field of tourism demand to consider projections derived from economic models, based on realistic assumptions, rather than on hypothetical simulation values, about the levels of income, inflation and exchange rates in the origin and destination countries. The forecast values of the variables of interest, on which the projections of tourism demand are based, are obtained from examination of the recent developments in the economies of the countries considered.

2. The Structure of the Thesis

The thesis on the demand for Mediterranean tourism consists of 8 chapters and the structure of the research proceeds as follows. Chapter 1, "Tourism and Economic Development", includes two major sections. The first deals with the contribution of tourism to the economy. The specific characteristics of the tourism sector are analysed and the contribution of tourism to the balance of payments, to income and employment generation and to regional development are discussed. Criticisms of tourism development related to instability of tourism receipts, to seasonality, and to environmental destruction, are also included.

The second major section of the first chapter focuses on tourism trends in the Mediterranean, starting with a general overview of the trends in international tourism. Trends in major tourist indicators -tourist arrivals, tourism receipts and tourist nights spent- are subsequently discussed and factors related to the competitiveness of the Mediterranean destinations are analysed. The section proceeds to illustrate the contribution of tourism to the Mediterranean economies, as measured by tourism receipts relative to GDP and relative to exports. Closer attention is then paid to the intra-Mediterranean tourist flow shifts over time and the final part of the chapter briefly discusses tourism demand trends as experienced by the main tourism generating countries.

Chapter 2, "A Survey of the Literature", provides a survey of the literature on tourism demand functions, and covers the period from 1960 to 1989. Whereas the introductory part categorises the various empirical approaches to tourism demand, giving a brief account of the alternative types of empirical applications, greater emphasis is placed on the literature referring to economic approaches to modelling of tourism demand, which are most relevant to the empirical work followed subsequently in the thesis. Two major sections can be distinguished here. The first section deals with the single equation approaches to estimating tourism demand. The studies are categorised according to the alternative definitions adopted for the dependent variable (demand for tourism) as well as according to the variety of independent variables used to explain tourism demand, including the income of the origin country, the relative price level of destination to origin country and/or to competitors, exchange rates and the cost of transport; in addition, marketing expenditure, population (ethnic attraction) and a plethora of dummy variables to stand for special/unexpected events (such as political instability) are also considered.

The other major section of this chapter surveys the literature relating to the most recent applications of systems of equations models of tourism demand. These models are distinguished by the functional form which is selected to represent consumer preferences in demand functions. These models usually follow the lines of either the Almost Ideal Demand System (AIDS) functional form proposed by Deaton and Muellbauer (1980a) or the "traditional" Linear Expenditure System (LES) functional form proposed by Stone (1954a). The chapter concludes with a critical appraisal of the literature, pointing out theoretical inadequacies and empirical limitations of past studies of tourism demand.

Chapters 3 to 7 constitute the core of the research. Chapter 3, "The Single Equation Approach", presents a theoretical framework regarding the determinants of tourism demand based on single equation estimation. This contributes to understanding the role and the effects on tourism demand of possible variables that can affect international tourism receipts, such as changes in income, prices, exchange rates and political instability. The chapter proposes, explains and justifies a disaggregated, origin-to-destination, model of the demand for tourism. Finally, a section on the supply of tourism is included and discusses potential problems in estimating demand functions -identification and/or simultaneity- and explains the circumstances under which identification and simultaneity are not likely to pose problems for the estimation of demand equations, as in the case of the Mediterranean countries considered.

Chapter 4, "The Estimation Results: The Single Equation Model", deals with the empirical application and testing of the theoretical single equation model presented in Chapter 3. The econometric approach is the well established "general to simple" methodology (eg. Hendry, 1983), that allows for estimation of dynamic specifications, taking into account short as well as long-run effects of the variables considered. The estimated dynamic, origin-to-destination, single equation models allow the incorporation of specific features characterising the pair of countries under study. The empirical findings and conclusions, in particular, income, effective exchange rate and substitute price elasticities, as well as elasticities with respect to political instability, are discussed in the main part of the chapter.

Chapter 5, "A Consumer Model of Demand for Tourism", provides the theoretical framework for an alternative model of tourism demand. Prior to the specification of the model, an outline of the relevant consumer behaviour theory, relating the consumer preferences to demand functions, is discussed, in order to provide the theoretical background and justification of the model to follow. The derivation of demand functions, and their properties, in addition to the concept of duality and of the "utility-tree" (based on the notion of separability of preferences and justifying the multi-stage budgeting allocation), are then examined. The choice of the functional form to represent consumer preferences is subsequently discussed and the Almost Ideal Demand System (AIDS) model, proposed by Deaton and Muellbauer (1980a) is derived. The final section of the chapter adapts the AIDS model to the specific framework of tourism demand and justifies the usefulness of applying the model as a tool for analysing tourism demand in the Mediterranean.

Chapter 6, "The Estimation Results: The AIDS Model", presents the empirical findings from the estimation and testing of the AIDS model. A complete system of equations is used to estimate the determinants of the shares of tourist expenditure allocated to Mediterranean destinations by major tourism generating countries. The first part of the chapter explains the method of estimating the system of equations model, using Zellner's (1962) method for Seemingly Unrelated Regression Equations (SURE). The discussion of the estimation results, that follows, constitutes the main body of the chapter. The empirical findings about the impact on the predetermined tourist budget of effective own and cross-price changes (relating to the complementarity-substitutability concept) as well as of changes in tourism expenditure on individual tourism destinations, provide interesting insights into Mediterranean tourism demand. The chapter concludes with a comparison and evaluation of the advantages and constraints of the two econometric approaches applied in the thesis, the single equation and the system of equations approach.

Chapter 7, "Policy Implications for Tourism Demand", first provides a framework about the background of the Mediterranean and the tourist origin economies and focuses on the trends in income, inflation and exchange rates of these countries as well as on the tourism sectors of the Mediterranean destinations. Based on this framework, forecasts of the variables mentioned above are subsequently obtained. The policy implications are based on the values of the estimated elasticities of the variables considered as well as on predictions of tourism demand, using the steady state equilibrium equation of the dynamic single equation models. Policy measures which are examined include issues such as anti-inflationary policies and exchange rate control measures.

Finally, in Chapter 8, "Overall Summary and Conclusions", the thesis concludes with a summary of the main issues put forward and investigated, the findings and the conclusions obtained, the usefulness of the policy implications proposed and suggestions for future research on tourism demand.

CHAPTER 1

TOURISM AND ECONOMIC DEVELOPMENT

Introduction

The increasing share of services in international trade has shed light on the economic importance of tourism, especially during the 1980s, and underlined the fact that tourism has potential for growth beyond the short-term. During recent years international tourism has been paid increasing attention by national governments as well as by international organisations, since it is a high growth sector in both industrialised and developing countries.

1.1 THE CONTRIBUTION OF TOURISM TO THE ECONOMY

1.1.1 The Characteristics of the Tourism Sector

Tourism, at an international level, is a special kind of export industry, "exporting" goods and services which cannot be exported via the conventional channels of the merchandise exports in international trade. The "tourism product" consists of both tourist attractions and amenities. The various components that form the tourism product, such as accommodation, transportation, food and beverages, entertainment, shopping etc., are usually supplied by different producers. Some of the components of the tourism product are intangible while others are not. A major characteristic of the tourism product is that it can neither be stored nor transported. It is this composite product that the tourist purchases and consumes and, consequently, tourism cannot take place without the supply of all the basic components that constitute the "product". The specific nature of tourism requires the tourist to consume the tourism product "on the spot". Production and consumption take place in the same locations. Unlike merchandise trade, tourist goods and services are not transported to their users inside the country but rather the consumers are transported to the services and commodities abroad. Tourism is the only import (export) of significance undertaken directly by private households (Working Group of the European Economic Community, 1983).

The tourism sector is exceptionally heterogeneous and combines large numbers of small businesses, frequently run by families and/or self-employed persons, with large scale enterprises. While this may permit a certain degree of flexibility and adjustment of the sector in the short-run, it may also require a high degree of coordination by effective tourism authorities. However, as tourism is a "multi-product" sector with numerous peripherical activities, it is rather difficult to identify the exact proportions of inputs that satisfy international tourism consumption (Diamond, 1977). Few industries have such widespread linkages as does tourism. Tourism exerts a significant impact on a number of economic sectors, including transport, retailing, wholesaling, manufacturing, agriculture and producer services and secondary rounds of spending of tourism income create induced linkages in the economy.

The empirical attempts to measure these linkages, in terms of income, output or indirect employment generation, have usually been based on the income multiplier, an indicator of income generated by an additional unit of tourism expenditure (eg. Archer, 1976b; Archer, 1977b; Archer, 1982a; Archer, 1989; Sinclair and Sutcliffe, 1982; Sinclair and Sutcliffe, 1988). The income multiplier attempts to measure the size of the total income effects resulting from the primary spending and may be considered as a summation of the income generated at each of the various stages as the money circulates through the economy. The effect of tourism on income and employment creation depends on a number of factors, including the size of the market and the geographical dispersion of the sector.

During recent years the industry has been subject to two major trends: internationalisation and concentration (Williams and Shaw, 1988)[1]. The organisation and the degree of penetration of foreign capital can play a major part in the role of tourism in the economic development of a destination country. Certain controversial issues, however, related to the role of foreign

[1] Internationalisation can take various forms, such as direct ownership, long-term sub-contracting or short-term agreements for the provision of transport, accommodation, tourism attractions and supporting services (eg. car rental); Williams and Shaw, 1988.

investment[2] also apply in the case of tourism. While initially foreign capital can contribute to the development of the tourism sector, possible leakages of tourism revenue abroad may diminish the benefits.

1.1.2 Tourism and the Balance of Payments

The contribution of tourism to the economy, and in particular to the balance of payments by providing foreign exchange earnings, is widely recognised. This contribution becomes particularly important in the context of the recent decline in the traditional manufacturing sectors of many industrialised nations and the debt and balance of payments problems of many developing countries. Tourism can play a crucial role in alleviating balance of payment constraints as well as in generating income, employment and tax revenue and in promoting regional development. Economic policies, consequently, have started considering tourism as a valuable vehicle for economic development and as an effective means of diversifying the economy. The importance of tourism in the economy can be measured as the ratio of tourism receipts to GDP and of tourism expenditure to private final consumption. The economic impact of tourism on the balance of payments is usually illustrated by comparing international tourism receipts with total exports of goods and services and international tourism expenditure with total imports of goods and services. In the balance of payments, the credit side of the "travel" item in the "invisibles" account is taken as receipts from international tourism.

Tourism is argued to be the world's third largest industry, after oil and vehicle production, contributing approximately 12 per cent of world GNP (World Tourism Organisation, 1987). On a world scale, tourism is an increasingly important source of exports receipts and in 1989, for example, 405 million international visitors spent approximately US dol. 210 billion (excluding transport) -about 6 per cent of all world trade on current account (WTO, 1990). Tourism is less subject to import protectionism, compared for instance with merchandise imports, favouring the growth of tourism exports relative to many major commodity exports.

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[2] Foreign investment can take a variety of forms, including direct ownership of facilities by large companies, hotel ownership and ownership of means of transport (especially airlines); Sinclair and Sutcliffe, 1979.

Since tourism flows are positively affected by high income levels, it is not surprising that the industrialised countries occupy the dominant position. Europe, in particular, holds a key position with approximately 75 per cent of world tourism receipts and 60 per cent of tourism expenditure. 140 million people in the European Community took a holiday in 1985, for instance, approximately 56 per cent of the total population (Williams and Shaw, 1988) and one foreign tourist out of three visits the Mediterranean region (OECD, 1988). The developing countries' share of international tourism receipts is estimated to be approximately 26 per cent (Lee, 1987). For certain developing countries, with established tourism sectors, tourism receipts constitute a relatively high share of their export receipts. It should be noted however that, since tourism is a relatively new industry in many developing countries, its high growth rate may be related to its low initial level of development.

1.1.3 Tourism and Employment Generation

Since tourism is a service-orientated sector, it is relatively labour-intensive in its operation but capital-intensive in the infrastructure required and the expansion of its productive capacity. Considerable difficulties arise in estimating the employment creation by tourism and the problems are worsened by the variety and the inadequacy of data-collection methodologies in different countries. Tourism employment tends to be low-waged, seasonal, non-unionised, part-time and by female workers (Williams and Shaw, 1988). Employment in travel agencies, administration and other sub-sectors of the tourism industry may equal or exceed that in hotels and restaurants. However, the actual quality of the jobs in the tourism sector is doubtful, since most of the jobs are semi-skilled or unskilled. It has been argued (Young, 1973) that, since the demand for skills in the tourism sector is low, this implies low productivity as well.

The World Tourism Organisation (1984) estimates for Europe as a whole indicate that tourism and tourism-related jobs account for approximately 15.5 per cent of total employment. This proportion remained fairly constant during the 1970s, indicating a shift to self-catering accommodation as well as attempts by employers to shed labour in order to reduce production costs in an environment of increasing competition (Williams and Shaw, 1988). The Commission of the European Communities (1985) estimated that in 1984 tourism provided 5 million direct jobs in the then ten member states of the EC and between 10 and 15 million direct and indirect jobs.

1.1.4 Tourism and Regional Development

Tourism can be a vital force for advancing regional development, since it can be an alternative development strategy in areas where resources and market constraints severely limit the potential for industrial development. Tourism development, consequently, can play a major role in diminishing regional discrepancies. There is an interrelationship between national and regional tourism development since the attractiveness and effectiveness of the tourism sector at a national level is largely dependent on the regional components. The importance of tourism, with respect to regional development, lies in the fact that by its nature the distribution of tourism is uneven and is, most frequently, concentrated in less urbanised areas and towards the periphery.

1.1.5 Criticisms of Tourism Development

It is not an easy task to assess directly the relationship between the growth of tourism and the economic benefits that it provides. While in the initial stages tourism may contribute to foreign exchange earnings, income and job creation, in further stages adverse consequences may arise, including overcommitment of resources to tourism, diversion of investment from other sectors, congestion, pollution, in-migration of labour and conflict with alternative land uses (Williams and Shaw, 1988). Furthermore, it has been argued that tourism may bring about a demonstration effect on expenditure patterns and lifestyles in general and bears the risk of creating an "enclave" industry whose services are supplied to few (eg. Turner and Ash, 1975). Nevertheless, practice indicates that during recent years tourism has been a mass-consumption good.

1.1.5.1 Instability of Tourism Receipts

Tourism has been criticised as a strategy for economic development because it is associated with dependency upon external sources of growth (de Kadt, 1979). The demand for tourism and the choice of tourist destinations may be susceptible to large fluctuations, either because of international recession (as in the mid-1970s) or because of the competitiveness between individual countries. Fluctuations in the level of tourism expenditure can cause considerable adverse effects on the tourism receiving economy, reducing foreign exchange earnings, diminishing tax revenue and inducing unemployment. However, as Sinclair and Tsegaye (1990) argue, instability of tourism receipts is not particularly important per se, since instability can either amplify or offset instability of traditional merchandise export receipts; it is the net effect on total export earnings that is of importance. A comparison between a country's balance on tourism with its balance on goods and services excluding tourism indicates whether tourism has contributed to stabilise or destabilise its international payments position (Working Group of the European Economic Community, 1983).

Since the importance of tourism is often relatively greater in small open economies, such as Greece and Portugal, it can be a source of vulnerability to these countries, especially if they are dependent on few tourist generating markets. Past studies of tourism demand have indicated that tourists originating from different countries can exhibit diversified patterns of demand over time. Among the causes of the variation in the demand patterns, differences between the elasticities of tourism demand with respect to changes in variables such as income, prices, exchange rates, transport costs, marketing expenditure, political instability or other special events, can be considered. Plausibly, however, the undesirable economic effects are likely to be particularly pronounced if the fluctuations in tourism expenditure are heavily dependent upon tourism demand originating from nationalities that play a dominant role in the tourist flows to that destination country. The argument is reinforced if tourists from the main origin countries are associated with both a high level of expenditure per bed-night and high, non-offsetting, variations in demand (Board, Sinclair and Sutcliffe, 1987).

1.1.5.2 Seasonality

Apart from the irregular fluctuations of tourism revenue due to world economic conditions, seasonal fluctuations are often another major source of instability. Seasonality may arise both from the period of holidays (summer, Christmas and Easter) and from the seasonal nature of major factors of tourist attraction (summer sun and winter snow) and is related to social, institutional and educational reasons. The Mediterranean destinations, in particular, display the typical pattern of peak summer tourism. Seasonality results in the underutilisation of the installed capacity of the sector since, frequently, approximately half of it is used in the slack season (Erbes, 1973).

A high degree of seasonality is detrimental to stable tourism receipts and employment and to an efficient tourism industry and leads to an overloading of tourist infrastructure during periods of peak demand and the corresponding underutilisation for the remainder of the year. Seasonality continues to be a problem for most tourist destination countries and little progress has been attained on this front. It appears, however, that beneficial changes may come from improved marketing strategies rather than simply governmental regulations. Measures such as discount-off season offers, special forms of tourism, such as winter, spas and conference-incentives tourism, and promotion directed towards specific segments of the market, such as for senior and/or retired citizens, appear to be appropriate for diminishing the problem of seasonality.

Nevertheless, although some destinations, such as Spain and Greece, have adopted policies towards the right direction, they have not met yet the anticipated success and three months -June to August- continue to account for about half of the tourist arrivals. The seasonal concentration of school holidays, the traditional inclination to relax during the summer, the importance of package tours, the stable climatic conditions, still are reasons justifying the high seasonality of the tourism industry. Recent experience, however, indicates that trends are shifting towards more frequent and shorter holidays abroad during the year and there is increasing preference for self-catering type of accommodation, individual travel arrangements and increase in surface travelling (Heape, 1983). As Lickorish (1987) notes, the international tourist market is not so much constrained by time or money as by lack of enterprises and products to buy during the off-season.

1.1.5.3 Environmental Issues

The high concentration of tourism development, usually along the coastline, has generated problems, such as environmental pollution, destruction of traditional landscapes and traffic congestion in many tourist destination countries. These problems may be alarming to such an extent that, in many cases, they threaten the viability of the tourism sector itself. Plog (1973) argues that "destination areas carry with them the potential seeds of their own destruction, as they allow themselves to become more commercialised and lose the qualities which originally attracted tourists" (Butler, 1980; p. 6).

There are critical numbers of tourists that a destination can absorb and the numbers should not exceed the "tourist carrying capacity" of a resort. Butler (1980) proposed the concept of "life-cycle" that tourist destinations seem to follow. As tourist attractions are not infinite and timeless, they should be treated as finite and possibly non-renewable resources and, consequently, be more carefully protected and preserved. Only in case where the development of a tourist area is kept within strictly predetermined capacity limits can its potential competitiveness be maintained over a longer period (Butler, 1980). Given that many mass-tourist resorts are little differentiated in terms of facilities supplied, problems of the nature mentioned above may lead tourist flows to switch to alternative destinations.

1.1.6 Who Is a Tourist

A tourist is a temporary visitor, staying at least 24 hours in the country visited and the purpose of the journey is one of the following:

a) leisure: recreation, holiday, health, study, religion, sports;

b) business, family, mission, meeting[3].

Excursionism involves visits of less than 24 hours.

The main characteristics of tourists are that they generally originate from countries with high rates of economic growth and a comparatively high standard of living, where the majority of the population is urbanised, where large scale industry and trade are extensive in the economy and where the services, communications and information networks are advanced. Various types of tourist can be distinguished (eg. Cohen, 1974; Krippendorf, 1986), but in terms of their contribution to economic development the critical issues are per-capita spending propensity and

[3] This is the definition adopted by United Nations and the Organisation for Economic Cooperation and Development.

the forms of tourism they prefer. Differences in income, duration of stay, type of accommodation, range of activities and mode of transport are also important aspects. It is to such issues that the policy dilemma of whether to pursue strategies to promote mass-tourism or quality tourism is related.

In the section that follows a close analysis of the tourism trends in the Mediterranean is undertaken. This will illustrate the development of the tourism sector in the region which attracts the most dense tourist flows internationally and will provide the context for the demand analysis which will be carried out in later chapters.

1.2 TOURISM TRENDS IN THE MEDITERRANEAN

1.2.1 Overview

International tourism in Mediterranean countries has experienced high growth rates over the past decades. It appears, moreover, that further expansion of the sector is likely, indicating that tourism will be one of the largest industries in the area by the end of the century. The economic growth of most Western economies and the associated high disposable income of the consumer, in combination with developments in transport, communications, information networks and changing social patterns of work and leisure, have been important determinants of past tourism trends. Nevertheless, tourism appears to be entering a new phase of development, experiencing structural changes that may lead the sector into new forms of expansion. Tourism, like any other economic activity, does not remain unaffected by the trends that consumer behaviour as well as technological developments follow. New standards of tourism consumption are already in shape (for example, a shift from hotel to self-catering accommodation) and will influence the character of tourism in the future.

Over the past decades, the dominant model of tourism development has been that of "mass" tourism and of "package" holidays: the "mass" tourist has to choose from a variety of pre-organised "packages", which offer standardised (usually transportation and/or accommodation) services, in various destinations[4]. It is estimated that approximately 13 per cent of all holidays to

[4] The oligopolistic power, that big tour-operators (based usually in the tourist generating countries) have gained over the years, has played a crucial role in this.

the Mediterranean involve inclusive tour package holidays and most of these include travel by plane to a Mediterranean destination (Commission of the European Communities, 1987). The emergence of package holidays, in relation to the high growth of demand in the past, has allowed economies of scale to be realised in the cost of travel and of accommodation. The downward pressure on costs has been further reinforced by increased competition (Williams and Shaw, 1988). The "mass" form of tourism however, slowly but steadily, seems to be decreasing. The tourist, with changing preferences, is more selective, no longer seeking only "sun-sea-sand" but also specialised, high quality services, beyond the basic ones. Furthermore, the real cost of international air transport -tourists' preferred means of transport- has been declining steadily during past years, following technological developments in aircraft production (bigger and faster airplanes). Nevertheless, the adverse implications on transport costs of special events, such as oil crises and/or the breaking out of war in areas which play a crucial role in the World economy (such as the Middle East) should be taken into consideration. The technological developments in association with air transport deregulation, will lead to higher competition, possible improvement of the quality of the services supplied, wider service differentiation and opportunities for consumer choice, as well as increases in the density of the traffic flows between origins and destinations.

These structural changes in tourist-consumer behaviour and technology are expected to have a profound impact on the demand for tourism and to affect directly the adjustment process of tourism supply. Scepticism, nevertheless, arises from the fact that "the future is perhaps not quite so promising ... due to some uncertainty as regards the quality rather than the scale of this [tourism] growth over the medium term" (OECD, 1988, p. 8). In the section that follows, an analysis of the trends that main tourism indicators have followed internationally over the past years is undertaken, in order to examine the recent developments of international tourism and to assess its future direction. The interest of this thesis is in the tourist flows to the destinations located in Southern Europe.

1.2.2 Trends in Main Tourism Indicators[5]

Introduction

The high growth rates that tourism has experienced over the past decades have not been constant throughout the post-war period. There have been long-term growth trends, cyclical movements and short-term variations. During the 1980-1987 period, international tourism has been characterised by the following broad trends (Tables 1.1 and 1.2).

Table 1.1: International Tourism Receipts, 1981-1986 (US dol. mn)

YEAR	1981	1982	1983	1984	1985	1986
EUROPE	57420	55577	55824	58054	62779	66500
% of WORLD TOTAL	54.9	56.4	56.8	56.7	57.3	57.8
% CHANGE	-7.2	-2.9	0.4	4.0	8.1	5.9
WORLD TOTAL	104296	98598	98338	102482	109556	115000
% CHANGE	1.9	-5.5	-0.3	4.2	6.9	5.0

Source: WTO

Table 1.2: International Tourist Arrivals, 1981-1986 (thous.)

YEAR	1981	1982	1983	1984	1985	1986
EUROPE	195289	194490	199433	214405	224488	227500
% of WORLD TOTAL	67.6	67.8	67.8	68.0	67.4	66.9
% CHANGE	-0.4	-0.4	2.5	7.5	4.7	1.3
WORLD TOTAL	288848	286958	293944	315359	332991	340000
% CHANGE	1.4	-0.7	2.4	7.3	5.6	2.1

Source: WTO

During the early 1980s, the growth of arrivals and receipts followed a rising trend, 1985 being a record year for Europe. The progress was disrupted in 1986, however, by a number of economic and unforeseeable external factors (terrorism, major ecological disaster, steep fall in the value of the dollar). Nevertheless, 1987 was the best year of the whole 1980-1987 period and tourism represented a quarter of the value of services exported by OECD Member countries and contributed to generating jobs in numerous other sectors. A change in the pattern of the choice of destinations has also taken place, mainly in favour of North America, the Pacific region and the countries of Southern Europe, where tourist flows shifted eastwards.

[5] The figures included in this section are the most recently available at the time of writing.

The share in the expansion of tourism has not been equal for all major tourist destinations. The share of America, after a decline since the 1950s, has shown some positive trends, while the share of Australia and Asia has also increased sharply. This partly reflects the emergence of Japan as an important tourist origin. Europe, however, continues to dominate international tourist flows and the Mediterranean has always been "the biggest swimming-pool" in the world (Drouin, 1976). This is reasonable considering the percentage of population in Europe sharing relatively high standards of living and being in close proximity to the Southern European tourist destinations. It has been estimated that 140 million persons in the EC took a holiday in 1985, approximately 56 per cent of the total population (Commission of the European Communities, 1987; p. 16). It is not surprising that most Northern European countries recorded tourism participation rates in excess of 57 per cent (Commission of the European Communities, 1987, p. 7). The sharp increase in the Northern European share, since 1971 in particular, has also resulted from the growth of mass tourism and the low-cost charter flights to the Mediterranean but the decline of the share during recent years is partly associated with the attraction of more "exotic" long-haul destinations.

1.2.2.1 Tourist Arrivals

During 1960-80 almost all the major countries of Europe experienced high growth rates in foreign tourist arrivals. However, it was the Mediterranean countries, and especially Spain, Italy and Greece, that experienced large absolute and percentage increases. The five major Mediterranean destinations of Southern Europe, namely Spain, Portugal, Italy, Greece and Turkey (in addition to Yugoslavia)[6] in 1985, for example, attracted 22.4 per cent of world tourist flows (74.5 mn tourists out of 333 mn world total); Table 1.3.

[6] Tourist flows to Yugoslavia have been revitalised during recent years crediting this destination among the popular ones of the region. Data shortages and inaccuracies, however, have prevented a rigorous discussion of this destination and therefore Yugoslavia has been excluded from the analysis that follows.

Table 1.3: World and Mediterranean Tourism, 1980-1985

YEAR	1980	1981	1982	1983	1984	1985
TOURIST ARRIVALS (mn)	.	.	.	.	.	.
WORLD	285	289	287	294	315	333
MEDITERRANEAN	95	97	101	102	108	115
SHARE OF WORLD ARRIVALS (%)						
MEDITERRANEAN	33.3	33.6	35.3	34.6	34.2	34.5
SHARE OF GROWTH (%)						
WORLD	-	1.4	-0.7	2.4	7.3	5.6
MEDITERRANEAN	-	2.5	4.4	0.3	6.0	6.6

Source: WTO

These Mediterranean destinations benefited tremendously from the increase in inclusive, low-cost package holidays. Within the OECD, in 1985, they accounted for 25.2 per cent of all tourist arrivals and 38 per cent of the total number of nights spent in all types of accommodation; their share of total OECD tourism receipts, in 1985, was 29.5 per cent (ie. US dol. 22 bn out of US dol. 75 bn total OECD receipts at current prices). This difference in the share of tourism receipts and nights spent is partly due to data inaccuracies and defects and partly due to a variety of quality levels of the accommodation supplied. On the other hand, it also reflects the oligopolistic power of international tour operators, which gain economies of scale in servicing many markets, are familiar with the tastes in the large tourist generating countries and are connected with airlines located in the tourist origin countries. A highly concentrated international tour operator sector puts tourism receiving countries in a disadvantageous bargaining position, preventing them from maximising revenue from tourism. As a result, there is a high leakage of tourism generated income from these destinations to the origin countries (Yannopoulos, 1988)[7].

For the 1980-1985 period, the growth rate of international tourist arrivals in the whole of the Mediterranean region surpassed the corresponding growth rate of world tourism by 25 per cent annually (4.2 per cent on average, compared with 3.4 per cent internationally). One tourist out of three visited the Mediterranean destinations. It has been estimated (UN Mediterranean Action

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[7] Yannopoulos (1988) provides the striking example of the Greek balance of international fare payments and receipts, in order to illustrate the high leakages. Despite the growth in foreign tourism, the Greek balance of international fare payments and receipts remained persistently negative, rising from a deficit of US dol. 25.8 million in 1975 to a deficit of US dol. 86 million in 1985. All other countries in the Mediterranean region maintain a surplus in their balance of international fare payments and receipts by road, sea, rail and air transport (OECD, 1986).

Plan, Valbonne, France, 1987; Yannopoulos, 1987, p. 15) that the international tourist arrivals in the Mediterranean area will double from 115 mn in 1985 (34.5 per cent of the world total) to 220 mn by the end of the century, provided economic growth in Europe continues at similar rates to the past rates (Table 1.4).

Table 1.4: Origin Countries of the Tourism Receipts in the Mediterranean (%)

REGION	EUROPE	NORTH AMERICA	EUROPE	NORTH AMERICA
YEAR	1975		1985	
GREECE	51.7	44.3	61.7	35.1
SPAIN	-	-	60.9	6.0
PORTUGAL	72.8	22.8	64.2	33.9
ITALY	52.2	23.5	67.8	31.2
TURKEY	-	-	-	-

Source: OECD

The sharpest rises in tourist arrivals (1980-1987) have been experienced by Portugal (22%), Spain (17%), Greece (15%) and Yugoslavia (12%). More recently, of the overall OECD increase in the number of arrivals by 7 per cent between 1986 and 1987, the highest increase has been experienced in Southern Europe and in particular in Greece (15%), Spain (17%), Portugal (22%) and Yugoslavia (12%). However, the extremely high growth rates of tourism between 1955 and 1972 were interrupted by the 1973 and 1979 oil crises. The impact of the slowdown in tourism growth can be detected from the trends in the 1978-1985 and 1981-1985 periods (Tables 1.5a and 1.5b).

Table 1.5a: International Tourism Receipts in the Mediterranean

TOURISM RECEIPTS	TOURISM RECEIPTS (% in current US dol.)			TOURISM RECEIPTS (% in real prices)		
YEAR	1978-1985	1981-1985	1987/1986	1975-1985	1981-1985	1987/1986
GREECE	10.5	-2.7	24.8	10.4	2.7	4.1
SPAIN	9.6	2.9	23.7	4.5	9.2	3.6
PORTUGAL	15.6	0.1	35.7	4.0	3.6	17.8
ITALY	18.2	1.5	23.4	11.1	4.1	2.4
TURKEY	17.6	27.0	41.6	13.8	32.8	28.2
SOUTHERN EUROPE	3.9	3.6	-	8.3	7.6	-
OECD EUROPE	10	-0.3	25.3	5.3	5.2	5.2

Source: OECD

Table 1.5b: International Tourist Arrivals and Nights Spent in the Mediterranean

TOUR. ARRIVALS, NIGHTS	TOURIST ARRIVALS (%)			TOURIST NIGHTS (%, all accommodation)		
YEAR	1978-1985	1981-1985	1987/1986	1981-1985	1986/1985	1987/1986
GREECE	13.0	6.7	6.7	4.1	-0.7	1.9
SPAIN	3.4	2.6	6.7	7.7	11.1	5.4
PORTUGAL	14.3	13.1	12.5	5.6	11.7	2.6
ITALY	5.2	2.6	-1.1	-0.9	2.8	7.3
TURKEY	9.2	15.7	19.4	34.7	21.6	40.3
SOUTHERN EUROPE	4.9	3.5	-	-	-	-
OECD EUROPE	-	2	4.0	-	-	-

Source: OECD

In terms of tourist arrivals, only Turkey (and Yugoslavia) experienced an acceleration in its rate of growth during the 1980s, due to price advantages and a flexible exchange rate policy. Greece and Italy, followed by Spain, experienced the largest decline in their rate of growth. Portugal managed to maintain its rate of growth at the average of 1975-85.

1.2.2.2 Tourism Receipts

After experiencing a rising share of international tourism receipts for a period of approximately fifteen years, the tourist destinations of Southern Europe experienced a constant or occasionally falling share during the past ten years (Tables 1.6 and 1.7).

Table 1.6a: Tourism Expenditure, Major Origin Countries (US dol. thous., current prices)

YEAR	1984	1985	1985/1984	1986	1987	1987/1986
UN. KINGDOM	6204.6	6256.9	0.8	8901.3	11869.7	33.3
W. GERMANY	14087.7	14601.4	3.6	18133.4	23567.6	30.0
USA	16008.0	17043	6.5	17627.0	20496.0	16.3
FRANCE	4270.8	4551.3	6.6	6511.9	8611.8	32.2
SWEDEN	1713.0	19467	13.6	2794.8	3772.0	35.0

Source: OECD

Table 1.6b: Tourism Receipts, Major Destination Countries (US dol. thous., current prices)

YEAR	1984	1985	1985/1984	1986	1987	1987/1986
GREECE	1309.4	1425.8	8.9	1835.1	2290.8	24.8
SPAIN	7759.9	8083.7	4.2	11945.2	14780.4	23.7
PORTUGAL	959.7	1128.5	17.6	1582.5	2147.8	35.7
ITALY	8594.9	8757.7	1.9	9852.8	12160.6	23.4
TURKEY	840.0	1482.0	76.4	1215.1	1721.1	41.6

Source: OECD

Table 1.7: **Shares of Major Mediterranean Destinations in Real Tourism Receipts of the OECD Area (%)**

YEAR	1972	1978-1980	1984-1985
GREECE	1.9	2.5	2
SPAIN	12.9	7.8	10.6
PORTUGAL	1.9	1.5	1.4
ITALY	10.8	14.5	12.0
TURKEY	0.5	0.5	1.6
TOTAL	28.0	26.8	27.6

Source: OECD

Comparing tourism receipts in US dol. at current exchange rates, Turkey is the only destination that raised the rate of growth of tourism receipts above the decade average. However, taking into account the effects of inflation in each destination, the rate of growth of tourism receipts in real terms during the 1980s appears to have accelerated not only in Turkey but also in Spain.

The year 1987, in particular, was a vintage year for international tourism, during the 1980-87 period. Tourism accounted for a quarter of the value of services exported by the OECD member countries and tourist flows in the OECD area showed a strengthening of international demand by all member countries. Total OECD receipts from international tourism increased by 24 per cent to US dol. 114.2 bn (excluding revenue from passenger transport) representing a 6 per cent advance in real terms. Turkey (+28%) and Portugal (+18%) experienced the sharpest rises in real tourism receipts. It should be noted that the increase in the real level of tourism receipts (and expenditures) should be partly attributed to the depreciation of the US dollar, which in 1987 fell by between 5 per cent and 17 per cent against the currencies of European countries. The decline of the dollar had the effect of directing the flows of tourists and their associated expenditure towards those destinations whose currencies had fallen in line with the dollar. In addition, the rising level of real receipts was due, among other reasons, to efforts undertaken by the governments and to better targeted marketing policies and promotional campaigns, often organised jointly by the public and private sectors.

1.2.2.3 Cost Factors and Competitiveness

The trends in tourism receipts are related to the trends in disposable incomes in the tourist generating countries, as well as to increasing competition from alternative tourist destinations.

This latter issue has led to changes in the relative competitive position of the Mediterranean region, and is associated with cost factors in addition to changing patterns in consumer preferences and tastes. Competitors to the five main Mediterranean destinations can be either other tourist destinations in the Mediterranean region, such as Southern France[8], Morocco, Tunisia,[9] or destinations in the rest of the world, such as Africa, the Pacific, Mexico, the Caribbean etc. In fact, recent sharp increases of real receipts in the Pacific region (OECD, 1987), for example, indicated changing tourist preferences in favour of that region.

The comparative advantage that some countries have in terms of their climate and access to coastline, on the one hand, and cost structures, government policies and marketing strategies, on the other hand, enable these countries to capitalise on their tourist resources. These tourist resources are very heterogeneous and it appears that different types of tourism are becoming popular over time. In the 1980s the types of tourism mostly preferred include sunshine-beach holidays, skiing tourism, urban-cultural tourism, business-conference tourism and, more recently, rural tourism. The Mediterranean destinations have traditionally been servicing tourism mainly for "sunlust" purposes -the "sun-sea-sand" type of holidays- which has the characteristics of a homogeneous good (unlike "wanderlust" tourism -visiting destinations with different attributes- which has the characteristics of a differentiated product).

The expansion of international tourism along the coastline of Southern Europe has been advanced by the holiday packages, based on low-cost charter airfares to the Mediterranean destinations, that have dominated the model of mass tourism. The basic attraction is "sun-sea-sand", in a "standardised international format" (Williams and Shaw, 1988, p. 18), and, more recently, recreational facilities such as golf courses and tennis courts have also been included to

[8] Despite the fact that a significant share of tourist flows to the Mediterranean are directed to France, the country has not been included in the major Mediterranean destinations considered in this study. This is partly due to the fact that a large share of its foreign tourist flows is directed to its Northern regions. Furthermore, the conclusions about the Mediterranean tourism are expected to be more robust, if France, being a high income country, and contributing highly to the demand for international tourism, is included in the major tourist generating countries. Limited bias, though, may still remain (Glejser and Dramais, 1969).

[9] The South Mediterranean destinations (eg. Morocco, Tunisia, Egypt, Israel etc.) are unlikely to threaten seriously the dominance of the tourist flows by the South European destinations. Their share in total tourist flows to the whole of the Mediterranean declined from 9.3 per cent in 1980 to 8.9 per cent in 1985.

meet changing demand patterns. While Spain represents the longest established example of Mediterranean mass-tourism, this model of tourism development also applies to Greece and Portugal and to parts of Italy and France as well. As a result, the question of differentiation between these tourist resorts is raised. Due to a lack of a high degree of touristic differentiation, Holloway (1983) characterised these countries as "identikit destinations" (Williams and Shaw, 1988, p. 18). It should be noted, however, that there are considerable differences between the packages supplied (Sinclair, Clewer and Pack, 1990) and that not all tourism to the Mediterranean is mass package tourism, since large numbers of tourists make their own travel and accommodation arrangements. The share of tourist flows for sunlust purposes is affected by differences in relative costs of production among different tourist destinations and, as a result, even small tourism price changes may generate considerable fluctuations in tourism demand (price elastic demand).

The changes in consumer demand for Mediterranean tourism are partly related to changes in relative costs, such as the cost of hotels, transport, restaurants etc. However, trends in tourism prices for 1980-1985 (Table 1.8) may not show clearly their relative impact on tourism receipts.

Table 1.8: Trends in Tourism Prices, 1980-1985 (average annual rate of change)

PRICE INDEX	HOTEL PRICES	TRAVEL PRICES	PETROL PRICES (premium prices)	CONSUMER PRICES
GREECE	21.8	-	18.4	20.2
SPAIN	17.4	14.6	14.4	12.7
PORTUGAL	25.3	-	30.1	22.7
ITALY	19.4	17.1	17.8	15.4
TURKEY	61.5	-	-	52.4

Source: OECD

The ranking of the destinations according to their growth rates of tourism receipts in real terms and their rates of change in both hotel and general consumer prices, excluding Turkey, indicated a Spearman's rank correlation coefficient of 0.900, significant at the 0.05 level (Yannopoulos, 1988). Thus, trends in tourist prices do appear to explain how these destinations rank in terms of growth rates of tourism receipts in real prices. However, the ranking of the five destinations, including Turkey, according to their growth rates of tourism receipts in US dol. resulted in a non-significant Spearman's rank correlation coefficient. The difference in these rankings may be related to the fact that inflation rate differentials were not properly reflected in actual exchange rates during the period (Yannopoulos, 1988). The trends experienced by Turkey, however, may underline a shift in tourist preferences and a well targeted marketing programme in addition to favourable price and/or exchange rate changes.

The analysis above indicates that limited substitutability may be expected to take place both between tourism in Southern European countries and between tourism in the Mediterranean and domestic tourism in the origin countries. Admittedly, the touristic characteristics as well as the tourism facilities offered domestically in the origin countries are highly diversified and are to a large extent non-competitive with those of the Mediterranean. However, a certain degree of substitutability between domestic and Mediterranean tourism may take place, the larger the difference in relative tourist costs. The reasoning behind that is that higher tourist costs in the Mediterranean countries, for example, would result in certain groups of potential tourists foregoing tourism abroad altogether, or decreasing the expenditure on Mediterranean tourism, increasing their spending on domestic tourism instead. Inadequate data, however, on domestic tourism prevent clear conclusions about the substitutability between domestic and foreign tourism from being drawn.

Of particular importance is the fact that the European Community (EC) constitutes a single market for tourism. Despite the fact that EC policy initiatives in this field have been limited, the existence of the Community is expected to affect considerably the tourism sector. At the level of demand, international tourist movements will be facilitated and at the level of industrial organisation the movement of international capital and labour will be further eased. The interdependence of the European countries, furthermore, also means that policies applied in one country will affect competing tourist sectors in other countries, whether they are pursued to promote new forms of tourism, or to influence the choice of the holiday destination (Williams and Shaw, 1988).

European economic integration, however, may affect adversely the competitiveness of the Mediterranean destinations within the EC, to the benefit of Mediterranean destinations outside the

EC (Yannopoulos, 1988). This is related to the process of factor earnings convergence that is gradually expected to take place with full economic integration. More specifically, the convergence of the lower Mediterranean wages towards the higher Northern European levels, as a result of free trade (Tovias, 1982), would ultimately increase relative tourist costs, since tourism is a particularly labour-intensive sector, and would further worsen competitiveness relative to alternative destinations outside the EC. It is important to note, however, that, since tourism other than "mass" tourism depends more on product differentiation, it becomes important for the South European destinations to gain a comparative advantage in alternative types of tourism, set against an environment of increasing international tourism competition.

1.2.2.4 Tourist Nights Spent

During 1981-1985, the growth rates of nights spent in all means of accommodation were below the corresponding rates of growth of tourist arrivals for Greece, Italy and Portugal, whereas for Spain and Turkey the rate of growth of nights spent has been increasing at a faster rate than the growth rate of tourist arrivals, indicating the ability of the latter destinations to increase the length of stay (Table 1.5b). Two interesting points should be noted. On the one hand, tourism demand in Turkey, as measured by the number of nights spent (all accommodation), grew by a relatively high rate for the third consecutive year, showing a sharp increase (40%). Turkey experienced a particularly high growth rate in nights spent (all types of accommodation), on average for the 1981-1985 period, far higher than any other Mediterranean destination. This performance was partly due to the liberalisation of capital movements which has encouraged foreign investment in the tourism sector and partly also to the low initial level of Turkish tourism development. On the other hand, Italy experienced a negative growth rate for the 1981-1985 period. This may be related to the growing importance of the industrial sector and the diminishing relative impact of tourism in the Italian economy. Another reason may be some constraints for tourism expansion and development, due to the fact that Italy has experienced very high tourist densities over the last thirty years (Anastasopoulos, 1989).

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tourism makes greater contribution to GDP in the countries of mass tourism, and in particular in the Mediterranean destinations.

The contribution of receipts from international tourism to both the GDP and export earnings of the South European destinations has been substantial during recent years (Tables 1.10a and 1.10b).

Table 1.10a: Tourism Receipts in the Mediterranean, % of GDP

YEAR	1970	1975	1980-1984 (average)	1985	1986
GREECE	2.0	3.0	4.1	4.3	4.6
SPAIN	4.6	3.4	4.0	4.9	5.2
PORTUGAL	3.9	2.0	4.4	5.5	5.4
ITALY	2.0	1.9	2.3	2.0	1.6
TURKEY	0.4	0.6	0.8	2.1	1.6
EUROPEAN OECD	1.5	1.5	1.8	-	-

Source: OECD

Table 1.10b: Tourism Receipts in the Mediterranean, % of Total Exports

YEAR	1965	1975	1980-1984 (average)	1985	1986
GREECE	15.8	16.2	19.0	20.1	23.2
SPAIN	45.6	25.0	20.6	21.1	25.9
PORTUGAL	17.8	12.1	14.9	14.2	15.6
ITALY	12.2	7.2	8.5	8.1	7.7
TURKEY	2.1	5.5	6.0	9.6	8.8
EUROPEAN OECD	6.5	5.3	5.2	-	-

Source: OECD

Between 1970 and 1986 the contribution of tourism to GDP almost doubled in Greece and Turkey whereas the sector increased its share of GDP by 20 per cent in Italy and by 13 per cent in Portugal. In Spain, however, the contribution of the sector to GDP declined but still stands at more than twice the European average. The contribution of Spanish tourism receipts to GDP for 1980-1986, in particular, has been far greater than in any other European country, with the exception of Turkey. Spain experienced a rise in tourism receipts as a percentage of GDP from 3.4 per cent in 1975 to 5.2 per cent in 1986; Portugal from 2.0 per cent in 1975 to 5.4 per cent in 1986. The Greek figure -after a decline in 1983 to 3.4 per cent- rose to 4.6 per cent in 1986, while the figure for Italy reached a peak in 1983 of 2.5 per cent but declined steadily to only 1.6 per cent in

1986, partly reflecting the growing importance of the industrial sector in the economy. The figure for Turkey fluctuated from 1.9 per cent in 1975 to 1.6 per cent in 1986.

In the 1970s, international tourism income grew considerably faster than earnings from international trade in merchandise (Archer, 1987a) and, in the 1980s, tourism, as a major source of income, accounted for roughly a quarter of total trade in services internationally (Williams and Shaw, 1988). Not surprisingly, in many countries tourism development has aimed to increase foreign exchange earnings and to improve the "invisibles" component of the balance of payments. With reference to Europe in particular, Williams and Shaw (1988) argue that there is a clear North-South pattern as regards the balance of the tourism expenditure-tourism receipts account. Tourism expenditure by tourists originating from most Northern European countries accounted for between 3 and 10 per cent of all imports of goods and services compared with 3.5 per cent or less in the Mediterranean countries. However, the pattern is reversed when considering tourism receipts relative to exports of goods and services. As regards the Southern European countries, over 13 per cent of all exports of goods and services is associated with tourism in the Mediterranean (Italy being an exception owing to its high share in manufacturing exports) compared with less than 4 per cent in most Northern European countries. It is widely recognised that foreign exchange earnings from tourism have contributed significantly to the industrialisation of Southern Europe since 1960s, largely covering import costs of raw materials and technology for the manufacturing sector. It can be argued, consequently, that tourism can contribute to a net redistribution of wealth from the North to the South of Europe and from the most prosperous to the less developed regions.

For the OECD member countries in total, after a number of years in which tourism receipts as a percentage of receipts from exports of goods and services in OECD member countries remained around 4 per cent, there was an appreciable rise to 4.4 per cent in 1986, the highest figure since 1978. The countries recording the highest increases were those which were least subject to non-economic distortions during that year, in particular Spain, Greece and Portugal. The importance of the tourism sector over the past fifteen years has been growing steadily for Greece and Turkey (Tables 1.10a and 1.10b). Italy and Spain (and Portugal to some extent) have managed to diversify their economies and the relative importance of tourism -while substantial- has somewhat declined. Between 1980 and 1985 international tourism receipts as a share of exports of goods and services in the five major Mediterranean destinations was above the European average and contributed substantially to alleviating their traditional balance of payments constraints. In Spain and Greece, for example, one-fifth of foreign exchange earnings from exports of goods and services and one-seventh in Portugal was attributed to tourism. It should be noted, however, that the balance in the tourism account should be viewed with particular caution, since the estimated tourism account surplus may actually be reduced due to foreign leakage effects. These effects are particularly significant, the less developed the economy is (eg. White and Walker, 1982).

1.2.2.6 Intra-Mediterranean Tourist Flow Shifts

Tourism growth in Southern Europe has not exhibited a uniform distribution over the Mediterranean sub-regions. This has induced changes in the relative importance of the different tourist destinations in the region[10]. Moreover, within the Mediterranean itself, intra-regional shifts have been taking place. More specifically, there is a gradual shift of tourist flows from the North-Western to the North-Eastern Mediterranean. This latter sub-region (ie. Greece, Turkey, Yugoslavia, Cyprus, Malta) has tripled its share from 5.4 per cent in 1960 to 16.2 per cent in 1985. This shift can be distinguished in two phases: the first major shift covers the 1960-1970 period. Then, the North-East Mediterranean sub-region doubled its share, mainly at the expense of both the North-West and the South-Western sub-regions. During 1970-1980, however, the share of the North-East increased slightly, fluctuating at the same time. The second phase covers the 1980s, when tourist arrivals to the North-East increased by 41 per cent compared with a total Mediterranean average of 21 per cent, and this was the only sub-region growing at a rate above the

[10] According to their geographical and touristic characteristics, four main Mediterranean sub-regions can be considered: the North-West (ie. Spain, Portugal, Italy, France); the North-East (ie. Greece, Turkey, Yugoslavia, Cyprus, Malta); the South-West (ie. Tunisia, Morocco, Algeria); and, the South-Eastern sub-region (ie. Egypt, Israel, Lebanon, Libya); Yannopoulos, 1988.

total average (Table 1.11).

Table 1.11: Tourist Arrivals in the Mediterranean Sub-Regions, 1960-1985

YEAR	1960	1970	1975	1980	1985	1980-1985 (% growth)
NORTH-WEST (mn)	18.0	49.0	55.6	75.6	89.3	18.1
MARKET SHARE (%)	88.6	81.5	77.0	79.7	77.7	-
SOUTH-WEST (mn)	0.8	1.4	2.4	3.7	4.2	13.1
MARKET SHARE (%)	3.9	2.3	3.3	3.9	3.7	-
NORTH-EAST (mn)	1.1	7.0	10.5	13.2	18.6	40.9
MARKET SHARE (%)	5.4	11.6	14.5	13.9	16.2	-
SOUTH-EAST (mn)	0.4	2.8	3.8	2.4	2.8	16.7
MARKET SHARE (%)	1.9	4.6	5.2	2.5	2.4	-
TOTAL (mn)	20.3	60.1	72.2	94.8	114.9	21.2

Source: WTO

This increase in the market shares was not uniformly gained by all destinations forming this sub-region (Table 1.12).

Table 1.12: Market Shares in the North-East Mediterranean (%)

YEAR	1980	1985
CYPRUS	2.6	4.4
GREECE	36.3	35.3
MALTA	5.5	2.9
TURKEY	7.0	12.0
YUGOSLAVIA	48.6	45.4

Source: WTO

The shift of the second phase (1980 onwards) was at the expense of the North-West and South-East and mainly from Spain and Italy; they lost 2.5 per cent of the market whereas France maintained its overall share at 31 per cent (the share of the South-West re-attained its 1960 level). Between 1980 and 1985, Turkey and Cyprus nearly doubled their share whereas, for the whole 1960-1985 period, Greece, Turkey, Yugoslavia, Cyprus and Malta as a region increased their share of arrivals threefold. These trends are further reinforced when nights spent in various types of accommodation are considered. In 1985, for example, the nights spent in hotels and similar establishments dropped by 11 per cent in Spain whereas in Turkey they increased by 31 per cent (1985/1984), compared with a rate of growth of 24 per cent in tourist arrivals.

Table 1.13 (a, b, c) records differences in the shares of tourist arrivals, nights spent and tourism receipts in the five main Mediterranean destinations for various years.

Table 1.13a: Shares of Tourist Arrivals in the Mediterranean

YEAR	1979		1985		1987	
	(thous)	(%)	(thous)	(%)	(thous)	(%)
GREECE	5233.0	5.4	6574.0	5.9	7564.0	6.3
SPAIN	38902.5	40.2	43235.4	38.9	50544.8	42.2
PORTUGAL	2225.1	2.3	4989.1	4.5	6085.2	5.1
ITALY	48902.5	50.6	53634.4	48.3	52724.9	44.0
TURKEY	1523.7	1.5	2614.9	2.3	2855.5	2.4
TOTAL	96656.9	100	111047.8	100	119774.4	100

Source: OECD

Table 1.13b: Shares of Tourist Nights Spent in the Mediterranean (all accom.)

YEAR	1975		1985		1987	
	(thous)	(%)	(thous)	(%)	(thous)	(%)
GREECE	14812.0	8.6	35492.1	15.3	35450.6	13.7
SPAIN	70472.0	41.1	78919.1	34.0	92444.3	35.6
PORTUGAL	3714.0	2.1	14932.9	6.4	17109.8	6.6
ITALY	73981.0	43.3	97634.2	42.1	106344.1	40.9
TURKEY	8482.0	4.9	4878.8	2.1	8325.0	3.2
TOTAL	171461.0	100	231857.1	100	259673.8	100

Source: OECD

Table 1.13c: Shares of Tourism Receipts in the Mediterranean

YEAR	1979		1985		1987	
	(US dol. mn)	(%)	(US dol. mn)	(%)	(US dol. mn)	(%)
GREECE	1622.8	9.2	1425.8	6.8	2290.8	6.9
SPAIN	6483.8	36.9	8083.7	38.7	14780.4	44.6
PORTUGAL	941.7	5.3	1128.5	5.4	2147.8	6.5
ITALY	8202.4	46.6	8757.6	41.9	12160.6	36.8
TURKEY	280.7	1.6	1482.0	7.0	1721.1	5.2
TOTAL	17571.4	100	20877.6	100	33100.7	100

Source: OECD

It can be seen that there has been limited redistribution of tourist flows between these five destinations, the redistribution being more pronounced for tourism receipts. In Greece, there was an increase in the share of tourist arrivals and the same applies to Portugal and Turkey. In the former case, however, this was followed by a marked decline in the share of revenue whereas, in the case of Portugal, the share of revenue increased slightly and in the case of Turkey, the share of tourism receipts showed a sharp increase and then decreased. The performance of the three countries may have been related to a change in the length of stay and/or in the income groups to which the tourists belong (different income groups having different tourism consumption propensities). Tourist arrivals in Spain fluctuated but Italy experienced a decline in its share; the share of revenue, however, has been increasing in the former while decreasing in the latter destination. As regards the shares of nights spent, Turkey and Portugal experienced increases in their shares and Greece and Italy decreases. The changes in the shares of nights spent in different countries may be one of the factors contributing to a reduction of the Greek and Italian shares of tourism receipts in the Mediterranean.

As regards the supply side, despite the fact that certain regions show signs of congestion, creation of overcapacity, destruction of the natural landscape and serious environmental pollution, supply potential in the Mediterranean remains exceptionally high. During the 1980s, accommodation both in hotels and similar establishments expanded quite rapidly. However, the rate of expansion of the number of beds (in hotels and similar establishments) has been lower than the rate of growth of tourist arrivals, Portugal being an exception. Nevertheless, annual occupancy rates at an average of 46 per cent (OECD, 1988) indicate supply potential at reasonable levels. The seasonality that the sector suffers from, though, remains a potential constraint and the attainment of an even distribution of occupancy rates throughout the season requires further consideration. Relevant policies towards the seasonality issue, undertaken by the tourist authorities, have not met yet with great success in most Mediterranean destinations.

Finally, as regards the importance of various means of transport, the importance of air transport in the tourism sector varies substantially between the Mediterranean destinations (Table 1.14).

Table 1.14: Tourist Arrivals by Mode of Transport (% of total)

MODE	AIR			ROAD			RAIL			SEA		
YEAR	1975	1984	1987	1975	1984	1987	1975	1984	1987	1975	1984	1987
GREECE	64.6	73.8	75	22.8	12.5	-	4.1	2.1	-	9.3	11.2	-
SPAIN	29.0	31.3	32.7	59.5	59.4	59.4	6.1	6.1	4.8	5.4	3.3	3.1
PORTUGAL	52.1	15.5	14.4	46.1*	81.5	83.8	46.1*	1.1	0.9	1.8	1.9	1.3
ITALY	10.1	9.9	7.8	72.8	77.8	83.8	15.8	10.4	6.6	1.3	2.0	1.8
TURKEY	21.6	32.3	49.5	49.9	41.7	28.5	5.4	2.0	2.2	21.6	23.9	19.8

* Figures include both arrivals by road as well as by rail

Source: OECD

Air transport is very important for Greece, whereas for Turkey tourist arrivals by air account for approximately one-third of total tourist arrivals by all means of transport and for Spain even less. The importance of air transport has declined sharply for Portugal; this was mainly due to increases in the shares of neighbouring Spain, Italy and France in Portuguese tourism and to the fact that tourists originating from these countries often prefer to drive to their holiday resorts. The share of air transport is steadily around two-fifths of tourist arrivals in Italy for the 1975-1987 period.

1.2.2.7 Main Tourism Generating Countries

The five major tourist generating countries, the United Kingdom, West Germany, the USA, France and Sweden, account for around half of the tourist arrivals in the Mediterranean. Table 1.15 shows their share of tourist arrivals as a percentage of the total international tourist arrivals in each Mediterranean destination considered for 1980 and 1987.

Table 1.15: Shares of Tourist Arrivals from Main Origins to the Mediterranean (% of total)

ORIGIN	UN. KINGDOM		W. GERMANY		USA		FRANCE		SWEDEN		TOTAL	
YEAR	1980	1987	1980	1987	1980	1987	1980	1987	1980	1987	1980	1987
GREECE	16.0	26.2	14.5	15.9	6.0	3.4	6.3	6.7	4.9	3.2	47.7	55.4
SPAIN	9.4	14.9	12.3	13.1	2.1	1.7	26.5	23.1	1.2	1.5	51.5	54.3
PORTUGAL	13.7	18.7	9.5	7.9	4.3	2.5	8.2	6.8	2.3	1.0	38.0	36.9
ITALY	4.0	3.8	22.0	18.2	3.5	2.8	14.5	17.2	1.0	1.3	45.0	43.3
TURKEY	4.8	9.3	12.1	18.3	9.2	4.6	6.8	5.9	0.7	1.0	33.6	39.1

Source: OECD

It is interesting to note that for Turkey the main origin countries represent around one-third of all tourist arrivals; almost another third originate from non-OECD countries, where per capita disposable income has generally grown at a lower rates compared with the rates for the major origin countries. As regards Portugal, substantial shares of recent tourist flows to this destination originate from Spain, Italy and France. Furthermore, it is clear that there has been a sharp drop in the American share in all destinations. This was partly due to political factors (terrorism incidents, protests against the presence of American military bases etc.).

The Mediterranean destinations have traditionally been popular holiday resorts for the British, German, French, Swedish and American tourists. They offer a wide range of touristic characteristics and the predominant "sea-sun-sand" type of holiday can also be blended with a variety of cultural, historical and natural interests. The aforementioned tourist markets have become of exceptional importance to all five Mediterranean destinations. The importance of the tourist flows originating from the UK, Germany, France, Sweden and the USA towards Southern Europe is illustrated in Table 1.15 and Figures 1.1-1.10. As is shown in Table 1.15, Greece sharply increased its share in all tourist origin markets, particularly in the UK. Spain, Portugal and Turkey also experienced increases in their shares but to a lesser extent compared with Greece. Italy, however, was characterised by a significant decline in its share in most tourist markets, except in France and Sweden. Figures 1.1-1.5 show the average propensity to consume Mediterranean tourism (APCT)[11] by each origin country with respect to each destination considered, annually for the period 1960-1987. The APCT appears to have been generally on an increasing trend, although troughs occurred in 1976 (immediately after the first oil crisis) and some volatility was also experienced, particularly for the UK. For the 1980-1984 period, however, the trends were in a downward direction for almost all destinations due to the second oil crisis and the unstable international economic environment. This period was a phase of recession for Mediterranean tourism as a whole. Sharp recovery took place from 1984 onwards.

Figures 1.6-1.10 show the annual changes in British, German, American, French and Swedish real disposable income per head and real consumer expenditure on tourism in each of the Southern European destinations under study for the 1960-1987 period. The strong trends in tourism consumption and income as well as the cyclical nature of the series are evident. The adverse impact of the two oil crises (in 1973-1974 and 1979-1980) on tourism demand, and the fast recovery in the subsequent years, are also apparent. The figures also indicate the detrimental effects on tourism consumption of political and social upheaval in various sub-periods of the 1960-1987 period; for example, the 1967-1974 military coup in Greece, the 1974-1976 political turmoil in Portugal and the political instability over the 1970s as well as the 1980-1981 socio-political crisis in Turkey. For the UK, in particular, the travel restrictions imposed on British travel abroad, during 1967-69, resulted in a decrease in the UK propensity to consume Mediterranean tourism for that period.

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[11] Aggregate nominal tourism expenditure (in each Mediterranean destination) divided by aggregate nominal personal disposable income.

The increase in the share of the European origin countries (Table 1.16) may be accompanied by stability in Mediterranean tourism receipts if the relatively high European economic growth is sustained, but may have an unfavourable impact if adverse economic conditions prevail in Europe.

Table 1.16: Origin of Tourists to the Mediterranean (% of total)

ORIGIN	EEC		REST OF OECD-EUROPE		USA		REST OF OECD		NON-OECD	
YEAR	1983-1984	1987/1986	1983-1984	1987/1986	1983-1984	1987/1986	1983-1984	1987/1986	1983-1984	1987/1986
GREECE	56.2	67.8	16.6	12.3	8.6	3.4	4.8	4.1	13.8	12.4
SPAIN	78.7	78.9	9.9	11.0	2.1	1.7	0.8	0.7	8.5	7.7
PORTUGAL	85.2	88.4	4.2	3.7	3.5	2.5	2.0	1.9	5.1	3.5
ITALY	52.4	53.9	33.8	27.0	3.7	2.8	2.1	2.0	8.0	14.3
TURKEY	36.6	47.4	7.3	7.2	10.9	4.6	2.1	2.4	0.6	38.4

Source: OECD

Nevertheless, the lower transport costs and the short distance between North and South Europe (unlike, for example, the USA), benefit the Southern European destinations compared with tourist destinations located in other continents. However, in spite of their instability, the US tourist flows remain important because of the high propensity to consume of American tourists. Their importance is indicated by comparing the nights spent with tourist arrivals. In Italy, for example, US tourists accounted for 14.6 per cent of nights spent compared with 3.7 per cent of tourist arrivals for the 1983-1984 period.

For 1987, the UK (15%), West Germany (27%), France (8%) and the USA (8%) accounted for more than 50 per cent of the total OECD nights spent in the Mediterranean. UK tourists increased their length of stay by only 3 per cent, whereas UK nights abroad declined between 1986 and 1987 in all European destinations and particularly in Portugal (-4%). Given, though, a total increase in UK nights spent, the reduction in Europe may indicate a preference for other, long-haul, destinations. The pattern of German tourism was mixed for 1987. Whereas the number of overnight stays rose slightly in Europe (3%), certain destinations, such as Turkey (58%), Spain (11%) and Portugal (10%), benefited considerably. Stays by French tourists in 1987 were 16 per cent longer and benefited, among others, Turkey (32% longer), at the expense of certain traditional French preferences, such as Portugal (5% shorter). The US market showed a reversal in nights spent from the 1986 situation (-26%) to an increase by 15 per cent, contrary to economic expectations, since the dollar depreciated by between 5 per cent and 17 per cent against European currencies over the year. Tourist arrivals from the US were 44 per cent of the total for the OECD. The UK market grew by 10 per cent and Greece (16%) was among the destinations that benefited most. The West German and French markets grew by 6 per cent and the former benefited Greece (5%) and the latter mainly the UK. Finally, the changing US preferences benefited the Pacific region most, where Americans accounted for a quarter of the market in 1987. Tourist flows originating from the UK, West Germany, France, Sweden and the USA have also shown considerable cross-country variation annually. Such variations may be related not only to changes in the composition of the tourist flows from each particular origin but to differences in their income elasticity of tourism demand, varying sensitivity to relative price changes in the tourist destinations and changing preferences over time.

After a slight decline during the first half of the decade, the overall proportion of private final consumption spent on foreign tourism by OECD member countries showed a marginal upturn in 1986. The changes were mainly caused by the steady rise in private final consumption of foreign tourism in Europe, since all European countries experienced increases over the 1970-1986 period. The United Kingdom and Sweden, in particular, experienced substantial rises by 1.3 and 1.2 points respectively of private final consumption spent on foreign tourism. Despite some slowdown of economic growth during the early 1980s, there has been no serious adverse impact on the proportion of private final consumption spent on foreign tourism by the main tourist origins (Table 1.17); this ratio has either remained constant or slightly increased compared with the 1970s. Only for the USA did it experience a slight decrease for the 1970-1986 period (-0.2 points).

Table 1.17: Travel Expenditure as % of Private Final Consumption of Main Origin Countries

YEAR	1970-1976 (average)	1977-1984 (average)	1980-1984 (average)	1985	1986
UN. KINGDOM	1.3	2.0	2.2	2.3	2.6
W. GERMANY	3.3	4.2	4.3	3.6	3.6
USA	0.8	0.8	0.8	0.6	0.6
FRANCE	1.4	1.5	1.5	1.4	1.5
SWEDEN	2.9	3.5	3.5	3.8	4.1
EUROPEAN OECD	2.1	2.5	2.7	2.6	2.7

Source: OECD

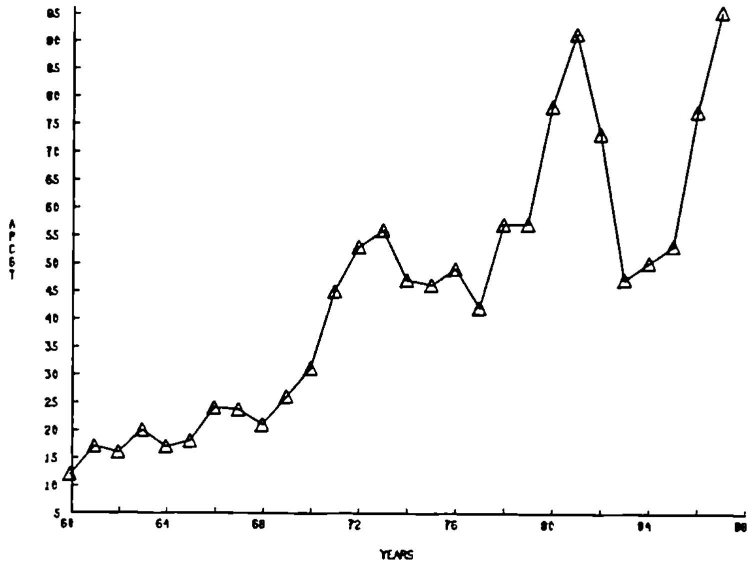
More recently, it has been estimated that households in the EC spend about 7 per cent of their budgets on tourism (Commission of the European Communities, 1985) but obviously the figure varies according to the level of prosperity of the economy. It should be borne in mind, however, that in the evaluation of the importance of tourism expenditure in private final consumption, a more relevant and useful figure would have been to take into account tourist spending at home as well as abroad. This information, though, is not widely available yet.

Conclusion

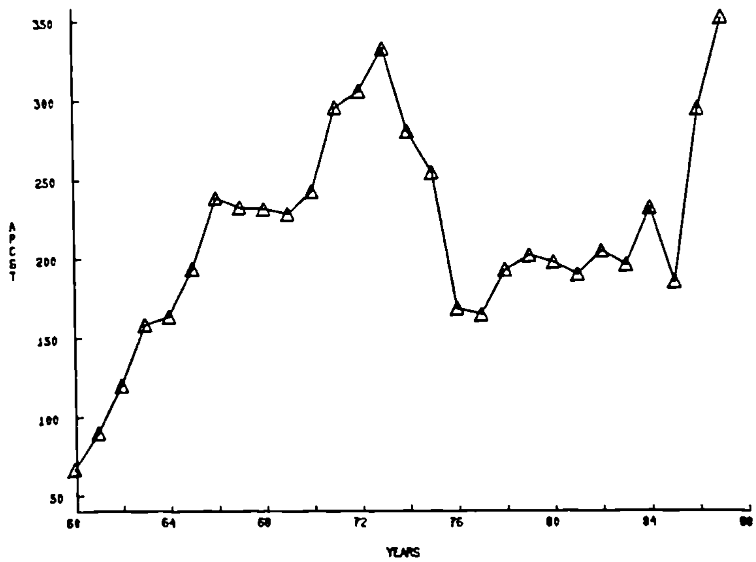
The study of major tourism indicators has illustrated that over the past decades tourist flows towards the Mediterranean have been characterised by positive trends. Nevertheless, scepticism arises as to how bright the picture will be in the future. Despite the fact that Europe currently holds the primary position in the international tourism market, the increasing trend for long-haul tourism as well as the saturation of prime destinations and peak seasons indicate that the intra-European market may well stagnate.

Each Mediterranean destination may attempt to improve the quality of its tourism in different ways. Turkey, for instance, which has most recently become a popular Mediterranean destination, has the chance of learning from the problems of Spanish and Greek tourism and avoiding their mistakes in tourism development. There is a tendency for upgrading the quality of the tourist services in the Mediterranean destinations. There are difficulties in following a fast pace of upgrading, however, related to constraints, such as limitations in the investment funds necessary for upgrading the quality of accommodation and providing additional facilities, such as tennis courts or golf courses. Moreover, attempts by Greece to diminish the dependence of its tourism sector on mass tourism and to promote qualitative upgrading do not seem to have been very successful. Increases in the cost of living and political factors (terrorism) have adversely affected the Greek tourism industry. Spain continues to be a mass tourism destination of major popularity for the Europeans. It is doubtful, however, whether the past high growth rates will continue in the future, due to the expensive peseta, the overcrowded beaches and the deteriorated environment. Despite the problems mentioned, the Mediterranean is one of the major tourist destination areas in the world and it is likely to continue to play a central role in attracting dense tourist flows, provided the destinations are prepared to upgrade the quality of tourism they supply.

Figure 1.1: BRITISH AVERAGE PROPENSITY TO CONSUME MEDITERRANEAN TOURISM

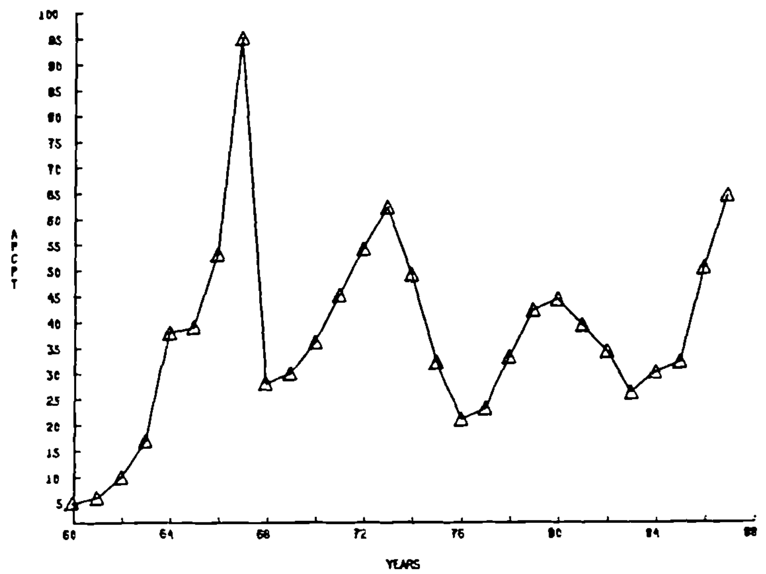


GREECE

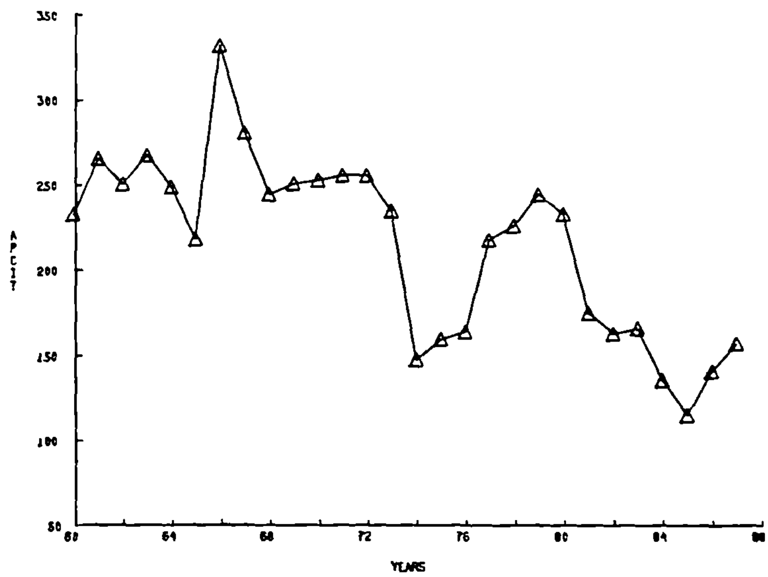


SPAIN

Figure 1.1 (cont.): BRITISH AVERAGE PROPENSITY TO CONSUME MEDITERRANEAN TOURISM

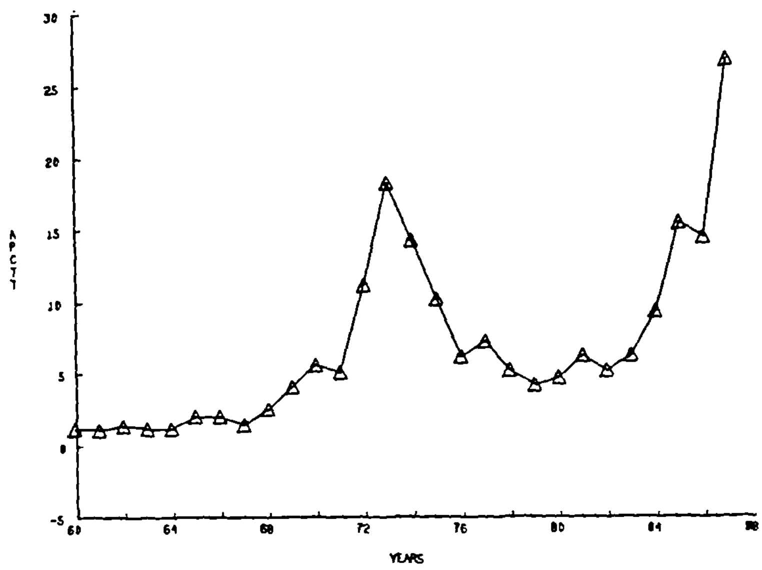


PORTUGAL



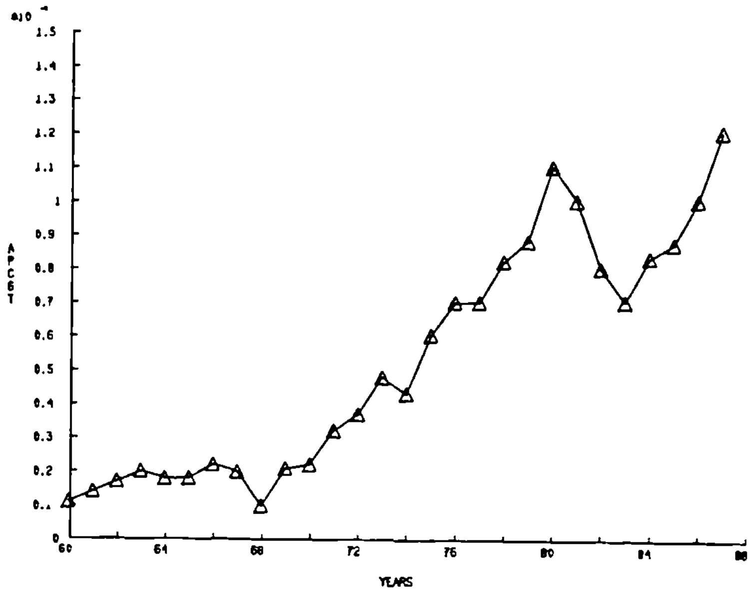
ITALY

Figure 1.1 (cont.): BRITISH AVERAGE PROPENSITY TO CONSUME MEDITERRANEAN TOURISM

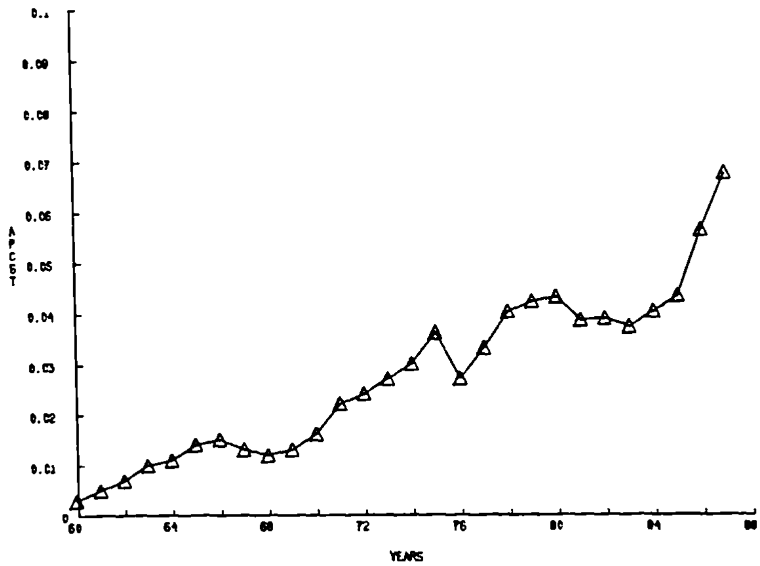


TURKEY

Figure 1.2: GERMAN AVERAGE PROPENSITY TO CONSUME MEDITERRANEAN TOURISM

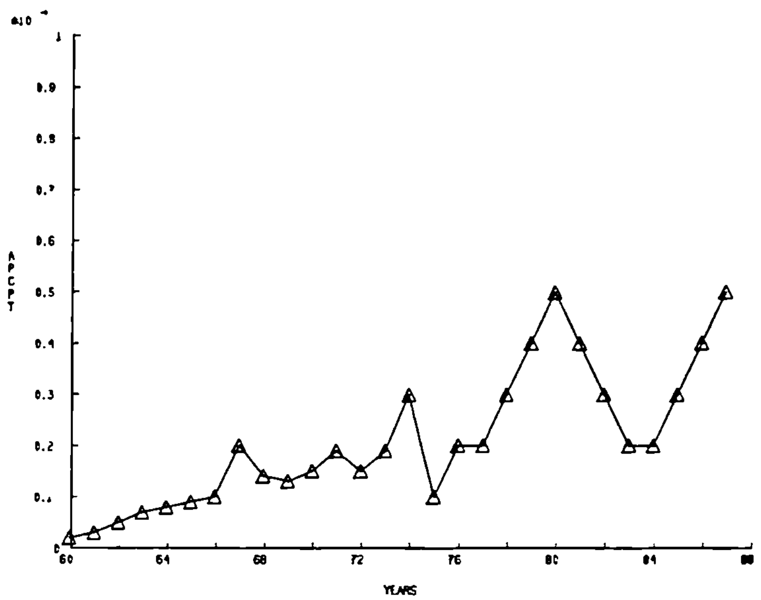


GREECE

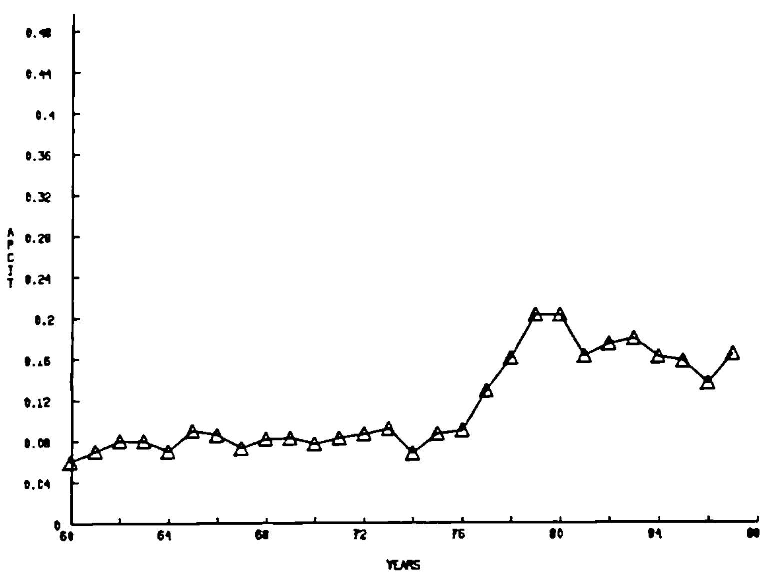


SPAIN

Figure 1.2 (cont.): GERMAN AVERAGE PROPENSITY TO CONSUME MEDITERRANEAN TOURISM

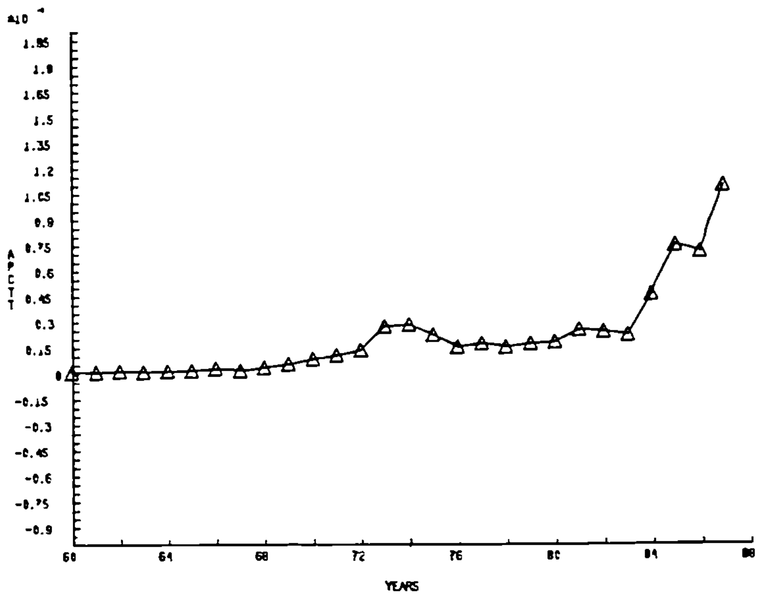


PORTUGAL



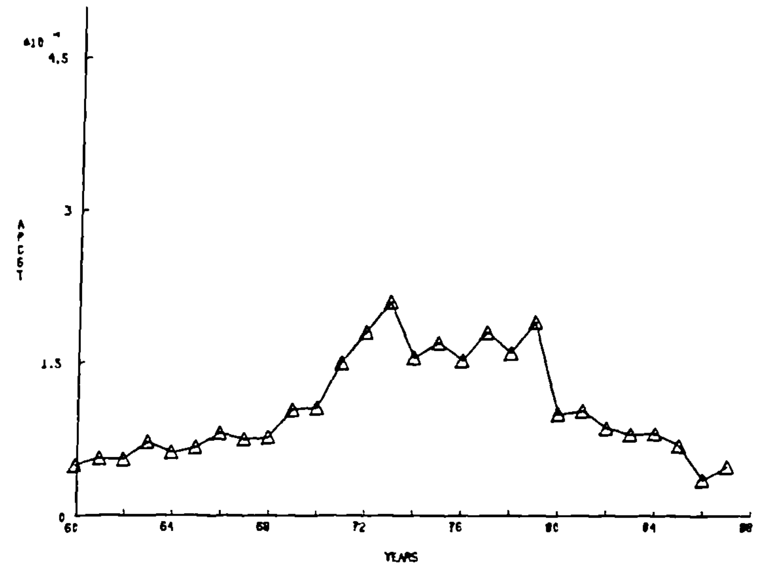
ITALY

Figure 1.2 (cont.): GERMAN AVERAGE PROPENSITY TO CONSUME MEDITERRANEAN TOURISM

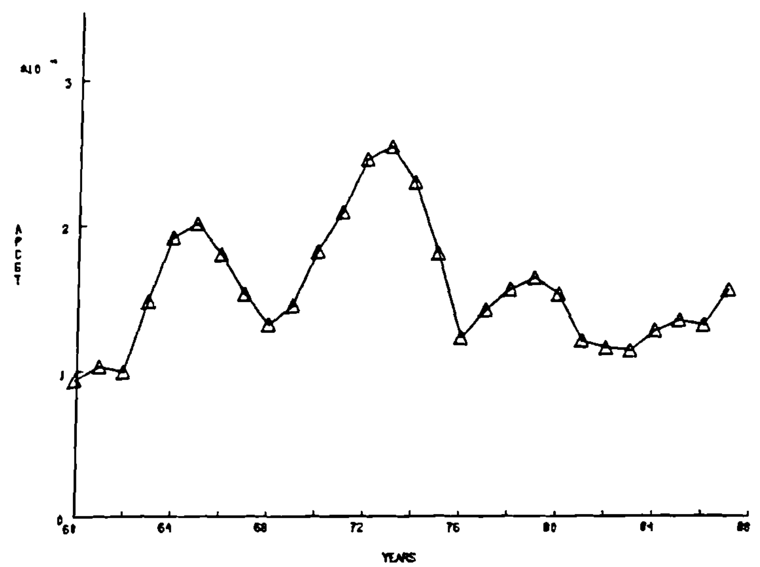


TURKEY

Figure 1.3: AMERICAN AVERAGE PROPENSITY TO CONSUME MEDITERRANEAN TOURISM

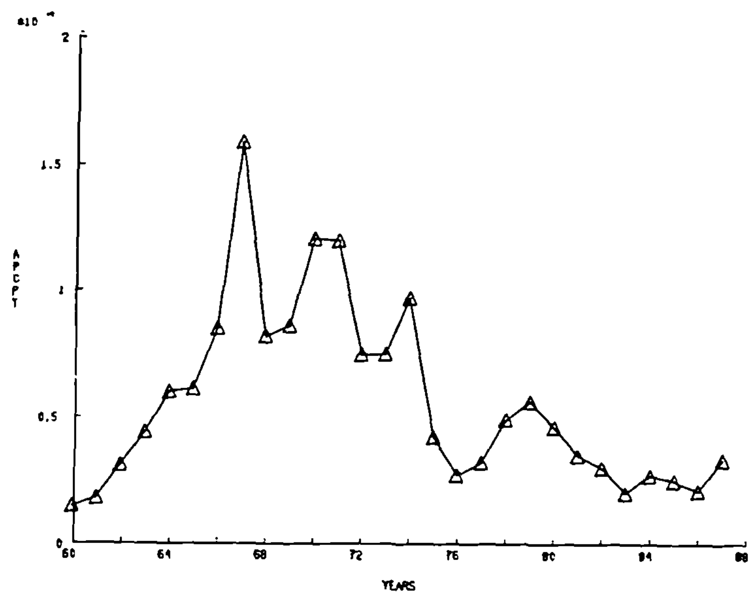


GREECE

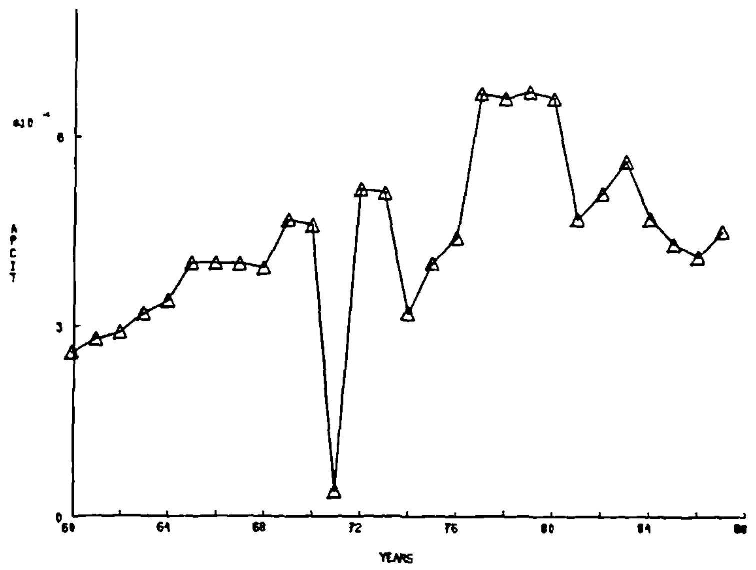


SPAIN

Figure 1.3 (cont.): AMERICAN AVERAGE PROPENSITY TO CONSUME MEDITERRANEAN TOURISM

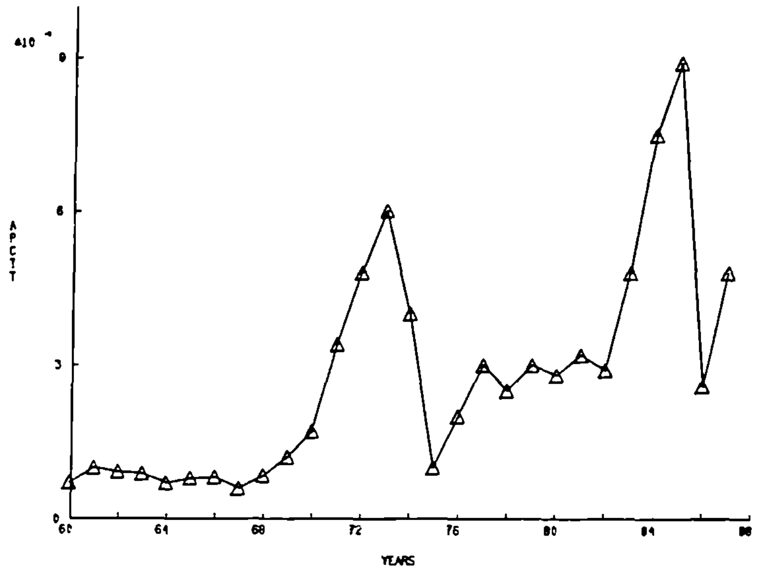


PORTUGAL



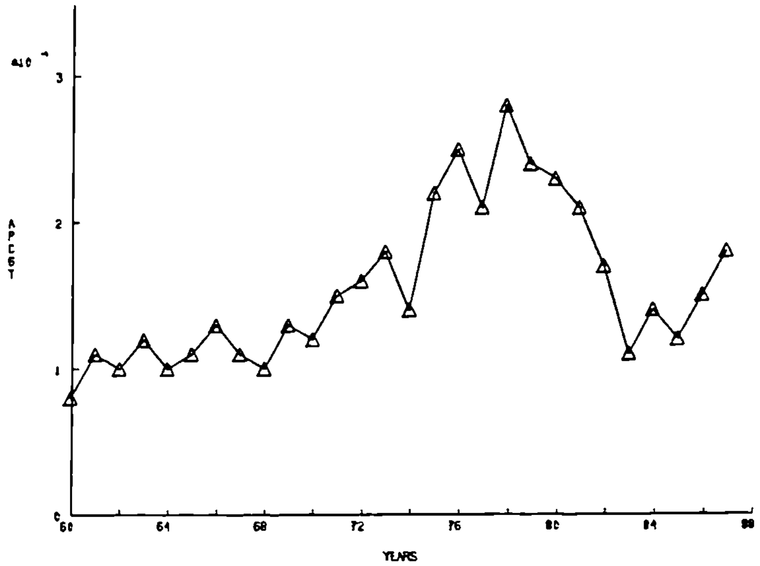
ITALY

Figure 1.3 (cont.): AMERICAN AVERAGE PROPENSITY TO CONSUME MEDITERRANEAN TOURISM

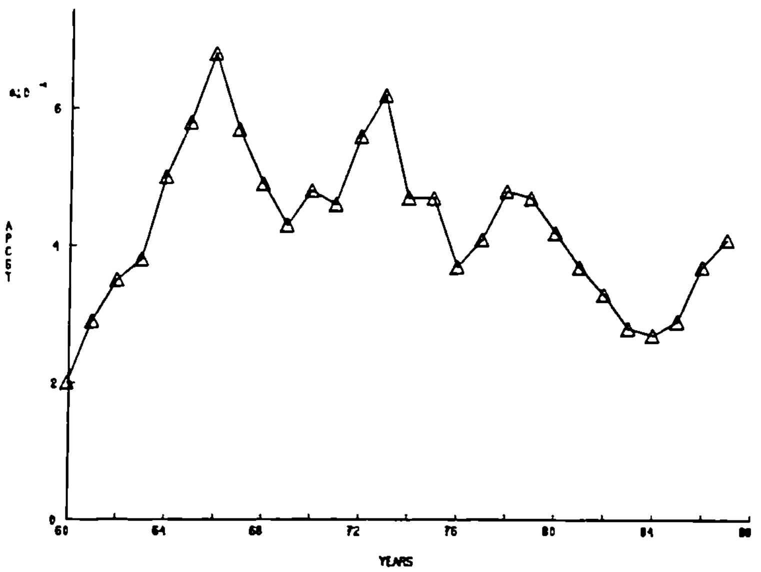


TURKEY

Figure 1.4: FRENCH AVERAGE PROPENSITY TO CONSUME MEDITERRANEAN TOURISM

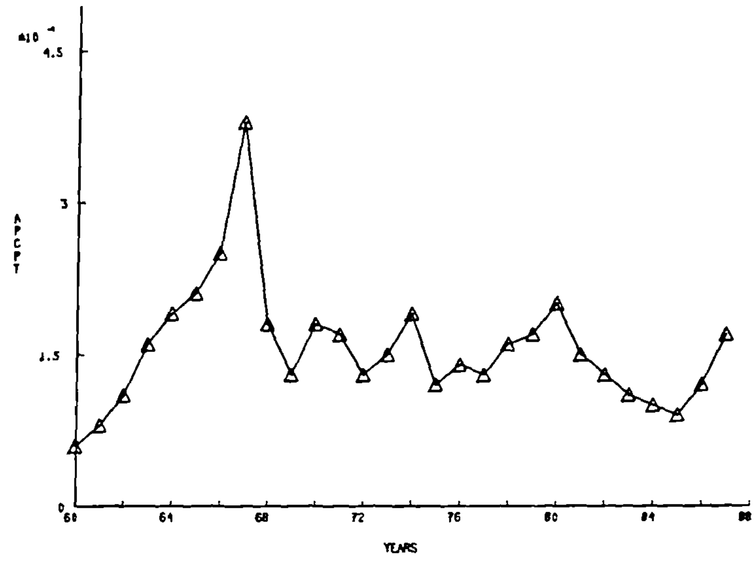


GREECE

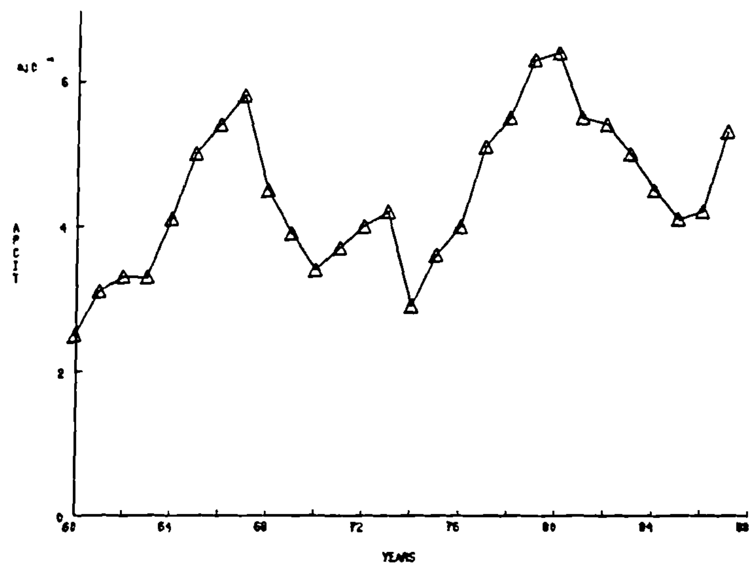


SPAIN

Figure 1.4 (cont.): FRENCH AVERAGE PROPENSITY TO CONSUME MEDITERRANEAN TOURISM

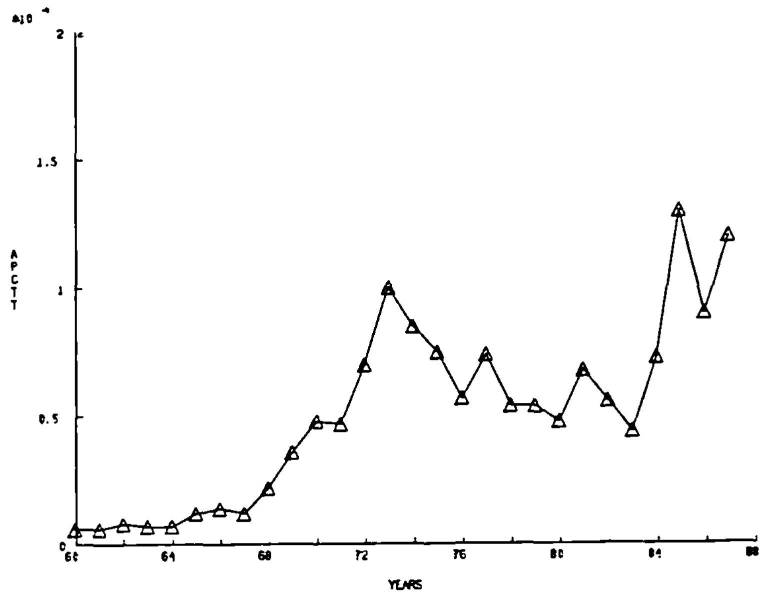


PORTUGAL



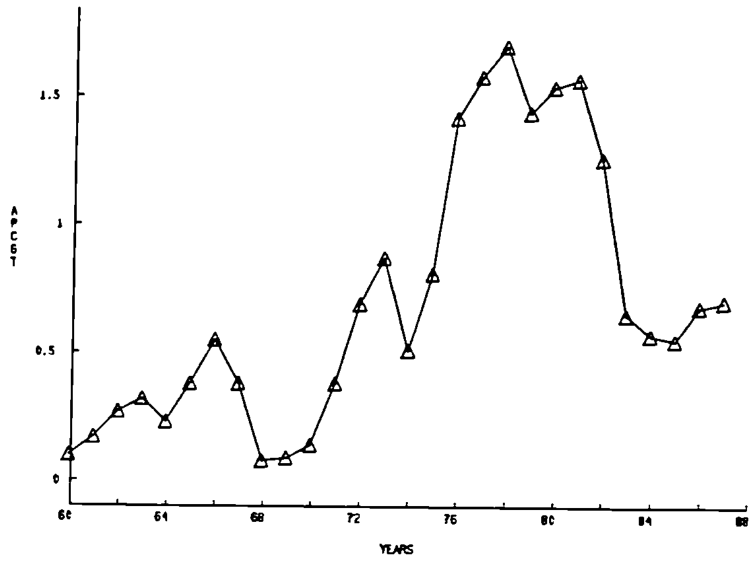
ITALY

Figure 1.4 (cont.): FRENCH AVERAGE PROPENSITY TO CONSUME MEDITERRANEAN TOURISM



TURKEY

Figure 1.5: SWEDISH AVERAGE PROPENSITY TO CONSUME MEDITERRANEAN TOURISM



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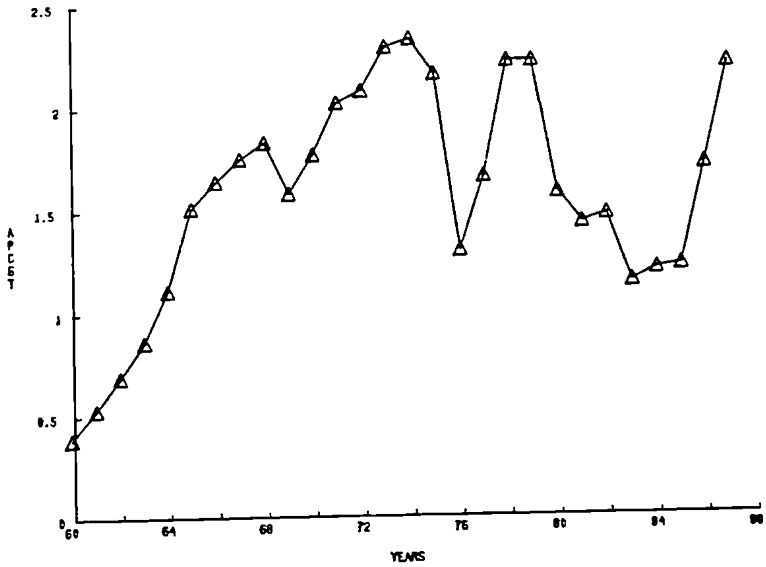

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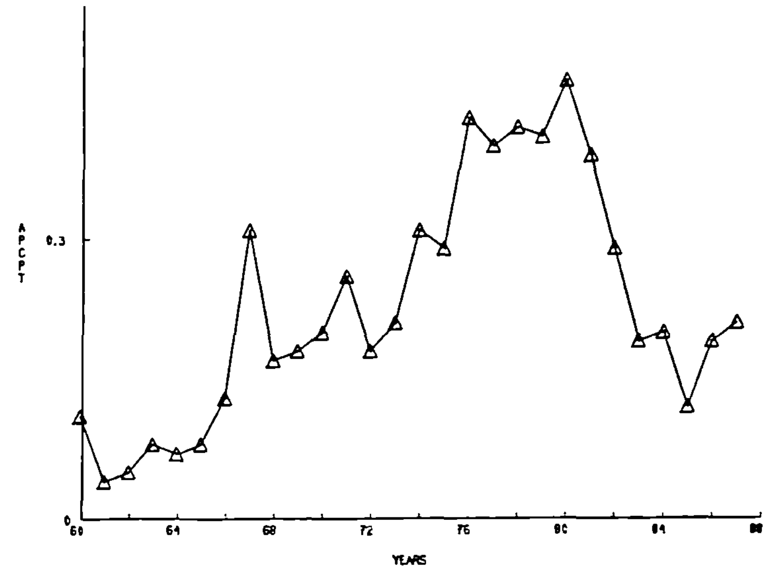
Figure 1.5 (cont.): SWEDISH AVERAGE PROPENSITY TO CONSUME MEDITERRANEAN TOURISM



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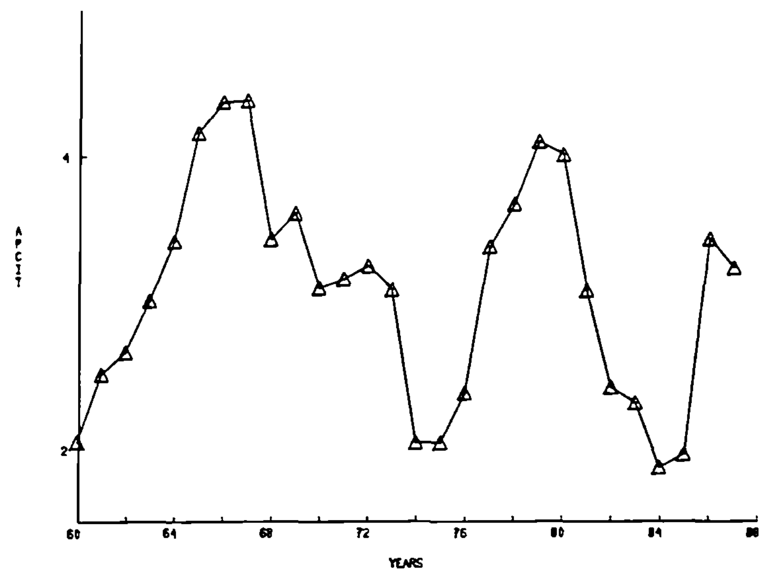

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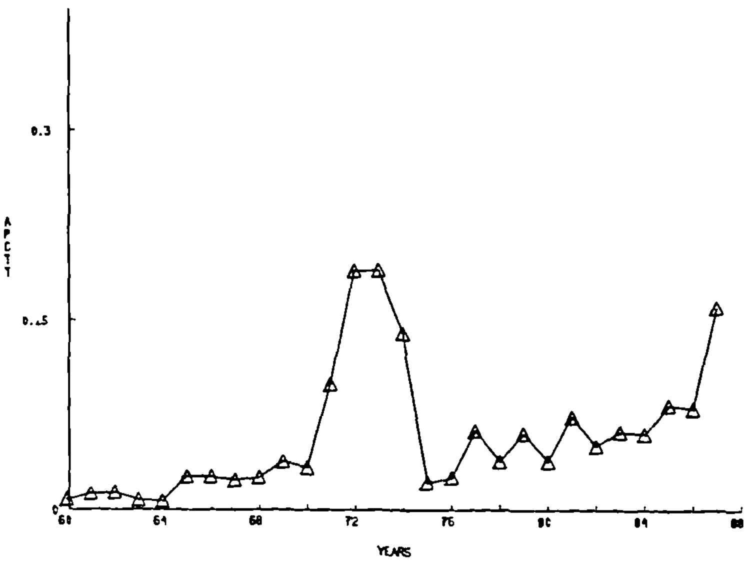
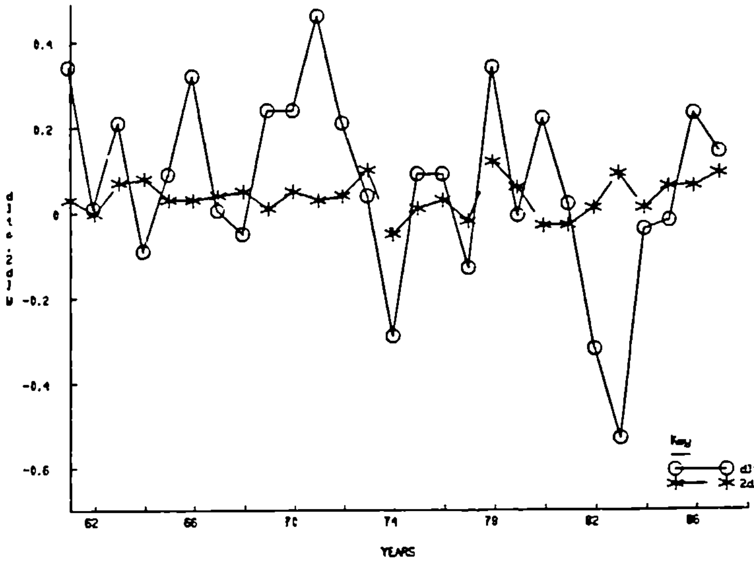
Figure 1.5 (cont.): SWEDISH AVERAGE PROPENSITY TO CONSUME MEDITERRANEAN TOURISM



TURKEY

Figure 1.6: ANNUAL CHANGES IN BRITISH INCOME AND CONSUMPTION OF MEDITERRANEAN TOURISM



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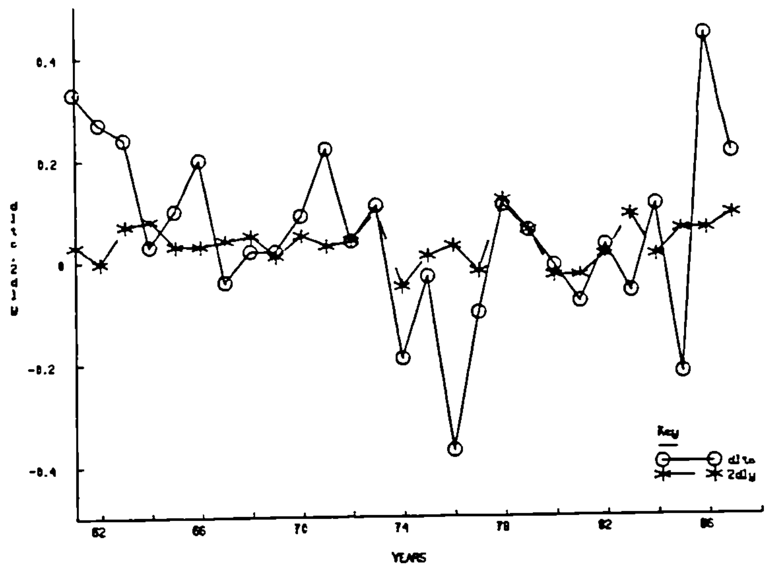

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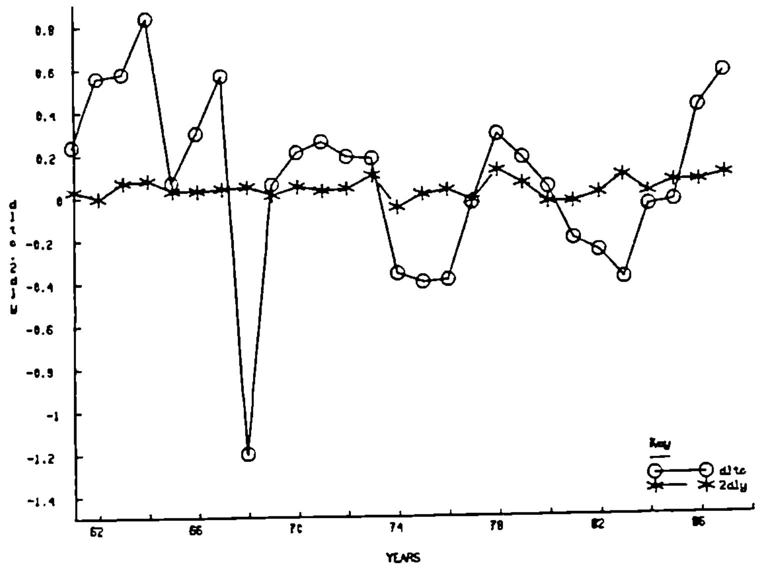
Figure 1.6 (cont.): ANNUAL CHANGES IN BRITISH INCOME AND CONSUMPTION OF MEDITERRANEAN TOURISM



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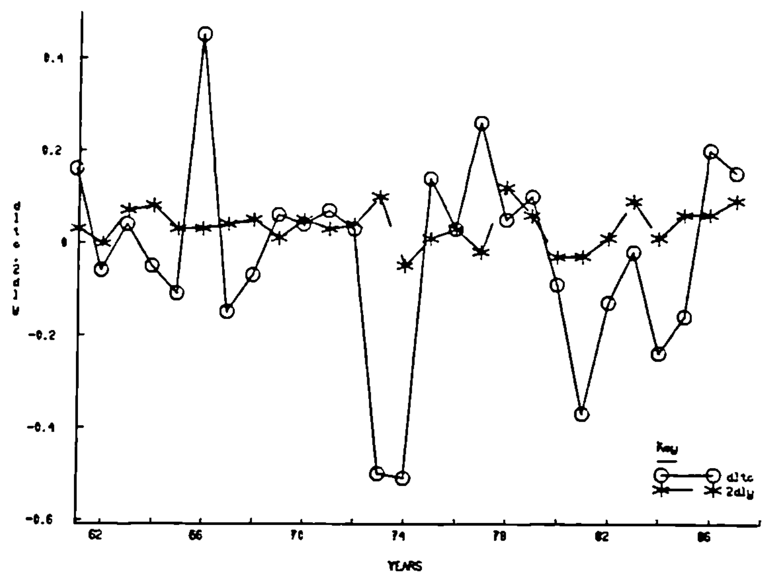

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Figure 1.6 (cont.): ANNUAL CHANGES IN BRITISH INCOME AND CONSUMPTION OF

MEDITERRANEAN TOURISM

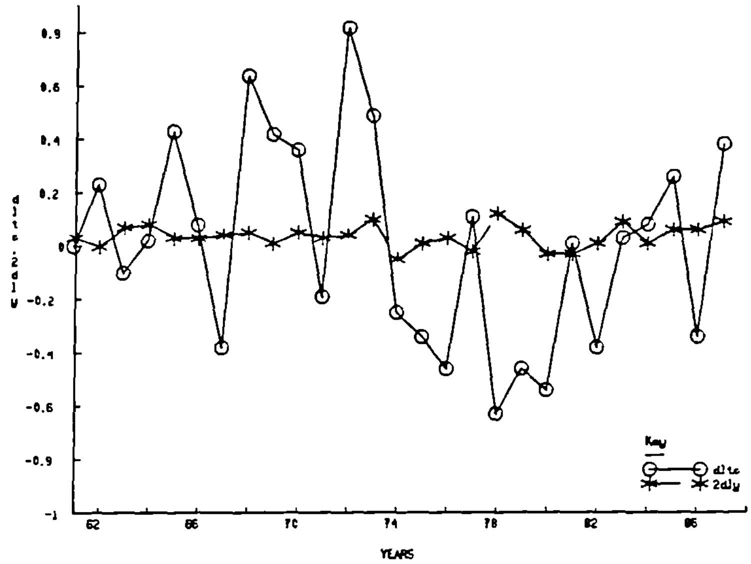

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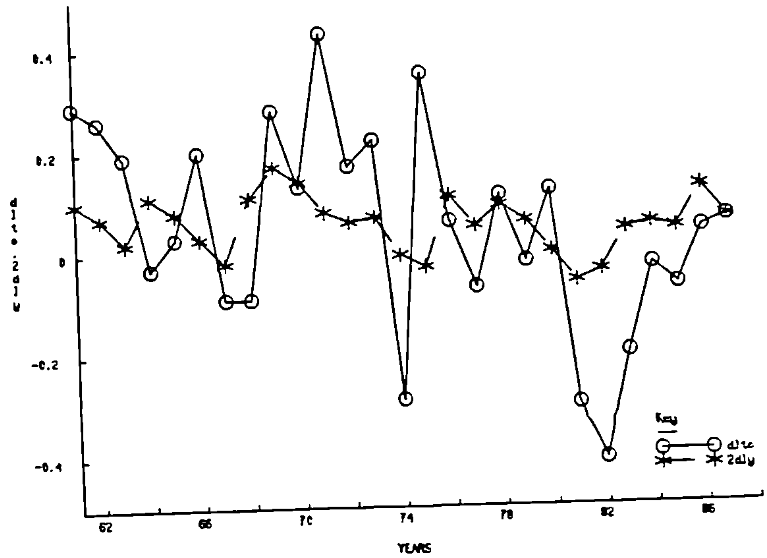
Figure 1.7: ANNUAL CHANGES IN GERMAN INCOME AND CONSUMPTION OF MEDITERRANEAN TOURISM



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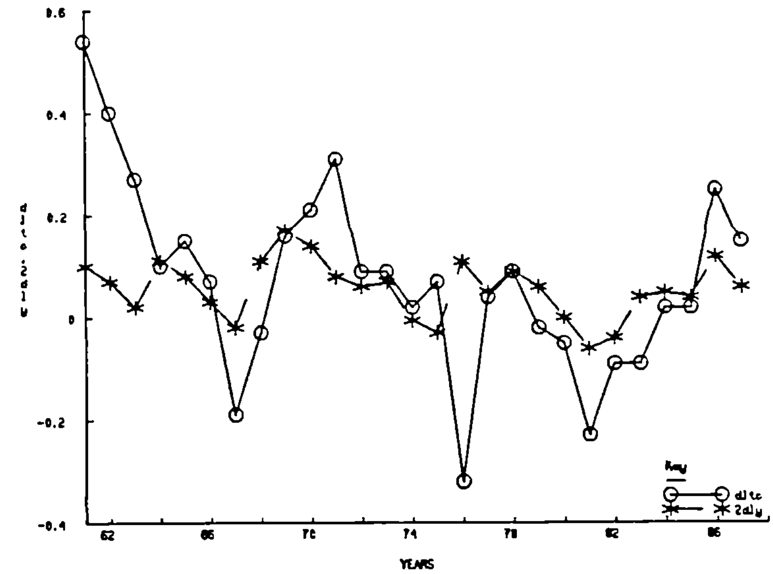

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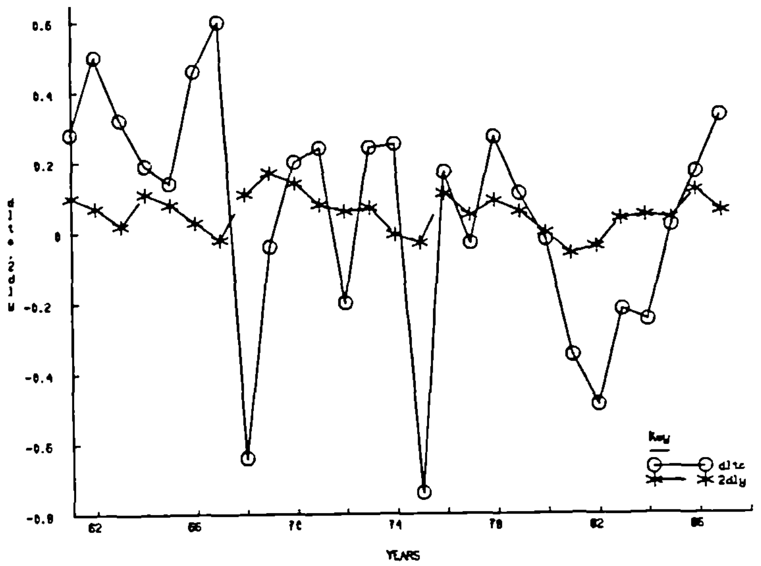
Figure 1.7 (cont.): ANNUAL CHANGES IN GERMAN INCOME AND CONSUMPTION OF MEDITERRANEAN TOURISM



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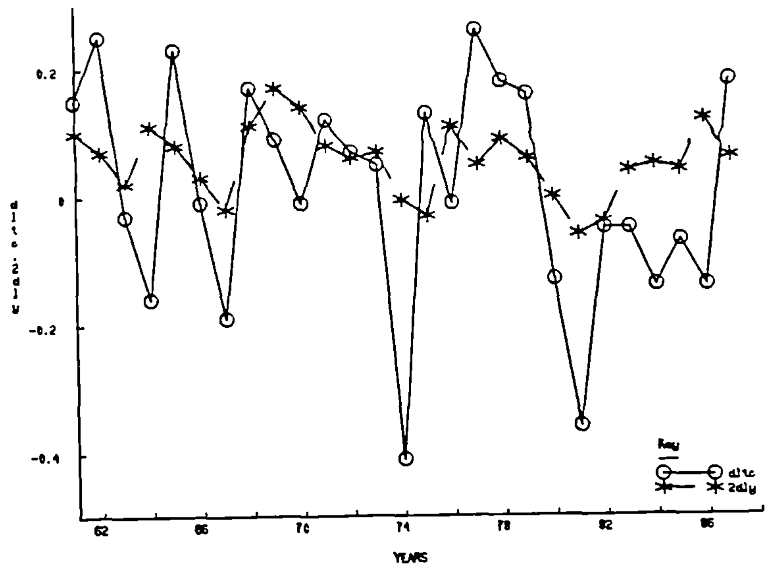

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Figure 1.7 (cont.): ANNUAL CHANGES IN GERMAN INCOME AND CONSUMPTION OF MEDITERRANEAN TOURISM

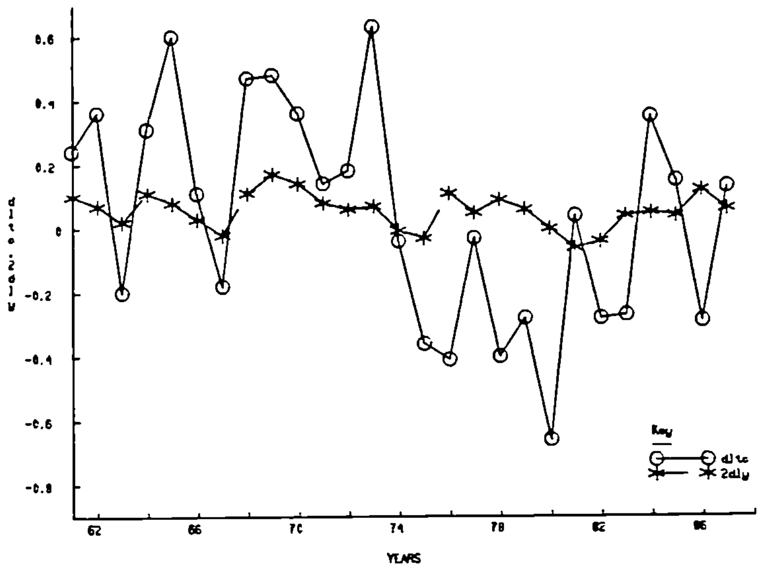

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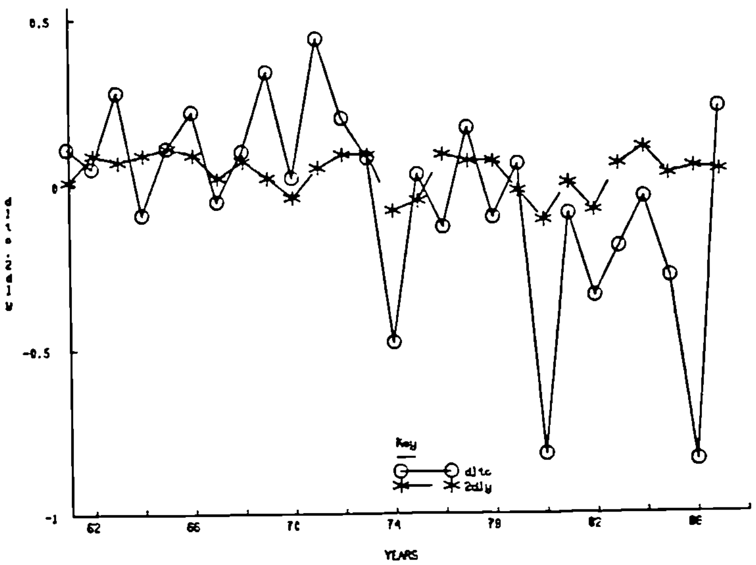
Figure 1.8: ANNUAL CHANGES IN AMERICAN INCOME AND CONSUMPTION OF MEDITERRANEAN TOURISM



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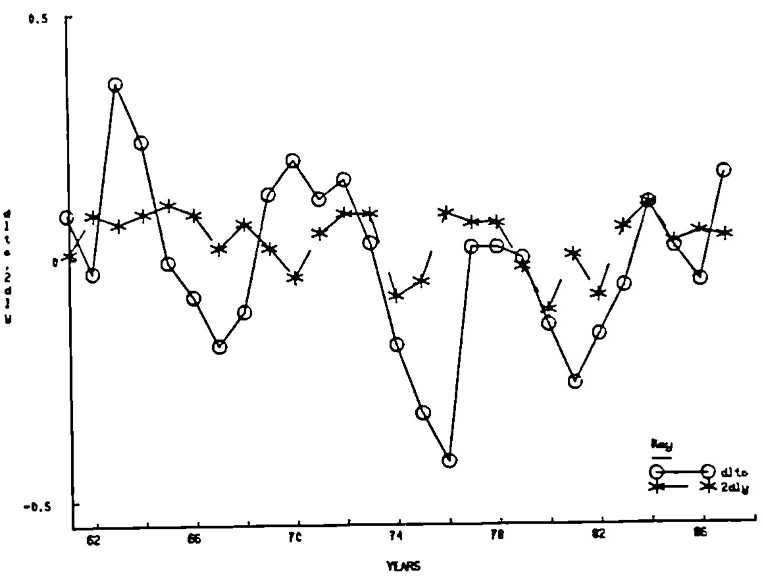

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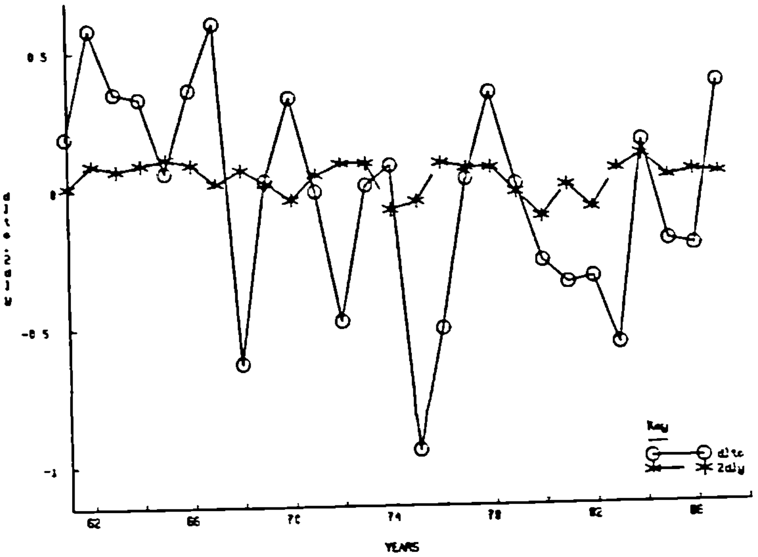
Figure 1.8 (cont.): ANNUAL CHANGES IN AMERICAN INCOME AND CONSUMPTION OF MEDITERRANEAN TOURISM



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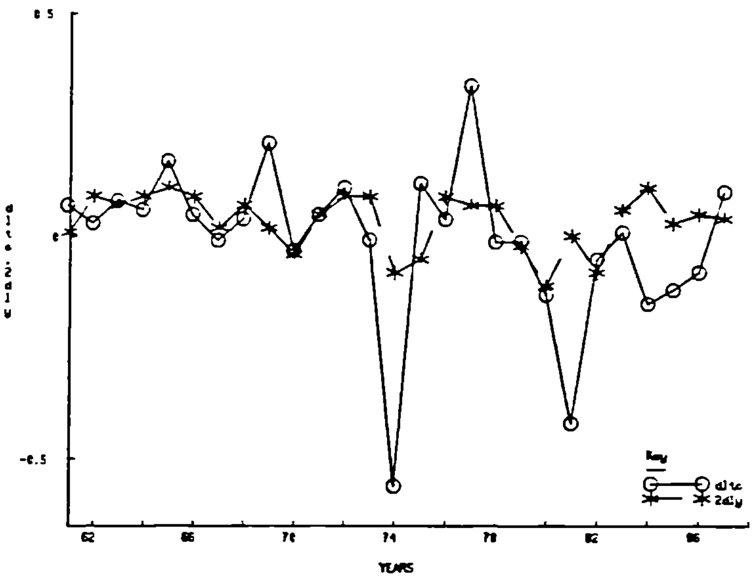

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Figure 1.8 (cont.): ANNUAL CHANGES IN AMERICAN INCOME AND CONSUMPTION OF

MEDITERRANEAN TOURISM

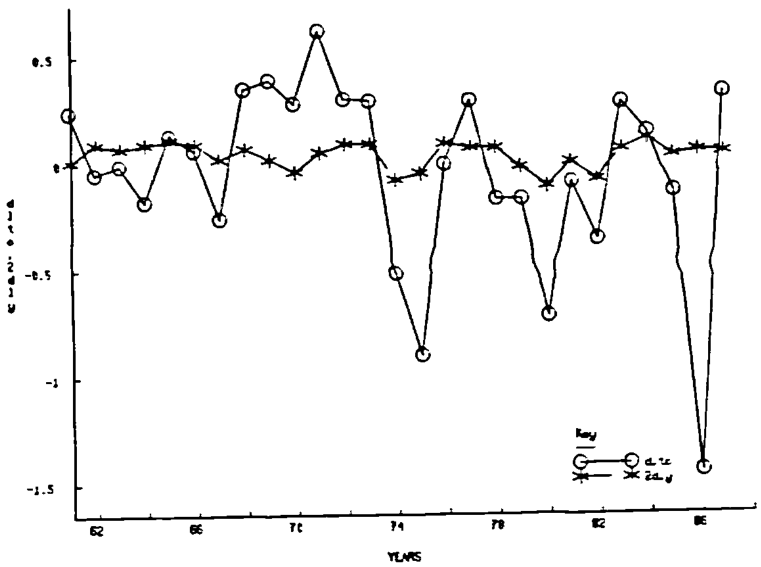

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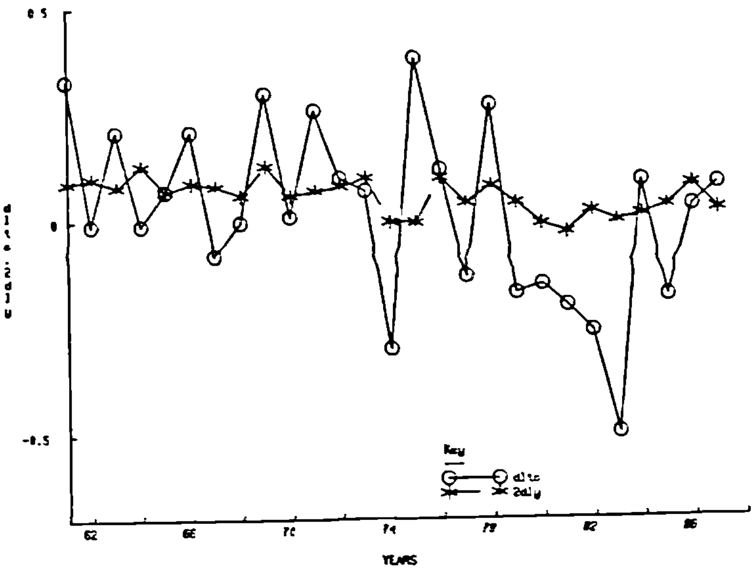
Figure 1.9: ANNUAL CHANGES IN FRENCH INCOME AND CONSUMPTION OF MEDITERRANEAN TOURISM



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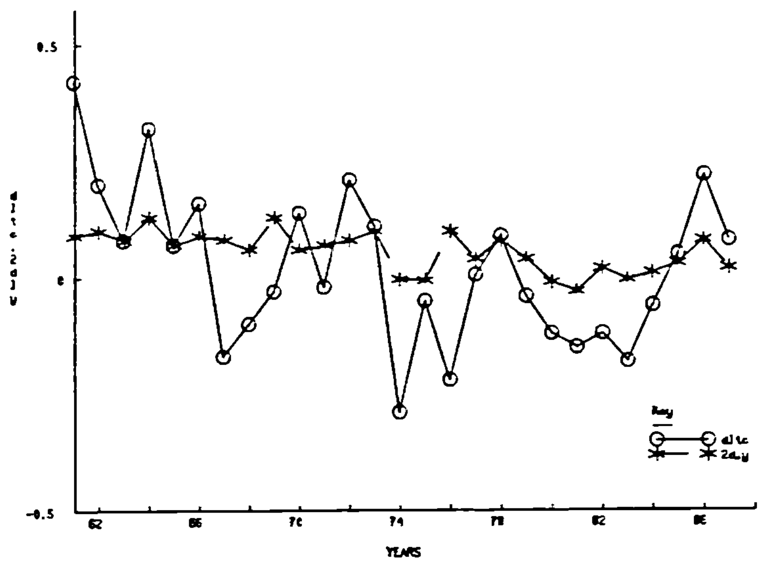

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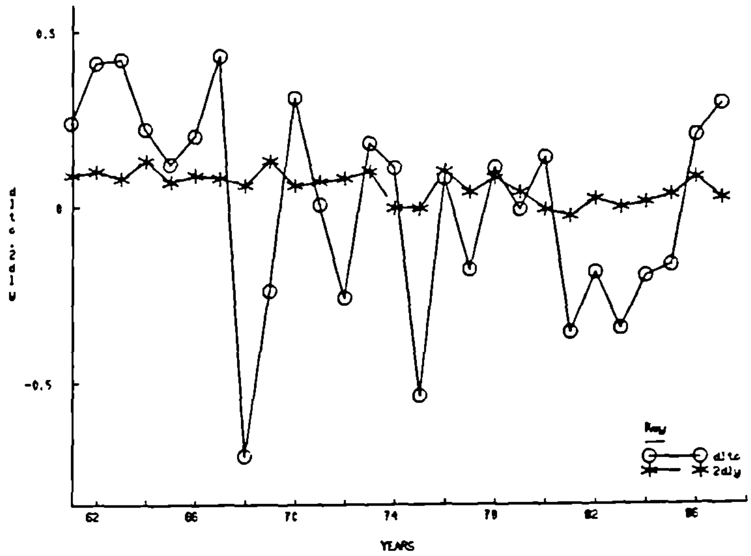
Figure 1.9 (cont.): ANNUAL CHANGES IN FRENCH INCOME AND CONSUMPTION OF MEDITERRANEAN TOURISM



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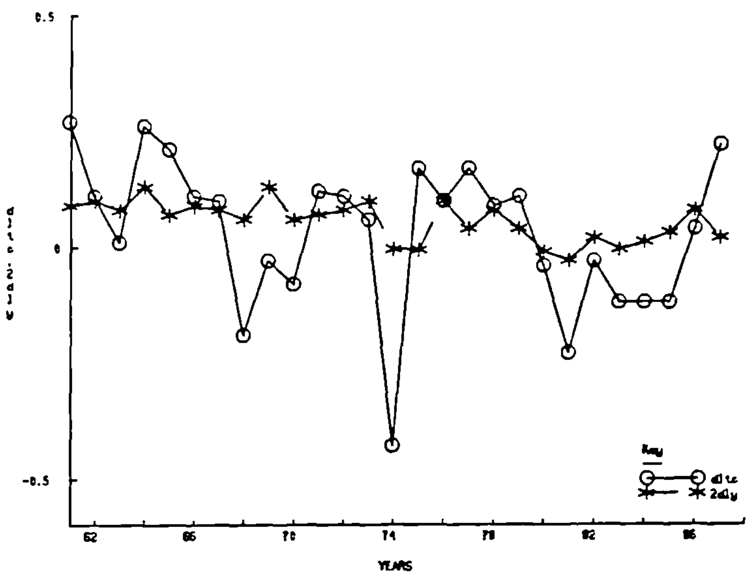

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Figure 1.9 (cont.): ANNUAL CHANGES IN FRENCH INCOME AND CONSUMPTION OF

MEDITERRANEAN TOURISM

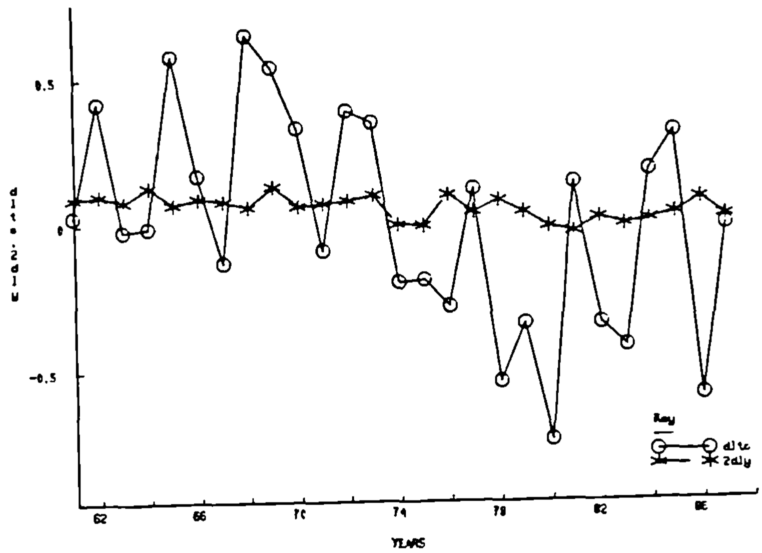

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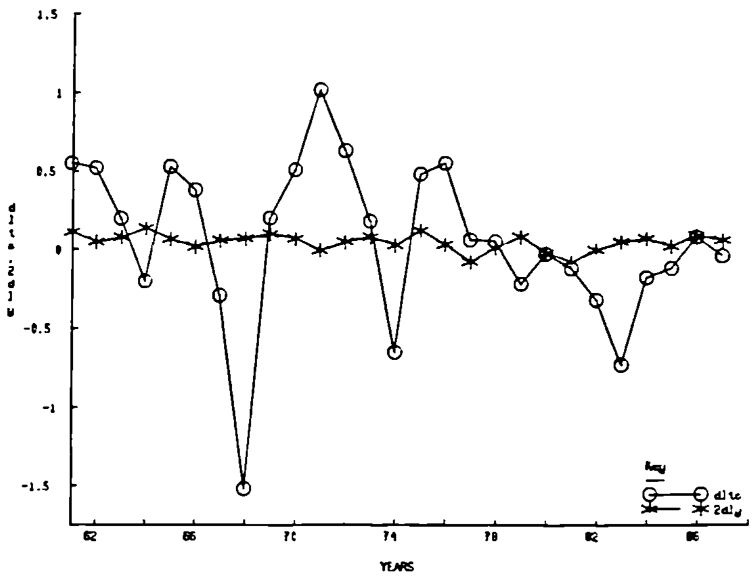
Figure 1.10: ANNUAL CHANGES IN SWEDISH INCOME AND CONSUMPTION OF

MEDITERRANEAN TOURISM



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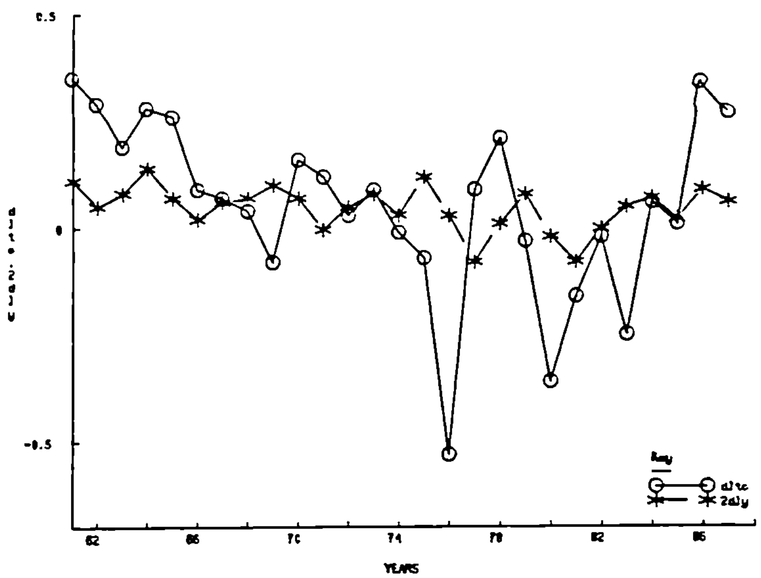

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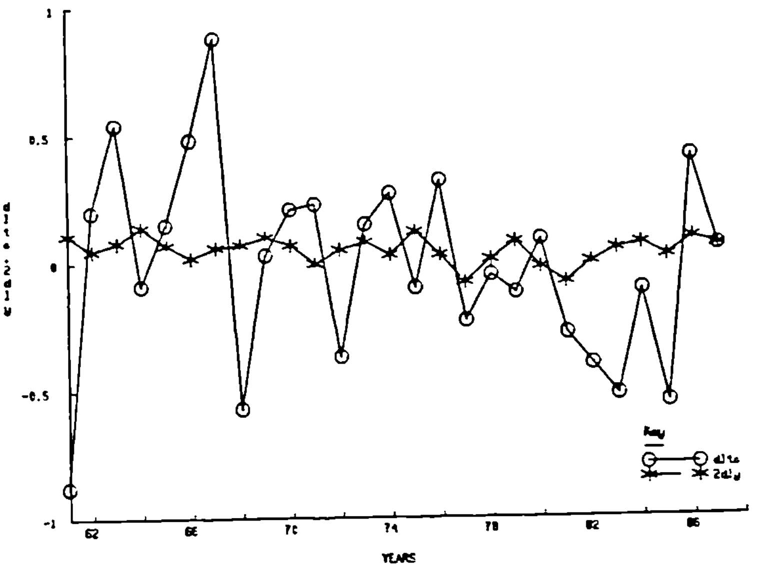
Figure 1.10 (cont.): ANNUAL CHANGES IN SWEDISH INCOME AND CONSUMPTION OF MEDITERRANEAN TOURISM



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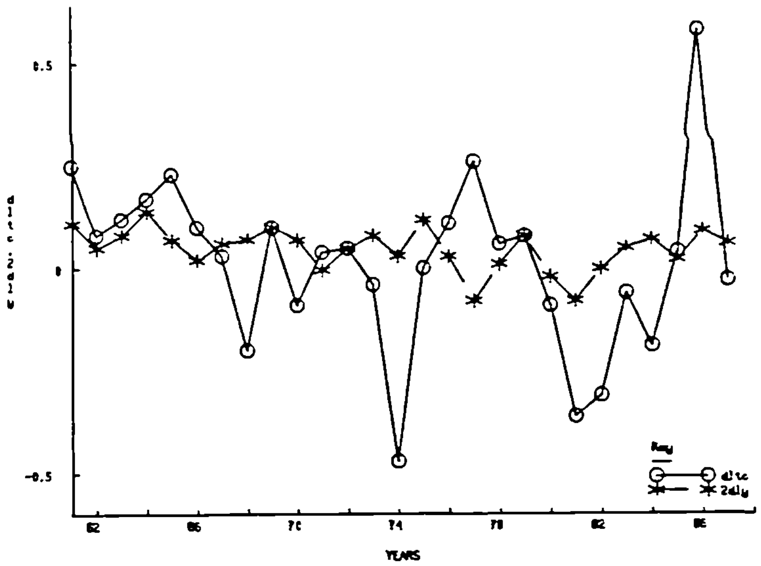

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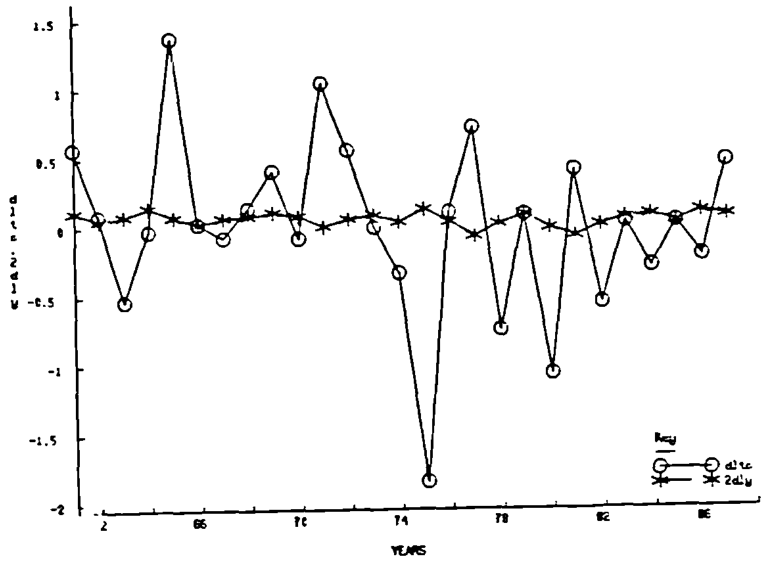
Figure 1.10 (cont.): ANNUAL CHANGES IN SWEDISH INCOME AND CONSUMPTION OF MEDITERRANEAN TOURISM



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CHAPTER 2

A SURVEY OF THE LITERATURE

Introduction

This chapter provides a survey of past studies of the demand for tourism and focuses on multivariable single equation econometric models as well as on the few system of equations models that have also appeared recently in the literature. The survey covers the period from 1960 to 1989. Review and discussion of the issue are provided by Archer (1976a), Quandt (1970), Johnson and Ashworth (1990) and Sheldon (1990), among others.

Various taxonomies have been used to classify the approaches used for studying and forecasting the demand for tourism. Archer (1976a) proposes the classification of the approaches into quantitative and non-quantitative techniques. The former include multivariable regression analysis, gravity and trip generation models and linear systems analysis, and the latter the Delphi approach, scenario writing and theoretical limits analysis. Uysal and Crompton (1985) follow a slightly different classification. They also consider quantitative and qualitative approaches. In the former they include time series analysis, and in the latter they include traditional approaches (analysis of national or regional vacation surveys; and, surveys of tourists in tourism generating areas), Delphi models, and judgement-aided models. Sheldon and Var (1985), however, aggregate the various approaches into three broad categories: time series models, econometric causal models (including gravity models) and expert-opinion methods. Quantitative as well as qualitative methods have often been employed together to study the demand for tourism and to improve the reliability of tourist demand forecasting (Archer, 1976a).

It should be made clear, however, that tourism demand analysis can contribute, on the one hand, to the explanation and study of the determinants of tourism demand and, on the other hand, to forecasting trends of tourism demand. The present thesis focuses specifically on economic models, which help to examine the variables that are considered to have a significant effect on tourism demand changes, rather than to forecast future trends in tourism demand. As Martin and Witt (1989a, p. 425), for example, note, obtaining meaningful forecasts using econometric models is a rather complicated procedure and the statistical results have not always been satisfactory. It appears instead that simple, standard techniques can perform satisfactorily in forecasting the demand for tourism. An application of projections of tourism demand, based on single equation economic models, is presented subsequently in the thesis (Chapter 7). Before we turn to the review of past studies of tourism demand, we briefly discuss the quantitative and qualitative approaches to tourism demand.

2.1 QUANTITATIVE APPROACHES TO TOURISM DEMAND

2.1.1 Econometric and Time Series Models

The most commonly employed quantitative approach is econometric modelling. Econometric models are behavioural models that attempt to measure cause and effect relationships among variables. The techniques include standard multivariate regression analysis, discriminant analysis and probit analysis. The general approach explains present tourism demand levels in terms of the part played by past and present variables. Time series data have, most frequently, been fitted in the model, in order to estimate the degree of influence exerted by each of the explanatory variables on the dependent variable (tourism demand).

With view to forecasting tourism demand, time series models have usually been simple to use and therefore popular, whereas the Box-Jenkins technique is perhaps the most sophisticated and complex of the time series methods. The naive time series forecasts simply extrapolate past data and can be used to identify seasonal variation and trends. These models are not concerned with explaining possible reasons for the particular forecasts made. All causal factors are considered in the aggregate. It is implicitly assumed that the net result of these variables is what has caused whatever trends, seasonalities, or cyclical behaviour may exist in the data, and that an extrapolation of the trend, seasonal, or cyclical pattern will yield an appropriate forecast (Swart, Var and Gearing, 1978). The traditional time series methodology used for forecasting has dealt mainly with univariate analysis, i.e. trying to extrapolate a given series based on its own movement through time. The historical values of a single time series have been used to project future values of the series and this may be useful for relatively short term forecasts. The criticism that the impact of "other" variables on the variable to be forecast is not taken into account can be partially overcome by the introduction of transfer function models, which relate the changes in two or more time series.

2.1.2 Gravity and Trip Generation Models, Linear System Models

Gravity, trip generation and linear system models have been developed from physical systems. Gravity models, in particular, are based on Newton's law of gravity. These models are somewhat similar in form to regression models except that they focus more on the effects of distance or journey time as a constraint which affects travel. It is assumed that travel can be forecast by assigning measures to attractiveness of destinations (constructing an attractiveness index), emissiveness of populations (i.e. propensity to travel for specified purposes) and friction (time or accessibility). Strictly speaking, as Getz (1986) argues, these models have no sound theoretical foundation related to the economics of tourism, but can be made to forecast reasonably well through the process of "calibrating" their formulae to known travel patterns. There are also various conceptual and technical differences in their formulation from multivariable regression analysis. For example, in contrast to regression models which are estimated statistically, the gravity model is usually "calibrated" by trial-and-error procedures and can be used only to forecast numbers of tourists (not expenditures, occupancy rates etc.).

Linear systems models are another type of model based on physical systems and study tourist flows in a way analogous to an electric circuit (use of Ohm's law). They are based on the premise that the supply and demand system behaves similarly to electric systems. The models are able to forecast the number of tourists, but are static, do not account for trends and, in general, have a limited application.

2.2 QUALITATIVE APPROACHES TO TOURISM DEMAND

2.2.1 Delphi Models

The Delphi approach is a method of long-term forecasting and is usually employed when data are inadequate and/or quantitative approaches are inappropriate. The approach involves subjective judgement and is based on the opinions of experts in the field as to the likelihood of possible scenarios of the future and of forecasts of appropriate variables. A consensus of opinions on different viewpoints by "panels of experts" stimulates debate which goes through a number of rounds, giving feedback on the previous group opinion response at each round.

2.2.2 Scenario Writing and Theoretical Limits Analysis

Scenario writing is based on the construction of a hypothetical sequence of events. A scenario, basically, is an account of what could happen given known facts and trends. In the case of demand forecasting, a hypothetical sequence of events is described showing how demand is likely to be affected by particular causal processes. Attention is paid to the variables which affect demand as well as to the decision points which occur. The intention is to indicate what actions can be taken to influence the level of demand at each stage and what the repercussions of such actions might be.

Theoretical limits analysis aims to determine the limits in between which demand can be expected to lie. Various aspects of the particular case study are taken into account and the implications in case demand expands further than the hypothetical limits are also considered. Both techniques, scenario writing and theoretical limits analysis, are not forecasting techniques per se but rather subjective methods of clarifying the issues involved.

2.3 ECONOMETRIC MODELS OF TOURISM DEMAND

2.3.1 Single Equation Econometric Models of Tourism Demand

Introduction

The discussion of econometric models of tourism demand that follows deals first with single equation models and subsequently with system of equations models. Single equation models, estimated using multivariable regression analysis, attempt to identify the role and measure the impact of various independent variables on the dependent variable, thus providing some explanation of the behaviour that the dependent variable has shown in the past. Economic theory is important in providing a theoretical framework and in suggesting specific variables that are anticipated to affect tourism demand, although it does not suggest any particular "correct" specification of the tourism demand function. In the case of tourism demand functions, the standard approach followed in international trade theory for the specification of export and import functions has frequently been applied[1]. Nevertheless, it appears that many past studies that deal with the specification and estimation of tourism demand functions fail, or pay little attention, to providing a sound theoretical framework in the specific context of economic theory directly relating to tourism. A theoretical approach closely linking economic theory with the economics of tourism, rather than replicating the theoretical framework applied to export and import functions in general, is essential.

Most economic models of tourism demand have been concerned with the study of variables that can explain present and past demand levels but have not focused on forecasting future demand trends; a body of literature, however, deals with forecasting future demand for tourism (for example, Archer, 1987b; Witt and Martin, 1989). Single equation models have usually been estimated in log-linear form, using time-series (sometimes also cross-sectional) data and the ordinary least squares (OLS) estimation technique has been applied. The log-linear form has been particularly popular since the parameters represent *the elasticities of the variables. The* econometric methodology has been the "simple to general" approach, where the "right" model is reached after certain manipulations, eg. "add or subtract variables, change the definition of variables and so forth" (Gilbert, 1986; p. 284). A static theoretical and empirical framework has usually been used, though some studies have included lags of the variables considered, in order to account for dynamics. Most past studies do not discuss the possible identification problem but,

[1] A comprehensive discussion of the specification of export and import functions is included in Thirlwall (1986); see, also, Leamer and Stern (1970).

often implicitly, assume the supply of tourist services to be perfectly elastic. It should be noted that a serious problem, with which all past studies of tourism demand have had to deal, has been the severe constraints on adequate and reliable statistical data as well as the tremendous discrepancies in the data collected from miscellaneous sources[2]. In fact, it has been the availability of the data that has often guided the selection of the variables.

2.3.1.1 The Dependent Variable: The Demand for Tourism

The demand for tourism (the dependent variable) has usually been measured as the level of tourist expenditure/receipts in a destination. Many studies have taken the inflation rate into account and have converted tourist expenditure into real rather than current values. The consumer price index has been used as a deflator due to the lack of a more appropriate tourist price index and this is the case, for example, in Artus (1970, 1972), Barry and O'Hagan (1971), Kwack (1972), Jud and Joseph (1974), Little (1980), Loeb (1982), Stronge and Redman (1982) and Quayson and Var (1982). The aggregate figures for tourism expenditure have been used, without particular distinction as to the tourist purposes (such as recreational or business tourism); inadequate data have prevented such distinctions from being made. Early attempts to distinguish business travel were undertaken by Guthrie (1961) and Kwack (1972), but failed to provide clear-cut conclusions.

Although tourist receipts/expenditures has been the measure of tourism demand most frequently used in past studies, tourist arrivals have sometimes provided statistically satisfactory results. Most of these studies have used tourist arrivals at a destination as an alternative measure of demand for tourism, as, for example, Blackwell (1969), Askari (1973), Bechdolt (1973), Diamond (1977), Gunadhi and Boey (1986); whereas the number of trips per head has also been considered, for example, by Kliman (1981), Witt and Martin (1987a, 1987b), Martin and Witt (1988a). In some cases both the level of tourist expenditure and the number of tourist arrivals have alternatively been used, in order to find out which of the measures provides more statistically

[2] To illustrate the discrepancies associated with problematic data, when the Belgian estimates of Belgian tourist expenditure in the Netherlands were compared with the Dutch estimates of the same aggregate, they differed by a factor of six (Working Group of the EEC, 1975) !.

satisfactory results (for example, Barry and O'Hagan, 1971; Jud and Joseph, 1974; Sunday, 1978; Uysal and Crompton, 1984). Nevertheless, the empirical findings have not been conclusive as to which of the two measures is preferable. Diamond (1977) notes that even if tourist receipts generated by the tourist origin countries are preferred to tourist arrivals, they may be unreliable due to "black" market leakages of foreign exchange earned from tourism.

Since a great part of the tourist's budget is allocated to accommodation, the number of nights spent in all or particular types of accommodation can be an alternative measure of tourism demand. Not surprisingly however, the most serious obstacle to the application of this measure has been the lack of relevant data (since most countries usually collect data on tourist arrivals only). Nevertheless, this measure has been attempted in few models (Askari, 1973; Clarke, 1981; Paraskevopoulos, 1981) and some conclusions were drawn. Income, for instance, exerts a positive impact on the number of nights spent (Askari, 1973). The average length of stay has also been considered as a measure of demand for tourism (Laber, 1969), and it was found that the distance travelled is positively related to the average length of stay, since travelers undertaking long journeys are induced to spread high transportation costs over additional days in the destination. A statistical comparison of the empirical results obtained using, alternatively, tourist arrivals and nights spent, for Austria, Italy and Switzerland, has also been attempted (Paraskevopoulos, 1981). One of the most rigorous attempts to study the demand for tourism (in Barbados), as measured in bed-nights (defined as 1 person X 1 bed X 1 night), was undertaken by Clarke (1981). The demand for tourism was studied in relation to different classes of hotels (luxury, first, second etc.) and the empirical findings contributed to the formulation of policy implications related to the accommodation sector in Barbados.

2.3.1.2 The Independent Variables

2.3.1.2.1 Income

The first single equation econometric models of tourism demand were limited to one explanatory variable, income (Menges, 1958; 1959). Inclusion of a variety of explanatory variables led, subsequently, to more sophisticated considerations, with variables, for example, for "mode of transport" (Witt, 1980a; 1980b), "ethnic attraction" (Kliman, 1981), "border income" (Stronge and Redman, 1982), and "shopping prices" (Gunadhi and Boey, 1986). High growth rates in demand for tourism have been associated with high economic growth rates. All past models of demand for tourism have included an income variable and the hypothesis that higher income rates have a positive effect on tourism demand (ceteris paribus) has been statistically accepted in most cases. Moreover, the income elasticity, e_y, has usually been found to exceed unity, indicating that more than proportional changes in tourism demand follow increases in income. The importance of factors related to income, such as income distribution, has been noted in some cases (Davis, 1968; Askari, 1971; Schulmeister, 1979), but no relevant variable has been included to test for the sensitivity of tourism demand to changes in such variables.

The measure for income most frequently employed has been per capita disposable income (at real prices). Gray (1966), for example, in a pioneer study, estimated the following models, using alternatively per capita disposable and national income of the tourist origin country, in order to study travel imports by Canada and the US:

$$R_i = a_i \, Y_j^{b_1} \, E_j^{b_2} \, e^u$$
$$R_i = a_2 \, Y_j^{\gamma_1} \, E_j^{\gamma_2} \, C_{ij}^{\gamma_3} \, e^u$$
$$R_i = a_3 \, Y_j^{c_1} \, (1/E_j)^{c_2} \, e^u$$
$$R_i = a_4 \, Y_j^{d_1} \, C_{ij}^{d_2} \, e^u$$

R_i=Tourist Revenue by Country i
Y_i=Per Capita Disposable/National Income in Country j
E_i=Exchange Rate of i's Currency in terms of US dol.
C_{ij}=Cost of Travel between i and j

Canadian and US travel imports were found to be extremely income elastic ($4.99 \leq e_y \leq 7.01$) for both disposable and national income. However, in a study aiming to estimate projections of numbers of tourists to Ireland for 1969-78 in order to forecast accommodation requirements (Blackwell, 1969), the income elasticity was found to be around unity. One-year lagged income was also considered in some applications of the model but it was current income that appeared statistically significant. In an attempt to overcome problems of serial correlation, first-order difference transformation was also used but the estimation results were rather poor.

Artus (1970) was concerned with German tourist expenditure overseas and with German receipts from foreign visitors during 1960-69; the German income elasticity was found to be 1.74. The model that was estimated was of the following form[3]:

$$(\frac{x_{jt}}{p_{it}}) = a + b_1\, y_{jt} + b_2\, p_{ijt} + b_3\, p_{ij(t-1)} + b_4\, e_{ijt} + b_5\, e_{ij(t-1)} + b_6\, t + u$$

$(\frac{x_{ijt}}{p_{it}})$=Per Capita Real Tourist Expenditure of j
y_{jt}=Per Capita Disposable Income of j
p_{ij}=Relative Prices (current and one-year lags)
e_{ij}=Relative Exchange Rates (current and one-year lags)
t=Time Trend

In a subsequent study, Artus (1972) intended to improve and enrich the results of his earlier study (1970). This 1972 study attempted to undertake a systematic analysis of the short-run determinants of international travel flows by specifying a complete world travel model and by considering the level of tourist expenditure and receipts in several countries for 1955-70. The approach was based on the assumption that international travel is similar to international trade; thus, the structure of the world model was similar to the structure of previous world trade models. The income elasticities of European demand for international travel ranged from 1.36 (Switzerland) to 3.84 (Austria). For the US and Canada, however, income appeared to be an insignificant variable and this led Artus (1972, p. 593) to conclude that "...the short-run variations in the aggregate disposable personal income of these countries do not reflect closely the variations in the income of the members of the professions, businessmen and students, who represent a large fraction of the US nationals and Canadians traveling in Europe...".

In a study of US travel exports to seven countries (Japan, West Germany, United Kingdom, France, Canada, Italy, Mexico) for the 1961-79 period, Loeb (1982) found income elasticity estimates ranging from 1.00 (UK) to 4.80 (West Germany) in relation to per capita tourist expenditure in the US. Income elasticities of similar magnitude were estimated for the demand for Turkish tourism during 1960-1980 (Uysal and Crompton, 1984), in a tourism expenditure model; income elasticity estimates indicated values of 2.00 (UK), 4.00 (West Germany), 2.50 (France)

[3] Small letters denote variables in logs. This also applies to the rest of the models presented in this chapter.

and 3.00 (US). More recently, Martin and Witt (1988a) studied the UK demand for tourism, as measured by the numbers of UK tourist visits per head of population, and found income elasticities ranging from 0.38 (Greece) to 4.39 (Italy).

Apart from per capita disposable income, alternative measures of income have also been used in some of the past studies. For example, several alternative measures of income were used by Oliver (1971), in a study of the effectiveness of the UK travel allowance restrictions in reducing British tourism expenditure abroad between 1967 to 1970. Investigation of variables influencing total tourism expenditure by British abroad, both in total and in the sterling and non-sterling areas in particular, revealed that, of all alternative income measures, such as total personal income and wage and non-wage components of total personal income, it was disposable personal income that gave the most satisfactory statistical results (e_y=1.70); lagged income and first difference transformation did not improve the results significantly. Total personal income was also used by Bechdolt (1973) in studying the demand for travel to Hawaii from each of the mainland states of the US and the District of Columbia; total personal income elasticities varied from 0.94 to 1.05 and were lower than the per capita personal income elasticities (from 1.52 to 3.57) that were estimated, alternatively, using the same model. Bechdolt concluded that significant negative trends in per capita income elasticities indicated that travel to Hawaii has been becoming less attractive and less responsive to increases in per capita state income over time.

In order to study UK tourism expenditure in Ireland for 1956-69, Barry and O'Hagan (1971) proposed the following model:

$$\left(\frac{r_i}{p_i\, n_j}\right) = a + b_1\, y_j + b_2\, p_k + b_3\, me_{ij} + b_4\, dv + b_5\, z + u$$

r_i=Tourist Revenue by Destination Country i
n_j=Population of Origin Country j
y_j=Real Disposable Income in j
p_i=Consumer Price Index in i
p_k=Relative Prices to Other Destinations
me_{ij}=Real Marketing Expenditure Level by i in j
dv= Dummy Variable (Travel Credit Restrictions)
z=Poulter Weather Index

In addition to the UK real disposable income, UK foreign tourism expenditure was also, alternatively, used; the income elasticity appeared more statistically reliable and was found to be e_y=1.66. An attempt was undertaken to estimate the same model for recreational tourism only and demand appeared, plausibly, more income elastic.

A weighted average of income, using GNP, in all tourist generating countries was considered in a study of tourism exports of seventeen Latin American countries (Jud and Joseph, 1974). Alternative models were estimated: including a cost of transport variable (e_y around 2.6); omitting the cost of transport variable (e_y high but biased); considering only US travel to Latin America (e_y from 1.75 to 2.04). The basic model had the following form:

$$\left(\frac{r_i}{p_i\, e_i}\right) = a + b_1\, y_j + b_2\, p_k + b_3\, c_{ij} + u$$

r_i=Tourist Revenue of Destination Country i
y_j=Weighted Average of GNP in Origin Countries
p_i=Consumer Price Index in i
p_k=Relative Prices in Competing Destinations
e_i=Exchange Rate of i
c_{ij}=Cost of Travel from i to j

Tremblay (1989) also aggregated national income of origin countries, in order to use it as a proxy for disposable income, in a study of pooled cross section and time series of international travel receipts in eighteen European countries. The values of the income elasticities varied from 0.33 (UK) to 11.35 (Portugal).

Permanent income was used by Bond (1978) in a study of demand for travel and transportation to fourteen industrial countries. The very high income elasticities estimated led to the conclusion that tourism can be considered a luxury good. A similar conclusion was reached by Gunadhi and Boey (1986), who studied tourism in Singapore and used real per capita national income as the income variable; in their "world" (aggregate) model e_y was 4.69, while e_y ranged from 3.79 (Japan) to 7.30 (UK) in the individual country models. Diamond (1977) estimated a more modest income elasticity of demand for Turkish tourism (1.4 on the average), using per capita GDP of the origin countries.

Not all studies, however, have they indicated income to be a significant variable in explaining the demand for tourism. In a rigorous analysis of US travel imports from ten countries for the 1960-78 period, Little (1980) found that income did not appear statistically significant in most cases. For seven out of ten countries, price and exchange rate changes seemed to explain better the US travel imports when income was not considered in the model than did income when prices and exchange rates were not taken into account. The long-run e_y ranged from 0.31 (France) to 4.41 (Spain) but for Italy, Canada and France the income effect was extremely weak. The model that Little proposed was:

$$x_{jt} = a + b_1\, y_{jt} + b_2\, p_{ijt} + b_3\, p_{ij(t-1)} + b_4\, e_{ijt} + b_5\, e_{ij(t-1)} + b_6\, dv + u$$

x_j=Real Travel Expenditure of Origin Country j
y_j=Per Capita Real Disposable Income of j
p_{ij}=Relative Prices of i to j (current and one-year lags)
e_{ij}=Relative Exchange Rates of i to j (current and one-year lags)
dv=Dummy Variables (Political Factors, Special Events)

The income variable also appeared statistically insignificant in a study considering Canadian visits to twenty-five countries as a whole (Kliman, 1981); furthermore, in the same study, income was statistically significant only in four cases when Canadian visits to twelve countries individually were considered and e_y ranged from 1.59 (Netherlands) to 10.65 (Portugal).

Some studies which considered more specific issues concerning tourism demand are also worth mentioning. Askari (1971), for example, studied the demand for particular package tours of one tour operator in the US and found high income elasticities. He considered the number of tourists with incomes above a certain level but it was the number of attractions per day on the tour and the cost of travel that were the most predictive of package tour demand. In a subsequent study of US tourism demand in Europe, Askari (1973) found a negative impact of income on per capita expenditure of US tourists and concluded that, with higher income, expenditure per capita decreases, the total number of nights spent decreases and US tourists visit fewer countries and stay longer in each one. The income elasticities were found to be around 2.00 for US expenditure in Europe and also in the Mediterranean.

Tourism demand at a regional level was studied for Okanagan, British Columbia by Quayson and Var (1982) and five tourist origin markets were considered. While income appeared to be a significant factor, e_y was lower than unity in most cases, indicating that marginal income increases will be spent on other tourist destinations. Border tourism was the interest of a study analysing tourism by US residents in Mexico border areas (Stronge and Redman, 1982). A "border income" variable was expressed as a proportion of US total income for the adjacent US states and was included in the model as well as per capita real disposable income of the US. The conclusion was that border tourism appears to be an inferior good compared with alternatives.

Witt (1980a, 1980b) constructed what he called "an abstract mode-abstract (destination) node model" of foreign holiday demand (AMAN) and attempted to apply it to German foreign holiday demand as well as to UK foreign holiday demand, so these demands could be jointly estimated in a single model. It was assumed that the two tourist origin countries would follow a similar pattern of tourism demand and, as a result, the explanatory variables would be the same for both countries. The estimated results were rather disappointing. In a subsequent study, Witt and Martin (1987a) considered German and British tourism demand for independent holidays by air; independent holidays by sea/land; inclusive tours by air; and inclusive tours by sea/land, for 1965-83. The per capita disposable income elasticities varied: for total German outward tourism, from 0.51 (Netherlands) to 4.34 (UK); for UK independent air travel, from 0.34 (Gibraltar/Malta/Cyprus) to 2.91 (Netherlands); for UK inclusive tour air, from 0.86 (Spain) to 6.35 (Greece).

2.3.1.2.2 Relative Prices

Apart from the income variable, relative prices have been found to play a major role in explaining the demand for tourism; tourists appear to be sensitive and react to changes in prices. As relative prices increase, tourist demand for a particular destination is expected to decrease. While in some previous studies relative prices have been adjusted to include exchange rate effects, as, for example, in Artus (1970), Barry and O'Hagan (1971), Kwack (1972), Jud and Joseph (1974), Paraskevopoulos (1981), Witt (1980a, 1980b), Stronge and Redman (1982), Uysal and Crompton (1984), in others an exchange rate variable is included separately from the price variable.

It has been noted (Gray, 1970) that the price elasticity of demand varies with the purpose of travel, business travel having a lower elasticity than pleasure travel. A classification of tourists by price elasticity of tourism demand into "sunlust" and "wanderlust" tourists was, furthermore, provided by Gray (1970). Sunlust tourism demand is directed towards destinations offering "sun-sea-sand" type of holidays and therefore tourism demand is expected to be highly responsive to price differentials between similar resorts. The sunlust tourist destinations face high competition between one another. Wanderlust tourists are motivated by desire for a particular, differentiated destination (cultural, social interests etc.) and are expected to have a lower price elasticity of tourism demand. The wanderlust tourist destinations enjoy a certain degree of monopoly.

The majority of past studies consider the consumer price index as an appropriate proxy for discrepancies in inflation rates, though some studies note that a tourism price index, ideally, would be more relevant for goods and services consumed by the tourist; due to the multifacet nature of the tourism product and the inadequate data, however, such an index is lacking. Nevertheless, in a recent study Martin and Witt (1987), experimented alternatively with the consumer price index and a tourist price index they constructed[4]. They concluded that the consumer price index provides statistically satisfactory results and in most estimation attempts behaves reasonably well compared with the proposed tourist price index[5]. Martin and Witt argued that "there does not seem to be an obvious answer to the question 'Which is the best form of the tourist-prices variable -a specific-cost-of-tourism variable or the consumer price index, and/or relative exchange rates'", and concluded that "the empirical results... indicate that the consumer price index (either alone or together with the exchange rate) is a reasonable proxy for the cost of tourism" (Martin and Witt, 1987; p. 245).

Most frequently, the price variable included in past studies of tourism demand is the price level of the tourist destination country relative to the price level of the tourist origin country.

[4] The tourism price index was constructed using specific cost of tourism data. These cost of tourism data represented the average daily costs of board and lodging in a middle category hotel and were obtained by sampling several hotels in each category considered.

[5] The frequency of statistically satisfactory presence of the consumer price index, compared with the proposed tourism price index, is high in the alternative models estimated (the first index being used 63 times compared with 38 times for the second, for total UK tourism to Spain and Greece, for example; p. 241).

Some studies, however, consider alternatively (or in addition) a "substitute price" variable to capture discrepancies in the price level of the destination country relative to its major competitors, as for example, in Blackwell (1969), Artus (1970), Barry and O'Hagan (1971), Kwack (1972), Jud and Joseph (1974), Little (1980), Loeb (1982), Stronge and Redman (1982), Quayson and Var (1982), Martin and Witt (1988a). It has been argued, as in Gray (1966) for instance, that "for many travellers there is a high price elasticity of substitution among countries so that higher than expected prices in one country may result in a change of destination rather than in a decision to forego overseas travel" (p. 86). Taplin (1980) also points out that "whereas habit gives the consumer a tendency to ignore substitutes for the things he consumes daily, he often takes virtually the opposite approach when going on vacation....he consciously assesses the relative merits (including prices) of the travel options open to him " (p. 19).

In a recent study, dealing in particular with the impact of "substitute prices" on tourism demand, Martin and Witt (1988a) concluded that "the empirical results support the hypothesis that substitute prices play an important role in determining the demand for international tourism....however, the importance varies considerably according to the origin under consideration....therefore, there is no single substitute price variable or set of variables applicable to all origin-destination pairs" (p. 267). Among the various substitute price elasticities presented, the values varied considerably, as for example: for UK tourism demand, from 0.13 (Austria) to 1.41 (France); for French tourism demand, from 0.81 (Portugal) to 3.63 (Italy); and, for West German tourism demand, the substitute price variable appeared statistically insignificant. Witt and Martin (1987b) criticised the relative price index proposed by Uysal and Crompton (1985). A weighted price index had been used by the latter authors in a study of tourist flows to Turkey from the eleven countries generating the highest number of tourist visits to Turkey but weights had been arbitrarily assigned.

As regards the magnitude of the tourism demand elasticity with respect to price changes, past studies have indicated a variety of empirical findings. The price elasticity, for example, was found to be -3.4 for German tourism demand and -2.2 for German tourism exports (Artus, 1970), whereas the price elasticity of the European tourist expenditure on international travel (Artus, 1972) was found to be -2.71 on average (with the low e_p=-0.14 for the Netherlands and the considerably higher e_p=-5.09 for Italy); however, the price elasticities of European receipts from international travel varied from -0.37 (Sweden) to -4.95 (Netherlands) and were lower when one-year lagged prices were included in addition. Lower price elasticities were estimated by Kwack (1972), ranging from -1.36 to -1.57, for US travel spending abroad, and from -2.83 to -3.02, for foreign spending in the US. Kwack considered the ratio of a weighted mean of consumer prices in seven countries (accounting together for approximately 75 per cent of the US expenditure abroad) relative to the consumer price index in the US, in order to study the impact of relative prices on US spending abroad. The conclusion was that prices explain the demand for tourism less satisfactorily than income. Kwack estimated the following model:

For US travel spending abroad:

$$\frac{x_j}{p_i} = a + b_1\, y_j + b_2\, p_i + b_3\, dv + u$$

For foreign travel spending in the US:

$$\frac{r_i}{p_j} = a + b_1\, y_i + b_2\, p_j + b_3\, dv + u$$

x_j=US Real Travel Expenditure Abroad
r_i=Revenue from Tourism in the US
y_i=Foreign Per Capita Real Disposable Income
y_j=US Per Capita Real Disposable Income
p_i=Weighted Mean of Consumer Prices in Various Destinations
p_j=Consumer Price Index in the US

With reference to the UK demand for Irish tourism, Blackwell (1969) used the average value of consumers' total expenditure in Ireland and the UK as a measure of relative price changes whereas, for the US demand for Irish tourism, the weighted average revenue per passenger-mile on certain major North Atlantic air carriers was taken. Barry and O'Hagan (1971) used two price variables in their study of Irish tourism: the ratio of a weighted consumer price index for tourist origin countries, excluding the UK, to the Irish consumer price index and, in addition, the ratio of the British and Irish consumer price indices. The latter variable, however, was statistically rejected and subsequently dropped, since there was no improvement in the explanatory power of the variable even after one-year lagged prices were included (despite the fact that overall the performance of the model was improved). According to the authors, this may be related to the long-term impact of the latter price variable or even to the fact that the consumer price indices in Ireland and the UK may show little variation over time. The price elasticity was -1.12 for tourism demand in general but recreational tourism in particular came out more price elastic.

The ratio of the consumer price index in each of seventeen Latin American tourist destinations to a composite weighted consumer price index for competing destination was used by Jud and Joseph (1974) and the price elasticity was found to be higher than unity (in the model in which the cost of transport was included); in a model explaining the number of US tourists to these Latin American destinations, e_p was -1.53. US travel demand for Mexico (Jud, 1974) was found to be highly price elastic and this led Jud to conclude that advertising expenditure was wasted if prices were not attractive. Prices, furthermore, appeared to explain the demand for the US travel imports more satisfactorily than income and one-year lagged prices also had a significant impact, according to a study by Little (1980); the price elasticity came out higher than unity. US travel exports were also highly price elastic in the models Loeb (1982) estimated, with price elasticities ranging from -0.50 (Canada) to -6.36 (UK) in the per capita tourism receipts model and lower price elasticities in the total tourism receipts model. However, while Canadian demand for international travel (Kliman, 1981) appeared price elastic in the individual destination country model (e_p varied from -1.72 for the Netherlands to -8.53 for Portugal), the price change impact on Canadian travel demand was poor in the model in which destination countries were considered as a whole.

In the case of the demand for Turkish tourism (Uysal and Crompton, 1984), tourism demand appeared more sensitive to price changes in the tourism expenditure model than in the number of tourists model and price elasticities varied from -1.48 (for the UK and Swiss tourism demand) to -2.38 (for France). More recently, when Martin and Witt (1988) included in their models a relative price variable as well as a substitute price variable, they found elasticities of the relative price variable ranging, for the UK tourism demand, from -0.23 (Austria) to -5.60 (Greece); for West German tourism demand, from -0.06 (Spain) to -1.98 (France); for the US tourism demand, from -0.36 (Canada) to -1.34 (West Germany); for French tourism demand, from -0.63 (Italy) to -1.24 (Switzerland).

In the study of Mexican border tourism by Stronge and Redman (1982), two price indices were included simultaneously: a Mexican relative to US consumer price index and a Mexican to substitute destination countries weighted average consumer price index. Although the demand for Mexican tourism relative to tourism overseas appeared price elastic, the interrelationship among the two price variables created problems of interpretation of the results. As regards tourism demand at a regional level, in the Okanagan case (Quayson and Var, 1982), the domestic price level relative to that of competing regions was used and the high price elasticity (e_p=-2.11) partly reflected the extent to which other tourist regions compete with Okanagan.

Two specific cost-of-tourism indices were used in the study of tourism demand in Singapore (Gunadhi and Boey, 1986): shopping as well as hotel price indices. In this way the price index was disaggregated into the two main components in which Singapore (lacking natural beauties) is competitive. The estimation results, however, were not particularly satisfactory; shopping price elasticities were statistically significant only for Australia and Japan and hotel price elasticities were important only in the "world" (aggregate) model. The estimated model was of the form:

$$d_{ij} = a + b_1\, y_j + b_2\, p_{ij} + b_3\, p'_{ij} + b_4\, e_{ij} + b_5\, dv + u$$

d_{ij}=Tourist Arrivals in Singapore
y_j=Real Per Capita National Income in j
p_{ij}=Shopping Price Index in i Relative to Consumer Price Index in j
p'_{ij}=Hotel price Index in i Relative to Consumer Price Index in j
e_{ij}=Relative Exchange Rates in i and j
dv=Dummy Variable (Social and Political Events)

Hotel rates have also been considered by Clarke (1981) in a study of international tourism flows to Barbados but the relevant elasticity was found to be less than unity. Finally, in his pooled cross section and time series model of travel receipts in eighteen European countries, Tremblay (1989) used Divisia indices to aggregate consumer prices and found price elasticity values varying from -0.37 (West Germany) to -10.11 (Portugal).

2.3.1.2.3 The Exchange Rates

While several studies include the possible effect of exchange rate changes together with that of prices, taking into account as a result, effective price changes, some studies consider exchange rates separately; for example, Gray (1966), Artus (1972), Askari (1973), Smith and Toms (1978), Little (1980), Loeb (1982), Quayson and Var (1982), Uysal and Crompton (1984), Gunadhi and Boey (1986), Witt and Martin (1987a), Martin and Witt (1988a), Tremblay (1989). It is the exchange rate of the destination country's currency relative to the origin country's currency that has been considered most frequently. Tourists are expected to react to exchange rate changes and the devaluation, for instance, of a destination country's currency relative to the origin country is likely to increase the demand for tourism. Gerakis (1965) first noted that devaluations have been followed by appreciable gains in tourism earnings and the revaluations by smaller but still marked losses; the apparent elasticities of tourism receipts with respect to exchange rates were quite high. He found elasticity values of exchange rate impact of 6.9 (Spain), 3.0 (Canada) and 0.7 (Finland) and also found a high rate of substitution among neighbouring tourist destinations after changes in the exchange rates.

Gray (1966), justifying the inclusion of exchange rates in his model of tourism demand, stated that "Prices are seldom completely known in advance by travelers so that the price level foreseen by the potential traveler will depend predominantly upon the rate of exchange of his domestic currency and hearsay evidence. Thus, while the influence of the price variable is undoubtedly complex, the rate of exchange can be expected to be a prime indicator of expected prices" (p. 86). Artus (1970), furthermore, argued that "the effect of a change in exchange rate of foreign travel is not similar to the effect of differential rates of inflation. The consequences of a change in exchange rate are immediately perceived by potential foreign travelers. On the other hand, these persons are probably not well informed about recent price developments in foreign countries" (p. 605). In his earlier study, nevertheless, Artus (1970) was unable to distinguish between possible separate effects owing to too short a period of data. Subsequently, however, Artus (1972) attempted to fit quarterly data in the model, aiming to provide specific conclusions about the effects of prices as well as of the exchange rates, but the final outcome was inconclusive.

Little (1980) took particular care to overcome the problems of multicollinearity between current and lagged prices and exchange rates and estimated polynomial distributed lags of degree two with a lag of three or four years. A "substitute exchange rate" variable was used and exchange rate effects were significant in ten of the eleven cases considered; the long-run elasticities for the demand for tourism by US tourists ranged from -0.58 (Mexico) to -3.15 (Canada). These results suggested that a 1 per cent depreciation, for instance, of the Canadian dollar versus a weighted average of the US dollar and the currencies of other countries competing with Canada for US travelers would lead to a 3.15 per cent increase in the US demand for Canadian travel services over a three-year period. In eight cases the results suggested that a 1 per cent depreciation of the foreign currency would lead to more than a 1 per cent increase in US travel imports from that country; Italy and Mexico were exceptions. Exchange rates were also statistically significant in the study of tourism expenditure in Turkey (Uysal and Crompton, 1984) and estimated elasticities varied from 0.18 (Austria) to 4.22 (France).

The exchange rate variable has not been found to be statistically significant in explaining the demand for tourism in all studies. Relative exchange rates appeared to exert an insignificant impact on the demand for tourism in Okanagan (Quayson and Var, 1982). Tourism in Singapore (Gunadhi and Boey, 1986) also did not seem to be affected by exchange rate changes. A similar impact to that of prices, however, was found for the exchange rate variable in the study of the demand for US travel by Loeb (1982); exchange rate elasticities varied from 0.8 (Italy) to 4.07 (UK) in the per capita tourist expenditure model. Martin and Witt (1987), in a study investigating a best price index, between a consumer price index and a cost-of-tourism index, attempted several estimations with and without an exchange rate variable in their models. In the more statistically satisfactory models presented, an exchange rate variable was rarely significant (p. 242). The exchange rate elasticities varied from 0.39 (French demand for Portuguese tourism) to 0.99 (UK demand for Spanish tourism). Nevertheless, in his recent study of tourism receipts in eighteen European countries, using pooled cross section and time series data, Tremblay (1989) found a wide range of exchange rate elasticities, varying from 0.63 (West Germany) to 4.60 (Portugal).

2.3.1.2.4 The Cost of Transport

The cost of transport has been considered an important variable in explaining tourism demand and has been included in some past studies. Particularly severe data constraints, however, have prevented researchers from rigorously testing the impact of this variable. The difficulty of constructing a meaningful transport cost variable has been associated with a number of issues, such as the complexity of the fare structure, for example, different fares on different modes of transport and different fares on similar modes, the importance of comfort and convenience, route network structures and so forth. It has also been argued that not only the financial cost of the fare but also the evaluation of the time cost should be taken into account (Gronau, 1970). Moreover, travel costs have been found to explain expenditure levels and length of stay. Bechdolt (1973), for instance, estimated the length-of-stay elasticity to be 2.00. This means that if travel costs to destination i are twice those to destination j, the tourist will spend four times as long in destination i than in j. Mak, Moncur and Yonamine (1977b) found that the length-of-stay of tourists in Hawaii was not significantly affected by changes in air fares. Furthermore, it has been noted that, whereas the duration of the journey may be a positive function of income (Gronau, 1970), the higher the cost of transport to arrive at a destination, the higher the average expenditure in that destination will be, since the tourist may stay longer in order to justify the higher cost of transport undertaken (Blackwell, 1969; Bechdolt, 1973; Sunday, 1978; Kliman, 1981). Many studies mention the crucial role of transport cost but do not include this variable in the proposed models (for example, Barry and O'Hagan, 1971; Uysal and Crompton, 1984), whereas some studies entirely ignore the issue. Travel cost elasticity, in general, has been found to depend on the type of transport used by the tourist and has tended to be lower for road travel than for air travel (Sheldon and Var, 1985).

In one of the earlier studies in the field (Guthrie, 1961), the one-way minimum available air fare was used and two alternative models including transport costs were considered. A simple model related tourism revenue to the cost of direct travel from given points of origin to given destinations and a more complex model considered travel via an intermediate point; travel costs, as a result, could be taken in two parts: fixed (or inter-continental) costs and marginal (or intra-continental) costs. The travel cost elasticity was found to be -1.27. Nevertheless, of a variety of proxies considered in past studies, the economy class air fare of a round (scheduled) trip from the tourist origin country's capital city to the tourist destination country's capital city and back has most frequently been used; for example, Gray (1966), Summary (1987). This measure was also applied in the study of Latin American tourism by Jud and Joseph (1974), who paid particular attention to eliminate multicollinearity between income and travel costs. They used pooled cross-section and time-series data, in order to attain more variability in the independent variables. The estimated travel cost elasticity was less than unity but in the US tourism demand model in particular e_{ct} was found to be -2.02. The study concluded that, while reduction in the cost of travel seems to create higher demand for tourism (as regards specifically the model of the number of US travelers to Latin America rather than the tourism expenditure model), this may be due to the possibility that people who prefer lower air fares may spend less at the destination, since they are likely to have lower incomes.

The impact of travel cost changes on the demand for tourism in Hawaii (Bechdolt, 1973) was significant and elasticities varied from -1.58 to -3.31 in the total demand model. Diamond (1977), furthermore, in his study of the demand for Turkish tourism, found the cost of transport variable to play a major role in tourism demand changes and attributed the findings that his estimates were lower than those of previous studies (e_{ct} ranged from -0.90 to -1.75) to the increased availability of charter inclusive tours. When, however, the air fare from five origin countries as well as the air fares and the consumer prices for gasoline (for the US and Canada) were taken into consideration in a study of US travel imports (Little, 1980), they came out statistically insignificant and were subsequently dropped from the model. Poor estimation results were also found by Stronge and Redman (1982) in their study of Mexican tourism. The unit value index of the transoceanic fare was used and the empirical evidence indicated that there is no tendency for Americans to substitute Mexico for more distant destinations as transport costs rise.

For tourism in Okanagan (Quayson and Var, 1982), the empirical results were statistically insignificant and the e_{ct} was found to be lower than unity in all cases. The real round trip travel cost from a designated central location to Okanagan, taken as the average cost of gas per mile distance multiplied by the distance traveled, was the proxy variable employed.

Little (1980) used the airfare between the origin and a weighted average of five "key" destinations, as a measure of transport costs, in studying the deficit in the balance of the US travel account. Smith and Toms (1978) estimated a model using pooled time-series and cross-sectional data to investigate the factors affecting the demand for international travel to and from Australia. As a transport cost variable the equivalent real fare in the country of residence (which reflected the amount travelers would be prepared to pay to avoid restrictions on low cost tickets) was used. Kliman (1981), in his study of Canadian tourism demand, considered two air fares, namely, the economy air fare and the lowest discount air fare in the high season. Although it was mainly the lowest discount air fare that came out statistically significant, the results were rather ambiguous in the aggregate demand model, whereas e_{ct} varied from -0.94 (Italy) to -3.09 (Portugal) in the individual country model. The estimated model was:

$$d_{ij=} = a + b_1\, y_j + b_2\, p_{ij} + b_3\, c_{ij} + b_4\, c'_{ij} + b_5\, n_{ij} + b_6\, ea_{ij} + b_7\, dv + u$$

d_{ij}=Number of Canadian Visits Abroad
y_j=Real Disposable Income of j
p_{ij}=Inflation Rate in i Relative to j
c_{ij}=Economy Air-Fare
c'_{ij}=Lower Discount Air-Fare
n_{ij}=Population of i Relative to j
ea_{ij}=Ethnic Attraction of i in j
dv=Dummy Variable (Olympic Games)

In one of the studies undertaken by Witt and Martin (1987a), four models were estimated for West German and UK outward tourism: independent holidays by air; independent holidays by sea/land; inclusive tours by air; and inclusive tours by sea/land. The real cost of transport variable was, for travel by air, the cheapest fare available between origin and destination major cities which met such criteria as availability on each day of the week and was bookable in advance; and, for surface travel, gasoline costs, based on distances between origin and destination major cities[6]. The

[6] Where necessary the cost of a ferry crossing was included and it was calculated for an average-sized car for two per-

estimated cost of transport elasticities were found to be around -0.50 or lower in the majority of cases examined. The following model was estimated[7]:

$$\frac{v_{ij}}{p_{ij}} = a + b_1 \frac{y_i}{p_i} + b_2\, c_j + b_3\, cs_i + b_4\, ex_{ij} + b_5\, ta_{ij} + b_6\, tas_i + b_7\, ts_{ij} + b_8\, tss_i + b_9\, dv + u$$

v_{ij}=Number of Tourist Visits from i to j
p_i=Population of Origin Country i
y_i=Per Capita Disposable Income in i
c_j=Cost of Living for Tourists in i
cs_i=Weighted Average of Cost of Tourism in Competitors
ex_{ij}=Exchange Rates between i and j
ta_{ij}=Cost of Travel by Air from i to j
tas_i=Weighted Average of Cost of Travel by Air to Competitors
ts_{ij}=Cost of Travel by Surface from i to j
tss_i=Weighted Average of Cost of Travel by Surface to Competitors
dv=Dummy Variable (Oil Crisis, Currency Restrictions, Political Factors)

In a recent study by Tremblay (1989), using pooled cross section and time series data for tourism receipts in 18 European countries, a combination of inter-country distances and of receipts per passenger-mile of airline companies was used to derive the transport index. More specifically, the average receipts per passenger-mile of airlines within the European continent and the average receipts per passenger-mile on transantlantic flights were considered; (the distances were usually calculated between the country capitals). The transport cost elasticities ranged from -0.48 (Belgium) to -4.17 (Sweden).

2.3.1.2.5 Other Explanatory Variables

2.3.1.2.5.1 Marketing Expenditure

The possible role of marketing expenditure in explaining tourism demand changes has been noted in past empirical work. It has been expected that increases in marketing expenditure in a tourist market undertaken by a tourist destination would have a positive impact on tourism demand for that destination. Unfortunately, the very inadequate statistical data have not permitted a rigorous analysis of the effect of this variable on tourism demand and some past studies simply suggest the significance of this factor (Little, 1980; Kliman, 1981; Quayson and Var, 1982).

sons.

[7] This model has been generally estimated in most of the studies by Witt and Martin and Martin and Witt mentioned in this survey.

Attempts to estimate statistically the impact of marketing expenditure have been undertaken in some of the past studies. Barry and O'Hagan (1971), for example, consider the real level of marketing expenditure by the destination country (Ireland) in the origin country (the UK). However, while marketing expenditure appeared statistically significant when it was the sole explanatory variable or combined with income, the most statistically reliable equations were those excluding marketing expenditure.

A proxy measure of marketing expenditure was proposed by Uysal and Crompton (1984), in order to study the impact of promotional expenditure on Turkish tourism. This measure was constructed by multiplying overall average promotional expenditure per tourist by the number of tourists originating from country i. Although it would have been preferable to use actual promotional expenditure in each generating country, Uysal and Crompton argued that such data are not available for all origins for each year. It was implicitly assumed that there were equal benefits from advertisement costs for all tourists, whatever their origin country, and that there were no lags between the spending on promotion and the attraction of tourists. Despite the fact that the marketing variable appeared to have a strong impact on tourism demand for six of the eleven origin countries considered, marketing elasticities were lower than unity, and the study concluded that expenditure allocated to promoting Turkey as a tourist destination is likely to exert only a minimal effect on international tourist flows to Turkey. Similar conclusions were reached by Clarke (1981), in the Barbados tourism case, where the promotional expenditure elasticity was found to be less than unity.

Papadopoulos and Witt (1985) examined foreign tourist arrivals in Greece from its eight most important generating countries, namely Austria, France, Germany, Italy, Sweden, Switzerland, UK and the US over 1972-82 and included a promotional expenditure variable in their model. The marketing cost variable referred to actual expenditure by the Greek National Tourist Organisation in a given origin and was split into advertising expenditure and public relations expenditure. The models were estimated initially including total promotional expenditure, then with advertising expenditure alone, and finally with public relations expenditure alone. The authors suggested that "as the results obtained for total promotional expenditure and advertising expenditure alone are superior to those obtained when public relations expenditure alone is used, the more effective form of promotional activity appears to be advertising" (p. 690). The advertising expenditure elasticity ranged from 0.17 (Austria) to 1.62 (France), with an elasticity of 0.83 for the US, and it was proposed that advertising efforts should concentrate on the French and American markets.

Middleton (1989) argues that advertising can raise the number of trips to the UK by about 10 per cent with most tourists' behaviour being determined by purely economic factors. The study recommended that advertising be replaced by better liaison between tourist boards and the industry in order to co-ordinate supply with the existing and potential demand.

2.3.1.2.5.2 Population, Ethnic Attraction, Migration

The population of the origin area has also sometimes been used as a separate explanatory variable (Askari, 1973; Diamond, 1977; Kliman, 1981). In some cases, the dependent variable was adjusted to take population into account (Artus, 1972; Askari, 1973; Bechdolt, 1973; Sunday, 1978; Kliman, 1981; Loeb, 1982; Witt and Martin, 1987a; Martin and Witt, 1988a). Although the empirical findings on the population variable often appear to be statistically insignificant, the general conclusion seems to be that the larger the population in a country, the stronger its impact on foreign tourism demand.

In an early study, Guthrie (1961) attempted to test the hypothesis that tourism revenue increases proportionally with past migration, that is, the higher the migration outflows from a country, the higher the tourism revenue inflows, due to migrants abroad returning at home; the results, however, were ambiguous. The population of the origin country was considered as a separate variable by Askari (1973) in a study of US tourists traveling abroad and by Diamond (1977) in a study of Turkish tourism. Diamond's empirical findings indicated an almost one-to-one relationship between the increase in the population and tourist arrivals generated (p. 547); the tourism demand elasticity with respect to population varied from 0.69 to 1.034 for selected years. Kliman (1981), in his study of Canadians traveling abroad, included the population of Canada relative to each tourist destination country; in addition, he took an "ethnic attraction" factor into account by considering the number of Canadian residents who identified themselves as members of the ethnic group closest to the residents of the destination country i. Kliman noted that, since in the individual country approach only the time series variations play a role, the variations of the population variable are very small for any given country, generally showing a slow upward trend (p. 493). However, in some of the estimated models the ethnic attraction and migration variables appeared to play a more significant role than the population variable. Similar variables to those used by Kliman were included by Smith and Toms (1978) in a study of tourism demand to and from Australia. Two variables representing the proportion of the Australian population born in the overseas country as well as the number of Australian-born permanent residents in the overseas country were considered in the model. The elasticity values of the former variable (Australians-to-overseas model) varied from 1.49 (Germany) to 4.35 (Italy), and of the latter variable (overseas tourists-to-Australia model) from 2.16 (New Zealand) to 2.93 (UK).

2.3.1.2.6 Dummy Variables

Special events related to political, economic, social, and cultural factors may affect tourism demand favourably or adversely. In order to account for these factors, dummy variables were included in some of the past studies. Among the special factors considered have been the rapid expansion of car-ferry facilities between the UK and Ireland (Blackwell, 1969), travel credit restrictions in the UK (Barry and O'Hagan, 1971; Oliver, 1971), the number of attractions in a tour (Askari, 1971), the Olympic games (Kwack, 1972; Kliman, 1981; Loeb, 1982), special events and political factors (Little, 1980), social and political instability (Uysal and Crompton, 1984), hostilities between countries (Gunadhi and Boey, 1986; Witt and Martin, 1987a), the oil crisis (Martin and Witt, 1988a) and terrorism (Tremblay, 1989). In most studies the special factors appeared to have significant explanatory power and indicated that tourism demand can be sensitive to their changes.

The Olympic games in Canada affected UK demand for US tourism by a coefficient of 0.35 (Loeb, 1982); the political disturbances in France reduced US demand for travel to France by a factor of -0.26, whereas the EXPO67 in Canada increased US travel to this country by a factor of 0.49 (Little, 1980); hostility factors affected Indonesian tourism demand for Singapore by a coefficient of -1.50 (Gunadhi and Boey, 1986); political instability reduced UK demand for Greek tourism by a factor of -0.40 (Witt and Martin, 1987a); the oil crisis affected adversely French travelling to the UK by a coefficient of -0.20 (Martin and Witt, 1988a). It is also worth mentioning the study by Kushman, Groth and Childs (1980). They examined the impact of different kinds of political regimes on travel patterns in the world community and questioned whether different types of governmental-political systems have any appreciable effect on the movement of tourists into and out of countries. Three categories of political systems were considered: polyarchies, Marxist-Leninist states and residual states. The empirical findings indicated that travel among Marxist-Leninist states is as frequent as travel among polyarchies (ceteris paribus). However, the frequency of travelling among polyarchies was found to be greater than travelling from polyarchies to Marxist-Leninist states.

2.3.2 Systems of Equations Econometric Models of Tourism Demand

Some studies have recently departed from the conventional single equation models used to explain tourism demand and attempted to estimate the demand for tourism using system of equations models. The studies following the system of equations approach have aimed to provide a theoretical framework which would link tourism demand to consumer behaviour theory. In this way, it was hoped to eliminate various deficiencies of the earlier single equation models, such as theoretical inadequacies and empirical limitations. An expenditure allocation model explains the way that a consumer allocates a certain (given) level of expenditure (budget) among various goods and services in order to maximise utility. Proper examination of an expenditure allocation model requires estimation of a complete system of demand equations. Certain restrictions imposed by the basic axioms of the consumer theory must also be sati fied. The studies which are discussed subsequently focus on the sub-allocation of tourism expenditure. Despite some improvements that the system of equations approach has contributed, various issues, such as the complementarity/substitutability concept and the inclusion of dynamics, still require clarification.

The system of equations approach is an interesting and useful path for research, open to further progress.

2.3.2.1 The Almost Ideal Demand System (AIDS) Model

In most cases, the few studies of tourism demand which have followed the system of equations approach (White, 1982, 1985; O'Hagan and Harrison, 1984; Fujii, Khaled and Mak, 1985) have used the Almost Ideal Demand System (AIDS), proposed by Deaton and Muellbauer (1980a), as the most appropriate functional form of the system of equations models. However, the Linear Expenditure System (LES), proposed by Stone (1954a), has also been considered (Sakai, 1988). The functional form of the AIDS model, discussed in detail in chapter 5, is:

$$w_i = a_i + \sum_{j=1}^{n} \gamma_{ij} \log p_j + b_i \log(\frac{x}{P}) + u_i \qquad i = 1,\dots,n$$

w_i = Budget Share of the ith Good
p_i = Price of the ith Good
x = Total Expenditure on all Goods of the Group (in the System)
P = Aggregate Price Index

The aggregate price index, P, is defined as:

$$\log P = a_0 + \sum_{i=1}^{n} a_i \log p_i + \frac{1}{2} \sum_{i=1}^{n} \sum_{j=1}^{n} \gamma_{ij} \log p_i \log p_j$$

A linear approximation can be obtained by replacing P with the approximation P^* (where prices are relatively collinear), so that

$$\log P^* = \sum_{i=1}^{n} w_i \log p_i \qquad (or,\ P^* = \prod_{i=1}^{n} p_i^{\ w_i})$$

White (1982, 1985) first estimated a complete system of demand equations, when examining international travel demand between the United States and Western Europe for 1954-1981, in order to obtain expenditure and price elasticities of the demand for travel. An annual time trend and a dummy variable for the 1968 political disturbances in France were also added to each budget share equation. Sixteen European destinations were aggregated into seven groups (on geographical and socioeconomic grounds), in order to reduce the substantial number of parameters to be estimated and one of the equations in the system referred to transport costs. The values of the elasticities of tourism demand with respect to travel expenditure ranged from 0.93 (Italy-

Greece group) to 1.00 (Germany-Austria-Switzerland group) and uncompensated own-price elasticities from -0.53 (Belgium-Netherlands-Luxembourg group) to -2.27 (Norway-Sweden-Denmark group). White also attempted to classify the regions of Europe as substitutes or complements according to the preferences of travelers and found that American tourists view Norway, Sweden, Denmark, Spain and Portugal as "luxury" destinations, which might expect to receive an increasing share of the traveler's budget. The price elasticities were relatively low for France, Belgium, the Netherlands and Luxemburg. France and the UK, furthermore, exhibited high price substitution effects as did France and Germany. Finally, travel to most other countries was classified as complementary with respect to travel to France and as substitutes with respect to the UK. The homogeneity condition (the demand function is homogeneous of degree zero in prices) was tested and accepted but symmetry (the matrix of price substitution effects is symmetric) was rejected. These conditions are necessary for the model to be consistent with the consumer demand theory.

Following the lines set in White's study, O'Hagan and Harrison (1984) modified the AIDS model applied by White and attempted to extend the empirical conclusions. It was again the allocation of total US tourism expenditure in Western Europe that was considered for 1964-1981 but the share of each European destination was taken individually and not in aggregate groups; no transport cost equation was included in the system. Time trends and various dummy variables were also added in each equation in order to account for political upheavals, international fairs, sporting events and changing tourist tastes. Due to severe problems created by the presence of high multicollinearity and too few degrees of freedom, estimation of the original AIDS model could not proceed in a meaningful way. O'Hagan and Harrison imposed, as a result, certain non-zero restrictions on the coefficients of cross-price effects (γ_{ij}s) and ended up estimating a transformation of the initial AIDS model using a single relative price variable for each destination country. The single price variable was of the following form[8]:

$$p_i^* = p_i - \frac{1}{\sum w_j} \sum_{i \neq j} w_j \, p_j$$

[8] p's in small letters denote prices in logs. (The same is not the case for w's, the budget shares).

and the final model estimated was:

$$w_i = a_i + \gamma_i \log p_i^* + b_i \log(\frac{x}{P^*}) + u_i \qquad i = 1,...n \quad (n = 5)$$

Overall, the values of the elasticity of tourism demand with respect to total travel expenditure were found around unity and varied from 0.51 (Italy) to 2.02 (Portugal) and uncompensated own-price elasticities ranged from -0.32 (France) to -2.56 (Greece). Some of the empirical results, however, such as the positive own-price elasticity for Spain, were not reasonable.

The other past study that applied the AIDS functional model to vacation travel, by Fujii, Khaled and Mak (1985), followed a different direction of research. The purpose of the study was to investigate tourism demand and estimate total tourism expenditure and price elasticities for individual components of vacation travel to Hawaii. The expenditure by visitors to Hawaii during 1958-80 was analysed for six different classes of goods and services: food and drink, lodging, recreation and entertainment, local transport, clothing and other items. The study was expected to be useful in evaluating the effects of public policies on the pricing of goods and services at a tourist resort, in order to assess, for example, the effects on local government revenue and on the travel industry of a tax on hotel occupancy. The estimated expenditure elasticities were found to be around unity, though clothing and entertainment appeared to be necessities. All the own price elasticities were negative and significantly different from zero and, among the six categories of goods and services, four pairs (transportation and lodging, food and lodging, entertainment and clothing, entertainment and other) appeared to be substitutes for each other. The study concluded that a tax on hotel room occupancy, imposed in many resorts, probably damages the lodging and some non-lodging sectors of the tourism industry.

2.3.2.2 The Linear Expenditure System (LES) Model

Smeral (1988) used the functional form of the Linear Expenditure System (LES), in a study applying econometric methods to estimate how tourism demand reacts to increases in economic growth and reductions in tourism prices. Three models, more specifically, were estimated in order to illustrate the effects on real tourism expenditure of increases in economic growth in nine

European countries as well as of a unique reduction in tourism prices in two of these European countries; apart from the LES, the alternative econometric models were the linear and log-linear regression models. The LES model, based on the Stone-Geary utility function and developed by Stone (1954a), had the following functional form:

$$p_i\, q_i = p_i\, \gamma_i + \beta_i\, (x - \sum_{j=1}^{n} p_j\, \gamma_j) \qquad i,j=1...n$$

$p_i q_i$ = Real Tourism Expenditure in Country i
p_i = Prices of Tourism Goods in Country i
γ_i = Minimum (Subsistence) Quantities
x = $\sum_{i=1}^{n} p_i q_i$ = Budget Constraint
n = Number of Destination Countries (n=9)

The LES model implies that expenditure on international tourism can be split into two parts. $p_i\gamma_i$ is that part of the expenditures (committed expenditures) that will be spent regardless of prices, and can be regarded as a minimum (subsistence) level of tourism consumption. The surplus budget ("supernumerary expenditure") x - $\sum_{j=1}^{n} p_j\gamma_j$ is distributed among the destination countries in the fixed proportions β_i (marginal propensities to tourism). Substitution as a result of changes in relative prices will cause changes in the marginal propensities to tourism. The values of the budget elasticities obtained from the LES model ranged from 0.29 (Yugoslavia) to 1.47 (Italy) and the values of the price elasticities from -0.31 (Yugoslavia) to -1.47 (Italy).

In another recent study by Sakai (1988), using the LES, a micro-analysis of business travel demand was undertaken to examine the role of consumption in the business decision to purchase travel goods. Two hypotheses were tested: that, "tax deductibility and the dual benefit nature of goods on the business-pleasure borderline increases the demand for business travel" and that "this dual benefit decreases price elasticity". Expenditure microdata on separate categories of goods from individual tourist parties in Hawaii were used, and the behaviour of business travelers and pleasure travelers was compared and contrasted. Both groups were assumed to have identical tastes in consumption but the expenditure behaviour of business travelers was modified by the effect of the role of the business trip as a factor of production and by the effect of the eligibility of business trip expenditure for income (tax) exclusion. Because of data limitations however, the production-consumption effect could not be separated from the tax effect and the two effects were tested simultaneously.

The study found that business travelers have higher expenditures than pleasure travelers on food, lodging, and local transportation; the former, though, have lower expenditures on clothing and recreation. Minimum (subsistence) quantities[1] estimated by the LES were also higher for business travel. The expenditure elasticities, more specifically, for each of the five categories of goods and services (food, lodging, recreation, transport, clothing) indicated that the only category differing from unity for business travelers was lodging (1.10), implying that it is a luxury good. For pleasure travelers, lodging and transportation appeared to be luxury goods (1.13 and 1.12 respectively) and food and recreation were normal goods (0.85 and 0.87 respectively). All categories of goods and services were price inelastic for business travelers. The uncompensated price elasticities of business travelers were significantly smaller than those of pleasure travelers for clothing, local transportation and the miscellaneous category. These results have important implications for travel enterprises when pricing their products. It should be noted that in this analysis the fact that business expenditures create a dual benefit at both the business and the personal level is important. Sakai (1988) (and Clotfelter (1983)) suggests that, because personal benefit is obtained from business travel, this leads to inefficient allocation of resources, having implications for tax policy relating to business travel (Sheldon, 1990; p. 43).

As a final word, the study by Fujii, Khaled and Mak (1987) is worth mentioning. An empirical comparison of systems of demand equations was undertaken, by applying alternatively the AIDS model, the Rotterdam model and the LES model to visitor expenditures in resort destinations. The study concluded that the elasticity estimates obtained from the AIDS model (and, to a lesser extent, the Rotterdam model) are more reliable compared with the other models. It was suggested, furthermore, that the LES model is of limited usefulness for policy formulation but is acceptable for forecasting purposes.

[1] The theory behind the specification of the LES implies that the consumer first buys the minimum (subsistence) quantities of goods (and services) and then distributes remaining income in fixed proportions, according to marginal propensities. See also the previous discussion on Smeral's (1988) study.

CONCLUSION: A CRITICAL APPRAISAL

This chapter has discussed previous empirical studies of the demand for tourism. Emphasis has been placed on outlining the major theories that past studies have put forward and a variety of variables which can affect tourism demand were presented. A plethora of divergent empirical findings, however, as well as alternative definitions of similar variables considered (in addition to severe data constraints and discrepancies), suggest that overall conclusions should be treated with caution. Furthermore, many of the past models suffer from theoretical limitations and empirical inadequacies. Many previous single equation models of tourism demand lack, or fail to specify explicitly, a sound theoretical framework. Explanatory variables are frequently included in the models without discussion as to the role of these factors in the specific context of tourism demand, as will be seen subsequently in Chapter 3. Some theoretical deficiencies are also apparent in the studies applying the system-wide approach. For example, the theoretical linking of tourism demand with consumer behaviour theory has not always been satisfactory, and this will be discussed in depth in Chapter 5. Important assumptions in consumer demand theory, such as separability or negativity, either were not given sufficient attention or were violated, as will be explained in Chapter 6.

Further problems of past studies are related to econometric issues, such as the methodology applied, poor diagnostic checking and statistically unreliable estimation results. Only a few studies take their econometric weaknesses into account seriously and attempt to eliminate them; others draw conclusions disregarding the econometric limitations. The greatest part of previous work has been based on a static framework, largely ignoring dynamic aspects, and has been dominated by what is traditionally known as the "simple to general" approach. In other words, starting from a "simple" model usually in log-linear form, where all variables appear in levels, the "right" model has been reached after certain manipulations, eg. "add or subtract variables, change the definition of variables and so forth" (Gilbert, 1986; p. 284). It is widely accepted now, however, that this methodology may not provide a satisfactory explanation of the data generation process and can suffer from limitations that cast doubts upon the reliability of the estimation results. A related aspect is the way in which past models have attempted to correct for deficiencies that the diagnostic checking has revealed. More specifically, whenever evidence of first-order autocorrelation was detected in past studies, a re-estimation was attempted to correct for it, frequently using the Cochrane-Orcutt transformation, instead of a revised specification. It is now known, however, that the Cochrane-Orcutt transformation may be inappropriate, since the common factor restriction implied by this transformation should be tested before it is adopted. Serial correlation can be interpreted "as a convenient way of representing dynamic relationships" rather than a "nuisance" (Hendry and Mizon, 1978), as is discussed further in Chapters 4 and 6.

To conclude, the discussion indicates that there is plenty of scope for progress in the study of tourism demand. Whereas past research on tourism demand has tended to emphasise macro-models of aggregate tourism demand, usually studying the USA and Europe and applying standard multiple regression models, a large gap in tourism demand research appears to be at the level of micro-analysis (Sheldon, 1990). The single equation approach on a country-by-country basis -adjusting the model to account for each country's attributes and peculiarities- is still a useful vehicle for research. Nevertheless, there is scope for improvement of this approach, particularly when the "dynamics" of tourism demand are taken into account (Syriopoulos, 1989). Moreover, recent developments in consumer behaviour theory, and the associated systems of demand equations, indicate that the study of tourism demand in the future may provide interesting findings at the micro-level, where, currently, there is a shortage of relevant research. The introduction of "dynamics" should improve the performance of the models and provide more satisfactory empirical results.

Table 2.1: A SUMMARY OF MAJOR PREVIOUS STUDIES OF TOURISM DEMAND

AUTHOR	DESTINATION- -ORIGIN	TOURISM DEMAND	INCOME	RELATIVE PRICES	EXCHANGE RATES	TRAVEL COST	OTHER VARIABLES
Gray (1966)	US-Canada Canada-US Rest of World-US Rest of World-Canada	Expenditure	1.94 (per capita) 0.84 (aggregate) 2.28 (per capita) 1.12 (aggregate) 5.13 (per capita) 2.86 (aggregate) 6.60 (per capita) 3.33 (aggregate)		-2.14 -1.22 -2.40	-0.49 -0.21	
Artus (1970)	Internat. Tourism- Germany Germany- -Internat. Tourism	Expenditure (real) Receipts (real)	1.75-2.04 -	-3.40 -1.62--2.20			
Artus (1972)	12 European Countr. -US US- -12 European Countr.	Expenditure (per capita) Receipts (per capita)	0.83-3.84 (per capita) 0.65-1.82	-1.02--5.09 -0.22--4.95	-0.32--7.63 -0.21--4.68		Seasonal dummies, trends
Barry & O'Hagan (1971)	Ireland- Great Britain	Expenditure (real)	2.42 (per capita)	1.30			
Kwack (1972)	7 Destinations- US US- 7 Origins	Expenditure (real)	1.20-1.25 (per capita) 1.55	-1.36--1.57 -2.83--3.02			Expo
Askari (1973)	10 European Dest.- US	Expenditure (per capita)	$e_Y < 0$ (per capita)		$e_E < 0$		
Bechdolt (1973)	Hawaii- -US	Arrivals	0.94-1.06 (aggregate)			-1.58--3.31	
Jud & Joseph (1974)	17 L. Americ. Countr. -Inter. Tourism 17 L. Amer. Countr. -US	Receipts (real) Expenditure (real)	-0.91-9.17 (per capita) 2.58 (pooled regr.) 1.74 (per capita) 2.49 (pooled regr.)	-0.37--4.24 -1.12 (pooled regr.) -0.92 -1.53 (pooled regr.)		-0.66 (pooled regr.) -2.02 (pooled regr.)	
Diamond (1977)	Turkey- -Inter. Tourism	Arrivals	1.4			-0.90--1.75	Population of origin countr.
Smith & Toms (1978)	Inter. Tourism from Australia Inter. Tourism to Australia	Trips	2.4 1.1-2.6	-1.8 -1.9			Ethnic population
Little (1980)	10 Destinat.- -US	Expenditure (real)	-0.15-4.41 (per capita)	-1.08--7.29 (lagged)	-0.58--3.15 (lagged)		Political factors Expo, special events
Kliman (1981)	12 Destinat.- Canada	Visits	1.59-10.65	-1.72--8.53		-0.94--3.09	Relative populations, Ethnic Attraction Olympic Games
Loeb (1982)	US-Japan, Germany, UK, France, Sweden	Expenditure (real)	0.9-4.8 (per capita) 0.9-7.1 (aggregate)	-0.5--6.4 -0.4--5.2	-0.12-4.07 -0.19-2.64		Expo, Olympics
Stronge & Redman (1982)	Mexico-US Mex. border-US Mex. interior-US	Expenditure (real)	0.45 2.99	0.36 (Mex.-US) -1.20 (Mex.-Overs.) -0.12 (Mex.-Overs.) -0.63 (Mex.-Overs.)		-0.26 (transocean.) (fares) -0.32 -0.25 0.96 (Overs. travel)	Border income (1.54)

Table 2.1 (cont.): A SUMMARY OF MAJOR PREVIOUS STUDIES OF TOURISM DEMAND

AUTHOR	DESTINATION- -ORIGIN	TOURISM DEMAND	INCOME .	RELATIVE PRICES	EXCHANGE RATES	TRAVEL COST	OTHER VARIABLES
Qayson & Var (1982)	Okanagan (Canada)- -Rest of Canada, US	Receipts (real)	0.31-1.02 (per capita)	-1.09--2.27	0.31-1.57	-0.08--0.32 (surface cost)	
Uysal & Crompton (1984)	Turkey- 11 Countr.	Expenditure Arrivals	0.92-5.95 (per capita) -0.06-6.07 (per capita)	-0.23--2.06 -0.03--2.38	0.18-4.22 1.09-6.63		Promot. Expendit. (0.02-0.28), oil crisis, polit. factors Promot. Expendit. (0.02-0.59), oil crisis, polit. factors
O'Hagan & Harrison (1984)	15 European Countr.- -US	Expenditure (per capita)	0.51-2.02	-2.56-0.35 (uncompensated) -2.52-0.50 (compensated)			Polit. Factors, trends
White (1985)	7 groups of Europ. Countr.-US	Expenditure (per capita)	0.93-1.23	-2.28-1.33 (uncompensated) -2.24-1.63 (compensated)			Polit. factors, trends
Papadopoulos & Witt (1985)	Greece- 8 Origin Count.	Arrivals (per capita)	0.13-8.22 (aggregate)	-0.51--1.66		-0.04--0.51	Promot. Expendit. (0.02-1.62), polit. factors
Gunadhi & Boey (1986)	Singapore- -Austral., Indones., Japan, UK, US, World	Arrivals	0.81-7.30 (per capita)	-1.11--2.99 (shop. prices) -0.91--1.12 (hotel prices)	-1.62		Polit. factors
Summary (1987)	Kenya- -UK, US, Italy, Germany, Switzerland	Arrivals	0.35-4.17 (per capita)	-0.04--5.66	0.08-3.87	-0.009--0.43	Conflict with Tanzania
Martin & Witt (1987)	Major tour. destin.- -France, UK, Germany, US	Visits (per head)	0.32-5.09 (per capita)	-1.10--5.88 (own prices- -cost of liv.) 2.16-4.33 (substit. prices- -cost of liv.) -0.33--0.73 (own prices- -cost of tour.) 0.73-3.60 (substit. prices- -cost of tour.)	0.39-0.99	-0.16--1.29 (own prices- -air travel) 0.16-0.95 (substit. prices- -air travel) -0.10--2.16 (own prices- -surf. travel) 0.59-4.70 (substit. prices- -surf. travel)	Oil crisis, UK currency restrict. dummies
Chadee & Mieczkowski (1987)	Canada- US	Expenditure	1.52 (per capita)	0.89	0.52		Seasonal dummies, population
Martin & Witt (1988)	Major tour. destinat. -France, UK, Germany, US	Visits (per head)	0.37-4.92	-0.06--5.60 (own prices) 0.13-3.63 (substit. prices)	0.63-1.85	-0.07--1.07 (own prices- -air travel) 0.10-3.26 (substit. prices- -air travel) -0.01--1.76 (own prices- -surf. travel) 0.27-5.06 (substit. prices- -surf. travel)	Oil crisis dummies
Smeral (1988)	9 European Countr.- Internat. Tourism	Expenditure (real)	0.29-1.47	-0.31--1.48			
Tremblay (1989)	18 European Countr. (pool cross-section & time-series)	Receipts (real)	0.33-11.35 (aggregate)	-0.37--10.11	0.63-4.60	-0.48--4.17	Terrorism dummies

CHAPTER 3

THE SINGLE EQUATION APPROACH

Introduction

This chapter provides a theoretical framework for the determinants of tourism demand by undertaking a disaggregated, country-by-country, analysis of tourism expenditure allocation to major Mediterranean destinations, namely Greece, Spain, Portugal, Italy and Turkey, by major tourist generating countries, the United Kingdom, West Germany, the USA, France and Sweden. This will contribute to a rigorous study of the impact on tourism demand of changes in variables such as income, prices, exchange rates and the relative competitiveness of the Mediterranean destinations. The role of these variables is theoretically justified and their impact is statistically estimated. The flexibility of the single equation model allows for the inclusion of non-economic factors, such as political instability or unpredicted shocks in the international environment, as for example oil price changes. Moreover, the model permits the estimation of dynamic aspects of tourism demand so that the impact of the variables of interest can be studied in the short as well as in the long-run. As a result, a detailed explanation of the data generation process, as regards tourism expenditure allocation in Southern Europe, can be provided.

The single equation approach can also be useful in providing an alternative framework to the system approach which will be discussed subsequently. The single equation estimation methodology which is used here contrasts with that followed in past empirical work and, to our knowledge, has not previously been applied to the study of the demand for tourism. It overcomes various limitations in the theoretical framework as well as in the empirical approach of previous studies, and also provides a number of new insights into tourism demand in Southern European countries.

3.1 SPECIFICATION OF THE MODEL

Empirical evidence indicates that the demand for tourism in most destinations is associated with tourism for vacations, relaxation and entertainment; it consists of goods and services of private final consumption. Theoretically, the main factors that determine the demand for tourism are considered to be the income level of the tourist origin country i, the price level (cost of living) of the tourist destination country j (which "exports" tourist services) relative to that of the origin country i (which "imports" tourist services), the price level of the destination j relative to alternative destinations k (competitors) and, by analogy to prices, the exchange rates between destination j and origin i as well as between alternative destinations k, and the cost of transport between destination j and origin i and between competitive *destinations k and origin i. Other* economic factors, such as marketing expenditure undertaken by destination j in origin i and events, such as political/social unrest, or attractions, such as the Olympic Games, may influence tourism and cause demand to fluctuate dramatically. The tourism demand function can be presented in the following general form:

$$D_{ij} = \mathrm{f}\,(Y_i, P_{ij/k}, E_{ij/k}, C_{ij/k}, \mathrm{DV},...)$$

D = Tourism Demand by i for j
Y = Income in i
P = Prices in j Relative to i (and/or j Relative to k)
E = Exchange Rates Between j and i (and/or j and k)
C = Cost of Transport Between j and i (and/or k and i)
DV = Non-Economic Factors

i = Tourist Origin Country
j = Tourist Destination Country
k = Competitive Destination Country
t = Time Period

3.2 DEFINITION OF THE VARIABLES

3.2.1 The Dependent Variable: The Demand for Tourism

The tourist flows are usually measured in three alternative ways:

3.2.1.1 Tourism Expenditure (of the guest country) or Tourism Receipts (of the host country)

Compared with the other measures of tourism demand that follow in the discussion, tourism expenditure appears a particularly appropriate measure of the tourist services consumed in a destination. Unlike the numbers of tourist arrivals this measure indicates the direct impact of tourism on the balance of payments and income generation. This is also reinforced by the fact that tourist arrivals at a destination may be increasing whereas, at the same time, real tourism receipts may be diminishing due, for instance, to higher inflation rates, or to arrivals of tourists with lower income (and a lower spending propensity) or even to a decrease in the average length of stay in the destination. It should be borne in mind, however, that, while considerable difficulty is associated with the collection of reliable and disaggregated statistical data on tourism expenditure, this is not the case for data on the numbers of tourist arrivals. Furthermore, leakages in the tourism receipts of a destination, associated with holiday packages paid in advance in the origin country *as well as* due to foreign exchange "black markets" in the destination country, cast doubt on the reliability of these data. It is also relevant to note that tourism expenditure occurs on a variety of non-homogeneous goods and services, such as food, accommodation, transportation and entertainment, that are supplied at a range of quality levels. Assuming that tourists with higher income purchase tourist services of higher quality, then expenditure changes may reflect implicitly changes not only in the quantity but also in the quality of the tourist goods and services demanded.

Finally, and this applies to all of the measures of tourism demand discussed here, due to inadequate data availability and to the variety of ways and sources from which data for tourism expenditure or receipts are collected, accurate disaggregation of different purposes of tourism demand, such as holidays or business tourism, is not possible. The figures used in past empirical applications have almost always been aggregates, including all sorts of tourism purposes, and whenever disaggregation has been undertaken, it has been characterised by large approximation. During the 1960s and 1970s, when the earlier studies of tourism demand appeared, business tourism was still a relatively small proportion of total tourism, as Gray (1966) and Jud and Joseph (1974) noted. Nevertheless, a few studies have attempted to consider tourism demand for business purposes separately. Guthrie (1961) considered business travel and attempted to test the hypothesis that, since buyers and/or sellers travel abroad for business purposes, revenue from tourists will be positively related to exports and imports. A selected group of export earnings was considered as a proxy measure for the volume of international business activity but the results of the study were not conclusive. Kwack (1972) used alternative proxy variables in order to measure US business travel, the proxies including the value of imports and exports, outflows of US capital, US direct investment abroad and US real GNP; the only variable associated with business travel found to be significant was direct investment. There were no great discrepancies between the performance of the business travel model and that of pleasure travel. Business travel, however, was less sensitive to price and income changes than pleasure travel. A more rigorous study of business travel expenditure on a micro-level has been undertaken recently by Sakai (1988), with view to drawing policy implications related to taxation[1]. The Linear Expenditure System (LES) was applied in order to determine expenditure and price elasticities for business travelers. The empirical findings indicated that business travelers spend more on food, lodging and transportation and less on clothing and recreation compared with pleasure travelers. Owing to the lack of data, disaggregation between recreational and business tourism has not been possible in the thesis. However, the major concern here is Mediterranean tourism which is mainly vacational and recreational tourism.

3.2.1.2 Tourist Arrivals (at a destination)

Tourist arrivals is an alternative measure of the demand for tourism. It indicates the numbers of persons that cross the border of a destination and are recorded as tourists. The data for tourist arrivals may be more reliable than those for tourism expenditure, since most countries collect data for arrivals, often disaggregated by nationality of origin, at national borders. In some cases, however, visitor arrivals are incorrectly included in the data for tourist arrivals. Tourist arrivals data constitute an important measure for drawing policy conclusions on issues such as projections of accommodation capacity (occupancy rates of hotels, projected numbers of bed-places supplied etc.) or airline capacity (load factors, planning and establishment of new routes

[1] This study is mentioned here in brief, since it has already been discussed in detail in Chapter 2.

etc.).

3.2.1.3 Tourist Nights (spent in all/particular types of accommodation)

Since accommodation, supplied in a wide variety of quality and prices, is usually the most significant component of the tourist budget, tourist nights can be an alternative measure of tourism demand. It also constitutes a measure of the utilisation level of the accommodation sector. However, the usual difficulties and inconsistencies concerning reliable data apply here too. The frequent exclusion of nights spent in various supplementary types of tourist accommodation, such as camp sites, appartments, villas, rooms rent within private households etc. (which are often a significant component of the accommodation sector in many tourist destinations) or nights spent with friends and relatives, worsens the data reliability. The numbers of arrivals recorded in registered tourist accommodation is another measure of demand which differs from the number of tourist arrivals[2], due to the opportunity of the tourist to register in more than one installations and to the fact that some tourists stay in unregistered accommodation. This measure is obviously lower than the number of bed-nights.

To conclude, each of the alternative measures of tourism demand has certain advantages but some limitations as well. Since data for bed-nights are lacking in some of the Southern European countries considered, tourism expenditure is chosen to represent tourism demand in the model. As was mentioned above, this measure gives a direct indication of the tourism impact on the balance of payments and income generation and will have useful policy implications. The data here have been collected from the National Tourism Organisations and Statistical Services of the countries under study as well as from the World Tourism Organisation, World Tourism Statistics and from the Organisation for Economic Development and Cooperation, Tourism Policy and International Tourism in Member Countries Statistics.

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[2] Clearly this measure is not the same as the number of nights spent.

3.2.2 The Independent Variables

3.2.2.1 Income

Empirical evidence indicates that high growth rates of tourism in the past have been associated with high growth rates in the economies of the tourist generating countries and a consequent increase in personal incomes (in relation to increased leisure time). Theoretically then, income is expected to have a significant positive effect on the demand for tourism. Moreover, tourism expenditure is expected to increase quite rapidly after a certain threshold income level has been reached (Davis, 1968). However, unlike the consumption of most other goods, marginal utility appears to diminish slowly, since each purchase seems to "whet the appetite" for more travel and tourism (Schulmeister, 1979). Empirical evidence also indicates that tourism is becoming an almost essential part of consumer expenditure, even at the expense of other forms of consumption, and holidays abroad are no longer the privilege of the rich. Greater prosperity in the future may well be reflected in longer paid holidays.

Since the major part of tourism demand corresponds to vacation, pleasure, relaxation and entertainment tourism -which is a final consumption good[3]- the per capita real disposable income[4] of the tourism generating (tourism "importing") country should be a plausible measure for the income variable. In some of the previous studies, alternative measures of income have been applied, without satisfactory empirical results however. Oliver (1971) and Bechdolt (1973), for example, have used total personal income; Jud and Joseph (1974) Gross National Product; Bond (1978) permanent income; Gunadhi and Boey (1986) per capita national income. Given the results of the earlier studies, it has been suggested that disposable income is a satisfactory measure of income.

It should be noted that other variables related to income, such as income distribution, may also be of importance. As was mentioned earlier, tourism expenditure is likely to increase at a fast

[3] Business travel and tourism can be considered as intermediate inputs into production (Diamond, 1977; Schulmeister, 1979).

[4] Per capita real disposable income is defined as personal income after: taxes, fixed commitments and necessities have been deducted.

rate as soon as a threshold per capita income level has been attained. This point implies that a skewed income distribution would limit the number of people who undertake travel and tourism, excluding those who have not attained this threshold income level, which would allow tourism to become feasible at all (or not giving those consumers the opportunity to undertake tourism as often as the others).

The demand for tourism is expected to be influenced not only by current income levels but also by income levels during past time periods (lagged income). Changes in income may take some time to affect tourism demand. Two relevant points could also be considered here. On the one hand, it seems plausible to assume that tourists who travel abroad for the first time are most likely to be the ones who most influence the tourism expenditure growth rates. However, while this may indicate that household planning and decisions to consume tourism abroad may be made well in advance, it should be also argued that consumers (usually purchasing package tours) tend to undertake last-minute decisions with a view to obtain "bargain" discounts -"square deal packages". On the other hand, income changes also imply further, longer-term, impacts on issues such as increases in car use rates or urbanisation trends, which may take some time to exert (in an indirect way) their positive influence on tourism demand. The data for income have been collected from OECD, National Accounts Statistics.

3.2.2.2 Relative Prices

The usually slow changes in the income levels in the tourism generating countries are not expected to affect tourism demand dramatically in the short-run. From a policy-making viewpoint, however, factors that can change rapidly and rather unpredictably, such as relative prices, exchange rates, transport costs, marketing expenditure and political instability, become crucial. Changes in labour costs, or in government policies related to inflation, for example, can affect relative price levels; devaluation of a national currency relative to other foreign currencies would alter the relative exchange rates; sudden changes in the conditions prevailing in the world oil market or airline deregulation would influence transport costs.

The price of a "tourism product"[5] is constituted by three components: a) the price to travel from origin to destination (cost of transport); b) the price of the commodities and services (eg. food, accommodation, entertainment, shopping etc.) on which the tourist spends from the moment of arrival at the holiday destination (cost of living); and, c) the price of the destination currency, usually in terms of the origin currency (exchange rate). In the discussion that follows the term relative prices will refer explicitly to the cost of living, (b), component only[6]. The other two components, (a, c), will be analysed separately in subsequent sections.

It can be argued that tourism demand is likely to be sensitive to changes in the prices of the commodities and services in the destination (eg. food, accommodation, entertainment, shopping etc.) relative to prices in the origin country and/or alternative competing tourist destinations. As the relative price level increases, for instance, a decrease in demand for tourism should be anticipated. Moreover, the impact of changes in relative price levels on demand for tourism in a certain destination depends on the degree of complementarity and/or substitutability of that destination in relation to the origin and/or its closest competitors[7]. It is plausible that, in cases in which the cost of transport from an origin to two alternative destinations is apparently the same, a comparative advantage can be gained by the destination where the cost of living is lower (ceteris paribus). Nevertheless, if the price level in a destination is higher than expected then the intended length of stay and/or planned expenditure may be reduced and the tourist may switch towards the closest and cheapest competing (substitute) destination.

Ideally, a "tourism price index" should be constructed in order to measure discrepancies in inflation rates which affect the price of goods and services consumed particularly by the tourist (rather than by the typical domestic consumer). This is because the bundle of goods and services consumed by the foreign tourists may be quite diversified from goods and services consumed by

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[5] According to Lancaster (1966), the consumer utility derived from the consumption of a good is not related to the good as such but to its attributes and characteristics. Same goods with different attributes can be considered as different goods and can be priced accordingly. In this thesis, each tourist destination under study is considered to be a different "tourism product".

[6] As is explained later in the thesis, the relative effective prices are the relative prices adjusted to take account of the relative exchange rates.

[7] The concept of substitutability/complementarity is discussed in more details in Chapters 5 and 6.

nationals (Archer, 1976a). Unfortunately, the complex nature of the tourism product, and the unavailability of adequate and reliable relevant data mean that a tourism price index is rarely available. Moreover, in a recent study of tourism demand, Martin and Witt (1987), estimated various models of tourism demand and experimented alternatively with the consumer price index and a tourism price index they constructed[8]. They concluded that the consumer price index provided satisfactory estimation results and in most estimation attempts behaved reasonably well compared with the proposed tourism price index[9]. It was noted that "there does not seem to be an obvious answer to the question 'Which is the best form of the tourist-prices variable -a specific-cost-of-tourism variable or the consumer price index, and/or relative exchange rates?'", and was concluded that "the empirical results....indicate that the consumer price index (either alone or together with the exchange rate) is a reasonable proxy for the cost of tourism" (Martin and Witt, 1987; p. 245). Thus, the consumer price index has been chosen here to represent inflation and price changes (relative cost of living).

Two relative price change indices, more specifically, have been introduced in the single equation model: on the one hand, the relative price level of destination j to origin i and, on the other hand, the relative price level of destination j to competing destinations k. The inclusion of the former price variable implies that what are taken into account are relative price changes that affect the distribution of tourism demand into an international and a domestic component. In other words, this variable tests the hypothesis of whether the tourist -considering relative prices- decides to undertake tourism abroad or domestically instead. It is implicitly assumed that domestic tourism is the single strongest competitor to tourism abroad. Admittedly, the touristic characteristics as well as the tourist facilities offered domestically in the origin country are likely to be highly diversified and to a large extent non-competitive with those in the Mediterranean. A

[8] Martin and Witt (1987) constructed a tourism price index using specific cost-of-tourism data. The cost-of-tourism data represented the average daily costs of board and lodging in a middle category hotel, and were obtained by sampling several hotels in each country considered.

[9] The frequency of statistically satisfactory presence of the consumer price index, compared with the proposed tourism price index, is rather high in the alternative models estimated (63 times satisfactory for the consumer price index to 38 times for the cost of tourism index, totally for the UK in relation to Spain and Greece, for example; for more details, Martin and Witt (1987), Table 10, p. 241).

certain degree of substitutability, nevertheless, in favour of domestic rather than Mediterranean tourism, may take place, the larger the difference in relative tourist costs. The reasoning behind that is that higher tourist costs abroad would result in certain groups of potential tourists foregoing tourism abroad altogether and consuming domestic tourism instead. This variable, however, does not take account of the impact of relative price changes in destinations competitive to the destination under study; that is, whether the tourist, having compared the price level of alternative destinations, finally prefers the cheapest one(s). In order to study this price impact the latter price variable of the two proposed above has also been included in the model. A general idea of the price competition among alternative destinations and its impact on tourism demand can be illustrated by constructing a composite weighted price index, including main destinations k competing with destination j; the weight attached to each competitor can be its share in origin's i tourism expenditure, as is usual in relevant empirical work. The two price variables proposed then underlie in a sense a two-stage process that the consumer is likely to follow in order to allocate consumption expenditure to tourism. In the first stage comparison of relative prices[10] at home and abroad would determine the decision to undertake tourism abroad or stay at home. If the consumer has decided in favour of tourism abroad then, in the second stage, comparison of alternative destinations (relative cost of living being a reasonable indicator) would result in the choice of a specific holiday destination.

The importance of this price variable -"substitute price variable" (Martin and Witt, 1988a)- has been recognised in past research on tourism demand. Following Gray (1966), for instance, it appears that "for many travellers there is a high price elasticity of substitution among countries so that higher than expected prices in one country may result in a change of destination rather than in a decision to forego overseas travel" (p. 86). Taplin (1980) also points out that "whereas habit gives the consumer a tendency to ignore substitutes for the things he consumes daily, he often takes virtually the opposite approach when going on vacation....he consciously assesses the relative merits (including prices) of the travel options open to him" (p. 19). In a most recent study,

[10] Similar reasoning would apply for other variables as well, such as exchange rates (and/or the cost of transport).

dealing in particular with the impact of "substitute prices" on tourism demand, Martin and Witt (1988a) conclude that "the empirical results support the hypothesis that substitute prices play an important role in determining the demand for international tourism....however, the importance varies considerably according to the origin under consideration....therefore, there is no single substitute price variable or set of variables applicable to all origin-destination pairs" (p. 267).

Relative price changes may take some time before they affect tourism demand (lagged price changes). Current decisions to consume travel and tourism are likely to be based on considerations of past price levels, due to imperfect information about the current price level and/or to frequent, rapid and/or unpredictable price changes. Information about the cheapness or expensiveness of a tourist destination is often a matter of reputation based on word of mouth, which takes some lapse of time to spread and establish. It should be mentioned, however that, as noted earlier, the previous points may partially contradict the tendency of tourists to make late holiday decisions in order to attain best price offers. The data for relative prices have been collected from IMF, International Financial Statistics.

3.2.2.3 The Relative Exchange Rates

The tourist is expected to be concerned with the price of foreign currencies. As a consequence, tourism expenditure can be responsive to changes in relative exchange rates. Devaluation, for instance, of a destination's j currency relative to origin's i currency may have a positive impact on tourism demand (Gerakis, 1965). This impact is likely to appear not only between changes in origin's i and destination's j exchange rate but also between destination's j and competing destinations' k exchange rates. In the short-run, exchange rate differentials may be of particular importance for the tourist, who is likely to take account of them, when planning holidays. Furthermore, exchange rates may be considered a more direct proxy (compared with relative prices) for the relative cost of living, in decision-making concerning expenditure on tourism abroad. Tourists are usually more aware of exchange rates than relative prices, due to the wider publicity about the former. On the other hand, however, the use of exchange rates as an indication of the cost of living in a tourist destination may be misleading due to the fact that, even though exchange rates in a destination may become more favourable to the tourist, this could still be counterbalanced by high inflation rates; in addition, exchange rates may fluctuate more rapidly than relative prices. It is plausible to suggest that, whereas in the short-run it may be important to study exchange rate effects separately from price effects, in the long-run it is the effective exchange rate impact (relative exchange rates adjusted for relative price changes) that is expected to be more important for tourism demand.

The role of changes in exchange rates in demand for tourism has been discussed in some of the previous empirical work. Gray (1966), for example, notes that "prices are seldom completely known in advance by travelers so that the price level foreseen by the potential traveler will depend predominantly upon the rate of exchange of his domestic currency and hearsay evidence. Thus, while the influence of the price variable is undoubtedly complex, the rate of exchange can be expected to be a prime indicator of expected prices" (p. 86). Artus (1970) furthermore argues that "the effect of a change in exchange rate on foreign travel is not similar to the effect of differential rates of inflation. The consequences of a change in exchange rate are immediately perceived by potential foreign travelers. On the other hand, these persons are probably not well informed about recent price developments in foreign countries" (p. 605).

In order to study the impact of the exchange rate changes on tourism demand, two relative exchange rate variables will also be included in the model. By analogy to the price variables, and for similar reasons, the relative exchange rate variables will be defined as relative exchange rate of destination j to origin i and of destination j to a weighted composite exchange rate variable of competing destinations k. Martin and Witt (1988a), however, in a related study, reject the inclusion of the latter exchange rate variable proposed here, arguing that "those naive travelers who only examine exchange rates will tend to consider the exchange rate for the destination currency in terms of the origin currency....if they are not sophisticated enough to consider actual prices, they are unlikely to consider any measure of costs in competing destinations, and thus a weighted average substitute exchange rate variable is unnecessary" (p. 260). Since this argument is rather contradictory, both proposed exchange rate variables will be considered, at least in the short-run. As a final point, in spite of the frequent fluctuations of the exchange rates, the tourist may be influenced by an impression of past trends in exchange rates (for instance, since the last trip to the destination under study), and their probable relationship to future trends (lagged exchange rates). The data source for exchange rates is the IMF, International Financial Statistics.

3.2.2.4 The Cost of Transport

The cost of transport from origin i to destination j, or to alternative destinations k, is an important component of the price of a tourism product and an increase in its price is expected to have an adverse impact on tourism demand. Theoretically, the cost of transport rises as the distance from origin to destination increases. Ideally, however, the cost of transport should be considered not only as the financial cost of the fare met by the consumer but the value which the tourist places on the duration (time factor) of his/her journey (Gronau, 1970).

A direct relationship is expected between per capita income and expenditure on transport, since the higher the real per capita income, the more likely the tourist will be able to afford to meet transport service costs for tourism abroad -to longer distances (long-haul destinations) as well (ceteris paribus). While the value of the duration of the journey is supposed to be a positive function of income, the impact of transport cost on the length of stay at a destination cannot be clearly anticipated. This is so because, on the one hand, the higher the cost of transport to arrive at a destination, the higher the average expenditure in that destination, since the tourist may stay longer in order to justify the higher cost of transport undertaken (Blackwell, 1970; Bechdolt, 1973; Kliman, 1981); on the other hand, high transport costs may place a severe constraint on the predetermined tourist budget, which then may affect adversely not only the length of stay in a destination but the choice of that destination for holidays in the first place.

The appropriate measure of transport cost is the weighted average price of all modes of transport, that is by air, sea and land, weighted, for instance, by the number of tourists that travelled using the respective mode of transport. In practice, however, it is extremely difficult to construct a meaningful transport cost variable. This is due to a number of reasons, such as complexity in the fare structure, for example, different charges for different categories of airline or train seats, differences in comfort and convenience, the impact of the structure of the route networks, the departure frequency of the mode or, of course, to inadequate and unreliable data.

Of a variety of proxies considered in past empirical work, the economy class air-fare of a round (scheduled) trip from the origin's capital city to the destination's capital city and back has usually been used. This, however, does not seem to be a satisfactory proxy for the purposes of the present study, since, in most of the Mediterranean tourist destinations under study, a significant share of (European) tourists arrive by modes of transport other than airplanes, for example by train or by driving their own car[11]. Moreover, an increasingly significant share of those tourists who do arrive by plane prefer the usually cheaper charter flights (and not scheduled flights) which are (seasonally) offered. Besides, a large share of the air traffic is not destined for airports near capital cities but for regional airports, closer to the main tourist resorts of these destinations, and the fare costs to the regional airports may vary considerably (Pearce, 1987a). These considerations diminish the plausibility of the above mentioned proxy variable. As a result, the cost of transport variable will be omitted from the model to be estimated. While exclusion of a cost of transport variable from the model may be a weakness, this course of action is supported by the poor empirical findings provided by past studies which included transport costs as an explanatory variable (statistically insignificant variable, wrong sign etc.). The well recognised problem of high multicollinearity, between income and transport costs in particular, have been thoroughly studied in the pioneer work by Jud and Joseph (1974). The results provided later by Kliman (1981), who experimented with alternative measures of the cost of transport variable in a detailed study, further demonstrated the problems associated with the inclusion of a transport cost variable.

3.2.2.5 Lags in Demand for Tourism

Information regarding a tourist destination usually disseminates slowly. The reputation of a tourist destination is spread via word of mouth, (although organised marketing and advertising

[11] With reference to the Mediterranean destinations considered here, air transport steadily accounted for around two-fifths of tourist arrivals in Italy whereas it accounts approximately for one-third of tourist arrivals in Turkey and for even less in Spain. Tourist arrivals by air have also declined in Portugal (due to an increase in the number of arrivals by road from Spain, Italy and France) but they are still important for Greece (OECD, 1988).

also play a major role). A positive opinion about a destination by people (friends, relatives, past experience of tourists themselves) who have already visited a destination can exert a strong influence on others to visit it as well ("demonstration effect"). Furthermore, once people have visited a particular destination and have been satisfied, they show a tendency to return ("habit persistence") since, being familiar with the destination, they may prefer it to an unknown alternative, where tourist satisfaction may be doubtful. In other words, the number of tourists choosing a particular holiday destination in any year is related to the tourists who have chosen it in previous years. The adjustment of tourism demand to long-run levels is likely to occur gradually, since past demand levels may exert a significant impact on current tourism demand levels. Consideration of the possible lags in the demand for tourism is therefore important.

3.2.2.6 Dummy Variables

Special events related to political, social, economic and cultural factors, as well as other "qualitative" factors, may affect tourism (in a favourable or adverse direction) and sometimes cause demand to fluctuate dramatically. Dummy variables, consequently, are included in the model in order to pick up the impact of such factors. The impact of political instability, in particular, that has been experienced in some of the destinations over the period of the study, is considered. The relevant dummy variable takes the value of unity for the period of the occurrence of the political (or other) events and the value of zero for the remaining years.

3.3 A NOTE OF CAUTION ON THE SUPPLY OF TOURISM[12]

In empirical applications of consumer demand theory, it has been sometimes argued that it may not be appropriate solely to estimate demand curves. Demand and supply should, theoretically, be estimated simultaneously to avoid potential problems related to focusing only on the one side of a market. This section briefly discusses the likely deficiencies arising from the exclusion of a supply curve. The circumstances when this may not be a problem are explained, and it is concluded that these circumstances are likely to hold for the present study of tourism

[12] I am grateful to Dr. Alan Carruth for helpful discussion and comments that contributed to considerable improvements of this section.

demand in the Mediterranean.

The difficulties related to the "identification" problem and, hence, to the estimation of the demand function, are well known (Orcutt, 1950). In addition, the "simultaneous equation bias" (simultaneity) problem is relevant to, but separate from, that of the identification problem (Johnston, 1984). The identification (identifiability of a model) problem is associated with the question of whether any specific equation, in a system of equations, has a unique mathematical representation within this system. It is not a question of the method of estimation nor of the sample size but of whether meaningful estimates of the parameter coefficients can in fact be obtained; it is a problem of model formulation (Thomas, 1985).

A model is not identifiable if more than one set of parameter values is consistent with the data. In other words, a model is identified if it has a unique statistical form, enabling unique estimates to be made subsequently from sample data. In more technical terms, "a model is identified if and only if all its possible structures are identifiable" (Harvey, 1981; p. 108); a structure is identifiable if there exists no other observationally equivalent structure[13]. If this last point does not hold, then, the presence of the identification problem has a direct impact on the estimation because "if two structures have the same joint density function, the probability of generating a particular set of observations is the same for both structures; thus, there is no way of differentiating between them on the basis of the data. Even if one of the structures could be deduced from the observations, it might prove difficult to give a meaningful interpretation to the parameters" (Harvey, 1981; p. 108).

A well known example in the applied economics literature, illustrating the identification problem and relevant to the topic of this thesis, is the case of demand and supply schedules, where traditionally quantity is considered as a function of price [$q = f(p)$] (Working, 1927; Leamer, 1981). Both the demand and supply functions then have the same independent variable included

[13] Two structures are said to be observationally equivalent if they have the same joint density function. By definition, also, a model specifies a distribution for the endogenous variables conditional on any exogenous variables in the system, whereas a structure specifies the parameters of the distribution (in other words, a structure is a model in which all the parameters are assigned numerical values); Harvey, 1981.

and can shift over time. Consequently, what is observed in a particular market at a given time is the simultaneous solution of demand and supply curves (provided we consider an equilibrium framework). The question, then, of how we can be sure that what we actually estimate is the demand schedule, and not the supply schedule (or even neither of them), becomes crucial (Kalter and Gosse, 1970).

There are two possible ways of overcoming the deficiencies raised by the presence of the identification problem (Harvey, 1981; Kennedy, 1985). The first is to re-parameterise the model. However, although no a priori information is required, this may not lead to a particularly appropriate specification (insofar as it has no sensible interpretation). The second is to use economic theory and extraneous information to impose restrictions on the model. These restrictions can take a variety of forms, such as the use of extraneous estimates of parameters, knowledge of exact relationships among parameters, knowledge of relative variances of disturbances, knowledge of zero correlation between disturbances in different equations etc. The restrictions which are usually employed -called "zero restrictions"- take the form of specifying that certain structural parameters are zero, i.e. that certain endogenous and certain exogenous variables do not appear in certain equations (Kennedy, 1985; p. 129). In technical terms, "these zero restrictions increase the probability that the model has all its possible structures identified" (Harvey, 1981; p. 108).

Slightly simplifying the previous analysis and adjusting it into the demand and supply framework, identification is satisfied if some factors, not included in the demand function, change considerably causing a shift in the supply schedule (Phlips, 1974). In other words, in order to identify the demand function, some factors absent from it, but included in the supply function, must be changing over the period of the sample (Koutsoyiannis, 1977). Supposing that an exogenous variable is introduced as an independent variable in the supply function, and it is postulated that this variable does not appear in the demand function (i.e. the coefficient of this exogenous variable in the demand function is zero) then, shifts of the supply function in response to changes in this exogenous variable (as well as changes in the disturbance term) would create a scatter of observations that suggests the demand function can be estimated from the data, i.e. the demand is identified (Thomas, 1985).

With reference to the case of tourism more specifically, exogenous variables included in the supply function only, but not affecting the demand function (excluded from the demand equation), contribute to overcoming the identification problem and thus allow the demand function for (as well as the supply function of) tourism to be identified and the results obtained from the estimation to be meaningful and reliable. Examples of factors which can affect the supply of tourism (but not the demand for tourism) are factor prices, such as labour and capital (investment) costs. Another exceptionally significant factor for the tourism supply is the price of land (and the associated returns from speculation on it) which is another variable in the supply function. In countries such as Spain, Greece and Turkey, this variable crucially influences the supply of tourism and can fluctuate dramatically. The monopolistic power of certain groups (such as real estates groups, construction societies, architect lobbies etc.), whose interests and activities are primarily related to the land factor (e.g. use, pricing of the land etc.), further validates this argument (which is of a rather long-run nature). The heavy tourist flows to above mentioned Mediterranean destinations have also contributed to attracting inflows of foreign investment that has mostly been channelled into real estate purchases (Valenzuela, 1988).

The other problem to clarify in this section is that of possible simultaneous equation bias (simultaneity). In a system of simultaneous equations, all the endogenous variables are random variables -a change in any disturbance term changes all the endogenous variables, since they are determined simultaneously (an exception being a recursive system). Since the typical equation in a set of simultaneous equations has at least one endogenous variable as an independent variable, this variable cannot be considered as fixed in repeated samples and, consequently, one of the fundamental assumptions in the Classical Linear Regression Model (CLRM) is not met (Kennedy, 1985; p. 126). Generally then, the presence of simultaneous equation bias violates the assumption of the CLRM that the disturbance term, (u), is independent of the explanatory variables, (Xs), and gives E(Xu) # 0.

It should be noted that, even if a certain equation under study is identified, its estimation may still involve the problem of simultaneity. The application of the ordinary least squares (OLS) estimation technique, thus, yields biased and inconsistent estimates; only in the case of recursive models will OLS be appropriate (Johnston, 1984; p. 467). Another estimation technique, therefore, should be applied instead (and this holds even for the case where the special assumptions of a recursive system are not fulfilled), i.e. Indirect Least Squares, Two-Stage Least Squares, Instrumental Variables, Limited Information Maximum Likelihood, Three-Stage Least Squares and Full Information Maximum Likelihood[14].

There are, however, two not uncommon cases where the simultaneous equation bias problem can be overcome and the application of OLS is appropriate, yielding unbiased and consistent estimates (Thomas, 1985). The first case is when supply is "predetermined", that is, supply is exogenous or "given", as can be considered, for example, the supply of a perishable agricultural good. The second case is when own-price itself can be regarded as "predetermined" or exogenous, a typical example of this case being a "public utility" good (Fisher and Kaysen, 1962).

As regards the tourism market more specifically, it is reasonable to accept that the supply of tourism is not a constraint on the demand for tourism if the total amount of goods and services consumed by foreign tourists is small compared with the quantity of the same goods and services consumed by the resident population (Gray, 1970; Witt, 1980; Qayson and Var, 1982). Furthermore, there may be excess capacity, since investment in the tourism sector (eg. hotel construction, infrastructure etc.) is undertaken with the purpose of satisfying not only current but also future consumption[15]. In fact, the supply of infrastructure and accommodation facilities in most Mediterranean destinations expanded rapidly during the last two decades. More importantly, a shift in the type of accommodation from hotels to self-catering establishments, such as appartments and villas, has occurred in recent years (OECD, 1988) and this contributed to

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[14] The last two methods are system methods, where all the equations of the fully specified structural model are estimated simultaneously, whereas in the first methods, attention is focused on one equation at a time, without using all the information contained in the detailed specification of the rest of the model (Johnston, 1984).

[15] Excess capacity is an intrinsic characteristic of a highly seasonal sector, such as tourism, and is also typically generated in the expansion process of an increasingly capitalised sector (Nerlove, 1963).

overcoming any potential accommodation bottlenecks (Zacharatos, 1986). Consequently, the supply of tourism is assumed to be fixed and exogenous and not a constraint on the demand; the consumption response is not hampered by rationing or any shortage of "stocks" of goods and services that would have further implications on the price of tourism (Balestra and Nerlove, 1966; Balestra, 1967)[16]. Moreover, it is plausible to accept that the related own-price is usually fixed (given), and therefore exogenous, well in advance of the consumer decision period for tourism abroad (or the actual purchase of a holiday package) and does not ordinarily respond to the level of demand during a year or a season (Witt, 1980a). That is, the prices of the goods and services consumed by tourists (eg. accommodation, transportation, food etc.) are determined in advance and do not respond to or are influenced by the level of the tourist inflows (i.e. the demand for tourism); besides, the growth of the package holidays continues to be strong (Sheldon, 1986; Sinclair, Alizadeh & Onunga, 1990). Implicitly in the previous analysis it appears that demand is the "driving force" in the tourism sector and supply adjusts to the demand levels to "clear" the market, provided we consider an equilibrium framework. In other words, there is a vertical supply curve (with prices measured on the horizontal axis and quantity on the vertical axis), so that $E(Xu) = 0$ in fact holds (Maddala, 1988). It follows then that since the supply of tourism (as well as the own-price) is considered to be exogenous, concentration on (and estimation of) only the demand for tourism will not distort the analysis, while the absence of identification and simultaneity problems means that the estimation results are not invalidated (Thomas, 1985).

As a final word, it is worth mentioning that the identification and simultaneity problems have usually been ignored in studies of consumer demand in general, and in the studies of demand for tourism in particular, and only demand functions for tourism have been estimated. However, empirical studies of consumer demand in the past have often provided reasonable and useful results. Besides, it has been argued (Phlips, 1974) that relevant econometric applications in the field have indicated that the gain to be expected from empirical work on the identification-problem area is likely to be small (Stone, 1953; pp. 248-49) and identification problems are usually ignored in practice: "Indeed it is entirely unpractical to specify supply equations for a number of commodities, the more as a solid theoretical underpinning as well as appropriate data are often lacking on the supply side" (Phlips, 1974; p. 95).

[16] The possibility of a "peak load" problem, given that the consumers may face price discrimination, is exempted here.

CHAPTER 4

THE ESTIMATION RESULTS: THE SINGLE EQUATION MODEL

Introduction

This chapter discusses the estimation results from the single equation models that refer to the demand for tourism in Greece, Spain, Portugal, Italy and Turkey, by the UK, West Germany, the USA, France and Sweden.

4.1 THE ECONOMETRIC APPROACH

The econometric approach followed is that suggested by Davidson et al. (1978), Hendry and Mizon (1978), Hendry, Pagan and Sargan (1981), Hendry and Richard (1982), et al. It is thus the "general to simple" approach which has been used, as opposed to the conventional "simple to general" approach which has been applied in all past single equation models of tourism demand. More specifically, starting from a model based on the theory and specified in the most general possible form (that is, considering the appropriate lag form of the variables included), reasonable parsimonious specifications are obtained, legitimately derived after having imposed and tested restrictions using a range of test-statistics. This course of action leads to dynamic specifications that take into account not only the long-run but also the short-run effects of the variables considered. It is important to stress that, according to this approach and contrary to the conventional one, no model can be judged as "good" or "bad"; the approach instead identifies whether or not the model is "adequate" for describing the data generation process, serving the particular research purposes for which it was estimated.

For tourism demand by main tourism generating countries in main Mediterranean destinations, an error correction mechanism was found to approximate the changes in tourism demand in the sample. This is a simplified form of the more general model and has the interesting feature of separating the short-term dynamics of the relationship (change terms) from the long-run relationship (level terms). This model is based on the acceptance of a non-stochastic steady-state theory in the long-run, that is of the form:

$$D = K\, Y^{\lambda_1}\, RP_i^{\lambda_2}$$

where, D=Tourism Demand (Tourism Consumption), K=Constant on any given growth path but may vary with the growth rate (and/or effective price rate), Y=Disposable Income, RP_i=Effective Relative Prices (i=1,2)[1], λ_i=Long-Run Elasticity (i=1,2), 1=Destination to Origin, 2=Destination to Competitors. If, furthermore, a stochastic disequilibrium relationship between D, Y, P and E (P=Nominal Relative Prices, E=Relative Exchange Rates) in the short-run, which is consistent with the long-run, is postulated, then, the reconciliation of short and long-run tourism consumption behaviour can be attained. The error correction mechanism can be viewed as a "ratchet" to the short-run relationship which will operate in either direction for any sustained change in the growth rate and/or effective price rate (Davidson et al., 1978). In an error correction model of the following form[2]:

$$\Delta d_t = \beta_1\, \Delta y_{1t} + \beta_2\, \Delta^2 y_1 + ... + \beta_{kt}\, \Delta rp_{it} + \beta_{(k+1)t}\, \Delta^2 rp_{it} + \delta\, \Delta d_{t-1} + \phi\, (d-y)_{t-2} + \gamma_1\, y_{t-2} + \cdots + \gamma_n\, rp_{it-2} + u_t$$

where the variables are in logs (the estimates of the parameter coefficients indicate elasticities), the long-run solution (when all variables are unchanging and the change terms are equal to zero)[3], is given by:

$$d = -\frac{(\gamma_1\, y + ... + \gamma_n\, rp_i)}{\phi}$$

In practice the error correction model is very flexible and can be extended easily to higher order distributed lag models. The parameterisation in the equation above has the advantage that the near

[1] The consumer price index have been adjusted to account for the relevant exchange rate differentials. Prices and exchange rates have been previously transformed into an index form with 1980 as the base year.

[2] This model was reached having started originally from a second order distributed lag model, after rearrangement into difference, level and error correction terms (eg. Gilbert, 1986). The initial model was of the form:

$$D_t = c + \sum_{j=0}^{2} a_j\, Y_{t-j} + \sum_{j=0}^{2} b_j\, RP_{i(t-j)} + \sum_{j=1}^{2} z_j\, D_{t-j} + \varepsilon_t$$

[3] More generally, in a long-run steady-state equilibrium, it can be assumed that $\Delta d_t = \Delta y_t = g$ (for simplicity), $\Delta rp_{it} = \mu_i$, where g, μ_i are the income growth rate and the growth rate of the effective price rate respectively. Then, the long-run relationship is of the form described earlier or, equally, in logs:

$$d = k + \lambda_1\, g + \lambda_2\, \mu_i$$

orthogonality (ie. low correlations) of the explanatory variables will avoid potential difficulties like multicollinearity (Gilbert, 1986), which may otherwise be a problem (especially with long lag structures). Furthermore, the model above encompasses the simpler first-order error correction model.

The specification of the model in the dynamic form given above also provides the opportunity to study certain aspects of the Purchasing Parity theory. More specifically it is assumed that, in the short-run, national price levels and (nominal) exchange rate levels follow different paths, whereas, in the long-run, there is convergence towards a common equilibrium path (eg. Krueger, 1983; Thirlwall, 1986). Consequently, the possibility that, in the short-run, the tourist may consider relative (nominal) exchange rates rather than relative (national) price levels, as a direct indication of the cost of living in a tourist destination, is allowed for in the model. Past econometric models of tourism demand largely ignore these points.

The single equation models presented here are in their final form. The sample period is from 1960 to 1987 using annual data. Since the models reconcile short-run and long-run changes of the variables which may affect tourism demand, it was convenient to estimate the models in log-linear form (the estimates of the parameter coefficients indicate elasticities) and the robust ordinary least squares (OLS) estimation method was applied[3]. Given the sample size, second-order lags on each variable considered (in addition to their current levels) were included in the initial general model, which was then reduced by eliminating variables of negligible significance to reach a parsimonious specification. Dummy variables, for the 1967-1974 military coup in Greece, the 1974-1976 political turmoil in Portugal and the 1980-1981 socio-political crisis in Turkey were also included and both linear and quadratic time trends were estimated. The unit income elasticity hypothesis (that, in long-run equilibrium, the ratio: tourism consumption/income elasticity is equal to unity, for a given growth rate) can be tested by the acceptance of the null hypothesis that the coefficient of y_{t-2} is equal to zero.

[3] The variance of the coefficient estimates, the standard errors and associated t-statistics have been computed using formulas suggested by White and Chamberlain, among others. These estimates of the variance are consistent even when the disturbances are not homoskedastic (although they must be independent), and when their variances are correlated with the independent variable in the model (White, 1982).

4.2 DISCUSSION OF THE ESTIMATION RESULTS

In general the models appear to perform satisfactorily. The $\bar{R}^2$ is high in most cases and the goodness of fit, as indicated by the ratio of the standard error of the regression to the mean of the dependent variable, is satisfactory indicating that the variables considered are important in explaining the data on the demand for tourism. The application of the Breusch-Pagan test indicated an absence of heteroskedasticity in the residuals. There are no structural breaks in the models and the constancy of the parameter coefficients holds for the whole sample-period; the Chow-test is acceptable in all cases. Testing for autoregressive conditional heteroskedasticity, the relevant (arch) test is acceptable in all cases. To test for up to third-order autocorrelation, a Lagrange multiplier test was applied[4]. Whenever evidence of autocorrelation was detected, a revised specification, and not re-estimation (applying the Cochrane-Orcutt transformation, for instance)[5], was attempted. In most past empirical studies of tourism demand, the presence of serial correlation has been treated as a "nuisance" and solved by application of the Cochrane-Orcutt transformation; for example, Witt and Martin (1987a), Martin and Witt (1988a). It is well known, however, that the serial correlation may represent a misspecified relationship; the inclusion of an appropriate dynamic specification (with a lag structure) and/or the inclusion of previously omitted relevant variables may lead to a very different explanation of consumer spending on tourism than that imposed by Cochrane-Orcutt[6].

Consideration of the results given in Tables 4.5-4.9, at the end of the chapter, shows that the magnitudes and the signs of the coefficients on the independent variables included appear theoretically satisfactory and are statistically significant in most cases. In the short-run, changes in

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[4] Its F-form is supposed to give better indications than the x^2 test, for small samples.

[5] The Cochrane-Orcutt transformation, though often inappropriate, has been extensively applied in past empirical studies of tourism demand, in order to correct for first-order autocorrelation. However, the common factor restriction $b_1 b_3 = -b_2$ implied by the Cochrane-Orcutt transformation should be tested before this transformation is adopted. This restriction would apply in a model of the form:

$$d_t = b_1 x_t + b_2 x_{t-1} + u_t$$

and

$$u_t = b_3 u_{t-1} + e_t$$

[6] Serial correlation can be interpreted "as a convenient way of representing dynamic relationships" rather than a "nuisance" (Hendry and Mizon, 1978).

tourism demand are mainly determined by changes in disposable income and changes in relative inflation rates (mainly between the tourist destination under study and the origin country). In addition, the empirical findings indicate that relative (nominal) exchange rate differentials are an important determinant of Mediterranean tourism consumption, separate from the effect of relative national price levels. In some cases, the short-run impact of the substitute price and exchange rate changes are also significant for tourism demand. Tourism consumption changes are also affected by the direction of the changes in the explanatory variables, that is, whether income changes and price and exchange rate changes are themselves increasing or decreasing over time (second-order difference terms).

In the long-run, disposable income and effective relative prices (relative national price levels adjusted for nominal exchange rates) between each destination and the origin country appear to have an important impact on the equilibrium path of tourism demand. Moreover, substitute prices, that is, effective prices of each destination relative to the other Mediterranean destinations are also significant in most cases. It is interesting to note that for West Germany and Sweden the variables for the substitute prices do not appear statistically significant in most destinations. Martin and Witt (1988a) also found a similar result for West Germany, (although their approach differs from the one proposed here). A more appropriate variable may have been price and exchange rate differentials relative to countries such as Austria, Switzerland, France, the Netherlands, the other Scandinavian countries and/or long-haul destinations (rather than relative to the other Mediterranean destinations), since the above mentioned countries attract a significant share of the tourist flows originating from West Germany and Sweden and could be considered as strong competitors to the Mediterranean destinations (in spite of their different touristic attributes). Hence, tourism consumption by the UK, West Germany, the USA, France and Sweden is significantly affected by effective price fluctuations in the Mediterranean destinations considered.

In summary, changes in tourism consumption are determined by the short-run impact of variables such as income, inflation rates and exchange rate changes as well as the impact of the direction of the changes in these variables, which is altered by the feedback from the previous years (the error correction term: propensity to consume tourism) and the lagged variables in levels. Thus, it is the feedback from the previous years and the lagged variables which ensure the adjustment of tourism consumption expenditure and consistency with the long-run equilibrium.

4.2.1 INCOME ELASTICITIES

Income appears to be a significant factor in determining tourism consumption. Table 4.1 shows that the values of the long-run income elasticities of tourism demand range from 2.13 (Greece) to 2.80 (Portugal) for the UK; from 1.79 (Spain) to 2.85 (Portugal) for West Germany; from 1.84 (Portugal) to 2.72 (Greece) for France; and, from 1.57 (Turkey) to 2.20 (Italy) for Sweden. Tourism thus appears to be a normal good. Furthermore, according to the income elasticity values, increases in disposable income in the tourist origin countries would induce more than proportional increases in Mediterranean tourism consumption (ceteris paribus); tourism is a luxury good. In some cases, however, the coefficient of income was found to be unity and so this restriction was imposed (Spain for the UK; Greece and Italy for West Germany; Greece and Turkey for the USA; Spain and Turkey for France). Consequently, in these cases, changes in income exert a proportional impact on tourism demand.

The UK, Sweden and West Germany appear to be the most income elastic origin countries whereas the USA and France appear, comparatively, less income elastic. It may be the case that the American and French tourists tend to switch their preferences away from tourism in the Mediterranean and towards alternative tourist destinations, such as Mexico, the Pacific Islands, and Kenya. In fact, recent empirical evidence on the US demand for Kenyan tourism (Onunga, 1988) indicated a high American income elasticity of demand (e_y=2.38). The decrease of Mediterranean tourism in the preferences of American tourists, in particular, may also partly reflect the impact of political factors (eg. terrorism) on American tourism consumption (White, 1985; Tremblay, 1989). For France this may be related to the fact that a significant share of the French tourism budget is allocated to domestic tourism, which (especially tourism in Southern France) is characterised by touristic attributes similar to those in the other Mediterranean destinations.

Table 4.1: Income Elasticities of Tourism Demand in the Mediterranean

COUNTRY	UK	W. GERMANY	USA	FRANCE	SWEDEN
GREECE	2.13	1.00	1.00	2.72	2.10
SPAIN	1.00	1.79	1.96	1.00	1.96
PORTUGAL	2.80	2.85	3.32	1.84	1.79
ITALY	2.40	1.00	1.93	2.30	2.20
TURKEY	2.77	2.80	1.00	1.00	1.57

The empirical findings with respect to the income elasticities support the argument that tourism can be an important source of income generation. Given the relatively high income elasticities of demand for tourism, and given sustained growth rates and a stable international economic environment, tourism can contribute considerable foreign exchange earnings. The results also show that major advanced economies can exhibit quite different patterns of demand for tourism in the Mediterranean. The considerable variations in most of the income elasticity values between the origin countries indicate that the Mediterranean destinations will not benefit to the same extent from income increases in the origin countries. The range of the origin countries from the most to the least income elastic was:

UK > Sweden > West Germany > France > USA

a) THE UK: For the UK income elasticity values varied from 2.13 (Greece) to 2.80 (Portugal); Spain was found to have a unit income elasticity. The range of the destinations from the most to the least income elastic was:

Portugal > Turkey > Italy > Greece > Spain

b) WEST GERMANY: For West Germany income elasticity values varied from 1.79 (Spain) to 2.85 (Portugal); Greece and Italy were found to have a unit income elasticity. The range of the destinations was:

Portugal > Turkey > Spain > Greece = Italy

c) THE USA: For the USA income elasticity values varied from 1.93 (Italy) to 3.32 (Portugal); Greece and Turkey were found to have a unit income elasticity. The range of the destinations was:

Portugal > Spain > Italy > Greece = Turkey

d) FRANCE: For France income elasticities values varied from 1.84 (Portugal) to 2.72 (Greece); Spain and Turkey were found to have a unit income elasticity. The range of the destinations was:

Greece > Italy > Portugal > Spain = Turkey

e) SWEDEN: For Sweden income elasticity values varied from 1.57 (Turkey) to 2.20 (Italy). The range of the destinations was:

Italy > Greece > Spain > Portugal > Turkey

The high income elasticity values for most Mediterranean destinations indicate that tourism can considerably benefit their economies. Since, however, each origin country will allocate a different share of tourism expenditure to different destinations, it is useful for each destination to concentrate on the tourist origin markets that would bring about higher benefits. Plausibly, higher returns (for the destination under study) should be expected from the most income elastic origin countries (ceteris paribus). Portugal, Italy and Turkey appear to be the most income elastic destinations. Portugal seems to benefit from the lessons derived from the adverse repercussions of the Spanish mass-tourism model of development and is attempting to diversify its tourist sector towards more selective tourism (Lewis and Williams, 1988). Turkey has more recently entered the popular Mediterranean destinations and, possessing tourism potential for further development, can benefit from the flexibility concerning the tourism planning as to which direction of tourism development to pursue. As regards Italian tourism, it offers a wide variety of touristic characteristics, combining "sunlust" and "wanderlust" attributes; in addition, the tourism infiastructure is highly developed (Anastasopoulos, 1989). On the other hand, Spain, and Greece to a lesser extent, seem to experience the adverse impact of the extensive mass-tourism development, reaching a saturation level. The range of the Mediterranean income elasticity values from the most to the least income elastic is:

Portugal > Italy > Turkey > Greece > Spain

a') GREECE: For Greek tourism income elasticity values varied from 2.10 (Sweden) to 2.72 (France); West Germany and the USA had a unit income elasticity. The range of the origin countries from the most to the least income elastic was:

France > UK > Sweden > West Germany = USA

b') SPAIN: For Spanish tourism income elasticity values varied from 1.79 (Spain) to 1.96 (West Germany, Sweden); the UK and France had a unit income elasticity. The range of the origins was:

Sweden = USA > West Germany > UK = France

c') PORTUGAL: For Portuguese tourism income elasticity values varied from 1.79 (Sweden) to 3.32 (USA). The range of the origins was:

USA > West Germany > UK > France > Sweden

d') ITALY: For Italian tourism income elasticity values varied from 1.93 (USA) to 2.70 (UK); West Germany had a unit income elasticity. The range of the origins was:

UK > France > Sweden > USA > West Germany

e') TURKEY: For Turkish tourism income elasticity values varied from 1.57 (Sweden) to 2.80 (West Germany); the USA and France had a unit income elasticity. The range of the origins was:

West Germany > UK > Sweden > France = USA

4.2.2 EFFECTIVE PRICE ELASTICITIES

4.2.2.1 Effective Own-Price Elasticities

The changes in the effective prices of the Mediterranean destinations relative to home prices have important implications for tourism demand. None of the destinations can be considered a "snob" good. The values of the long-run effective own-price elasticities relative to effective prices in the origin country varied from -0.78 (Greece) to -2.10 (Spain) for the UK; from -1.48 (Spain) to -2.23 (Portugal) for Germany; from -0.38 (Italy) to -2.78 (Greece) for the USA; and, from -1.27 (Spain) to -2.20 (Greece) for Sweden; for France the effective own-price variable was found to be statistically insignificant (Table 4.2).

The diversified range of the estimated price elasticity values indicates that, despite their similar touristic attributes, the Mediterranean destinations can be considered as differentiated "products". The promotion, therefore, of specific touristic attributes which a certain destination possesses can enable that destination to gain a comparative advantage over its competitors.

Tourists' reaction to price changes is different, depending on the particular origin-destination pair under study but tourists pay significant attention to price fluctuations in the Mediterranean destination relative to home prices.

Table 4.2: Effective Own-Price Elasticities of Tourism Demand in the Mediterranean

COUNTRY	UK	W. GERMANY	USA	FRANCE	SWEDEN
GREECE	-0.78	-1.56	-2.78	-	-2.20
SPAIN	-2.10	-1.48	-1.22	-	-1.27
PORTUGAL	-1.84	-2.23	-1.61	-	-1.75
ITALY	-1.20	-1.61	-0.38	-	-1.50
TURKEY	-	-1.44	-1.80	-	-

The values of the effective own-price elasticities indicate the degree of substitutability of Mediterranean tourism for domestic tourism, and since these two types of tourism (home and abroad) are characterised by different touristic attributes the generally moderate elasticity values are plausible. The most own-price elastic origin countries are West Germany, the USA and Sweden. For these countries, small increases in the effective price level in the Mediterranean destination of interest relative to home prices will affect the demand for Mediterranean tourism significantly in favour of domestic tourism. The range of the tourist origin countries from the most to the least effective own-price elastic is:

West Germany > USA > Sweden > UK > France

a) THE UK: For the UK tourists effective price elasticity values varied from -0.78 (Greece) to -2.10 (Spain). The range of the destinations from the most to the least effective own-price elastic was:

Spain > Portugal > Italy > Greece

b) WEST GERMANY: For the West German tourists effective price elasticity values varied from -1.44 (Turkey) to -2.23 (Portugal). The range of the destinations was:

Portugal > Italy > Greece > Spain > Turkey

c) THE USA: For the US tourists effective price elasticity values varied from -0.38 (Italy) to -2.78 (Greece). The range of the destinations was:

Greece > Turkey > Portugal > Spain > Italy

d) SWEDEN: For the Swedish tourists effective price elasticity values varied from -1.27 (Spain) to -2.20 (Greece). The range of the destinations was:

Greece > Portugal > Spain > Italy > Turkey

The significant own-price elasticities, that some of the Mediterranean destinations show, indicate that increases in domestic prices will significantly affect their tourism receipts. Nevertheless, the adverse impact from price changes will not be the same for all destinations. Greece, Portugal and Spain are the most own-price elastic destinations. The high price elasticity values for Greece and Spain, combined with their relatively low income elasticity values, indicate a rather unstable position of tourism receipts in these destinations. On the other hand, the benefits that Portugal can expect from high income elasticity values may be adversely affected by high price elasticity values and tourism receipts may fluctuate in this destination[1]. Italy and Turkey appear to be in a favourable position compared with the other Mediterranean destinations, since they are characterised by high income but moderate own-price elasticity values. The range of the destination countries from the most to the least effective own-price elastic is:

Greece > Portugal > Spain > Italy > Turkey

a') GREECE: For Greek tourism effective price elasticity values varied from -0.78 (UK) to -2.78 (USA). The range of the origin countries from the most to the least effective own-price elastic was:

USA > Sweden > West Germany > UK

b') SPAIN: For Spanish tourism effective elasticity values varied from -1.22 (USA) to -2.10 (UK). The range of the origins was:

UK > West Germany > Sweden > USA

c') PORTUGAL: For Portuguese tourism effective price elasticity values varied from -1.61 (USA) to -2.23 (West Germany). The range of the origins was:

[1] The considerably higher income and price elasticities as regards Portugal may be partly related to the fact that data on Portugal refer to total visitors rather than only tourists.

West Germany > UK > Sweden > USA

d') ITALY: For Italian tourism effective price elasticity values varied from -0.38 (USA) to -1.61 (West Germany). The range of the origins was:

West Germany > Sweden > UK > USA

4.2.2.2 Effective Substitute-Price Elasticities

The performance of the effective substitute-price variable, that is effective prices in a destination relative to competitor destinations, was statistically satisfactory in most cases, indicating that strong competition between the Mediterranean destinations can take place (Table 4.3). The significant impact of the substitute-price variable also indicates that tourism receipts may fluctuate considerably, jeopardising the benefits anticipated from highly income elastic tourism demand. Most of the Mediterranean destinations that are heavily dependent upon tourism can be vulnerable to adverse effects resulting from variations in tourism receipts, due to substitute-price changes.

Table 4.3: Effective Substitute-Price Elasticities of Tourism Demand in the Mediterranean

COUNTRY	UK	W. GERMANY	USA	FRANCE	SWEDEN
GREECE	-2.81	-2.40	-1.58	-2.72	-
SPAIN	-	-	-1.25	-0.80	-
PORTUGAL	-2.56	-	-1.03	-3.63	-
ITALY	-1.80	-2.22	-0.32	-2.39	-3.30
TURKEY	-2.80	-	-3.60	-1.94	-1.00

The long-run effective price elasticity values relative to effective prices of Mediterranean competitors varied from -1.80 (Turkey) to -2.81 (Greece) for the UK; from -2.22 (Italy) to -2.40 (Greece) for West Germany; from -0.32 (Italy) to -3.60 (Turkey) for the USA; from -0.80 (Spain) to -3.63 (Portugal) for France; and, from -1.00 (Turkey) to -3.30 (Italy) for Sweden. For West Germany and Sweden the empirical findings on substitute prices were limited because this variable was found to be statistically significant in only few cases. As was mentioned earlier, the poor performance of this variable in the West German and Swedish models may be related to the fact that a substitute price variable referring to alternative European or long haul destinations may have been more appropriate. The range of the origins from the most to the least effective substitute price elastic is:

USA > France > UK > West Germany > Sweden

a) THE UK: For the UK tourists effective substitute-price elasticity values varied from -1.80 (Italy) to -2.81 (Greece). The range of the destinations from the most to the least effective substitute price elastic was:

Greece > Turkey > Portugal > Italy

b) THE USA: For the American tourists substitute-price elasticities varied from -0.32 (Italy) to -3.60 (Turkey). The range of the destinations was:

Turkey > Greece > Spain > Portugal > Italy

c) FRANCE: For French tourists substitute-price elasticities varied from -0.80 (Spain) to -3.63 (Portugal). The range of the destinations was:

Portugal > Greece > Italy > Turkey > Spain

From the destinations' point of view, Greek tourism appears to be threatened by strong competition from the other Mediterranean destinations and this also holds for Turkey, which needs to intensify its efforts to attain a stable position in the Mediterranean tourism market. Spain, despite some signs of stagnation in its tourism development, appears still to enjoy its well-established image as a highly developed mass-tourism destination. Nevertheless, creation of overcapacity and tourism congestion in some of its Mediterranean coasts has resulted in degradation of many tourist resorts and has threatened the future of the Spanish tourism industry. In general, however, fluctuations in tourism receipts raise some scepticism as to the reliability of the sector in providing a stable source of foreign exchange earnings. This argument is particularly related to the high substitute-price elasticities of tourism demand, which indicate that adverse changes in inflation and/or exchange rates, for instance, in any of the Mediterranean destinations may induce tourists to switch towards the other Mediterranean destinations and possibly even away from the Mediterranean region. The range of the destinations from the most to the least effective substitute price elastic is:

Greece > Turkey > Portugal > Italy > Spain a') GREECE: For Greek tourism substitute price elasticities varied from -1.58 (USA) to -2.81 (UK). The range of the origins from the most to the least effective substitute price elastic was:

UK > France > West Germany > USA

b') PORTUGAL: For Portuguese tourism substitute-price elasticities varied from -1.03 (USA) to -3.63 (France). The range of the origins was:

France > UK > USA

c') ITALY: For Italian tourism substitute price elasticities varied from -0.32 (USA) to -3.30 (Sweden). The range of the origins was:

Sweden > France > West Germany > UK > USA

d') TURKEY: For Turkish tourism substitute price elasticities varied from -1.00 (Sweden) to -3.60 (USA). The range of the origins was:

USA > UK > France > Sweden

Finally, the empirical results indicate that political instability has an adverse impact on tourism demand. Social and political upheaval and unrest create an unfavourable environment for tourism consumption. Tourists are sensitive to political factors and tend to prefer politically stable destinations. Demand for tourism in Greece, Portugal and Turkey can fluctuate considerably due to adverse political factors, as the estimated coefficients of the dummy variables included in these models indicated. While, however, political stability is essential to the development of a successful tourism sector, the character of the political system behind that stability has no obvious influence on tourism demand (International Tourism Quarterly, 1976); fluctuations in tourism demand due to political factors do not bear any specific relevance to the political regime under question (Kushman, Groth and Childs, 1980).

As a final word, it is worth providing a context for the empirical work on the Mediterranean countries by discussing the empirical findings presented in the most recent studies of tourism demand, by Martin and Witt (1988a; Table 4.4a), Martin and Witt (1987; Table 4.4b) and Witt and Martin (1987a; Table 4.4c). Witt and Martin have published extensively in the field of tourism demand during recent years and their work has contributed some interesting theoretical and empirical findings. Among the topics of interest, they discuss the choice of an appropriate variable to represent tourists' cost of living (Martin and Witt, 1987), the inclusion of marketing variables (Witt and Martin, 1987a), the impact of substitute prices on tourism demand (Martin and Witt, 1988a) and econometric models for forecasting international tourism demand (Witt and Martin, 1987c).

In this section, Martin and Witt's findings from their models including substitute prices (1988a), cost of living indices (1987) and independent / inclusive tour travel (Witt and Martin, 1987a) are discussed[8]. Witt and Martin depart from the theoretical framework used in this thesis. Their models includes income, relative prices, exchange rates, cost of transport (sub-divided into transport cost by air, sea and land) and dummy variables (for political factors and oil crises). The demand for tourism is measured by the number of tourist visits adjusted for the origin country's population.

Various criticisms, however, may be made of the empirical application of their models. Their econometric approach, in particular, has proceeded along the lines of the "simple to general" approach, contrary to the "general to simple" approach applied in the present study. The limitations of the former econometric approach are by now well known (eg. Hendry and Mizon, 1978; Gilbert, 1986). Moreover, evidence of autocorrelation should be corrected by a revision and respecification of the model, considering, for instance, the most appropriate lag structure, rather than applying a Cochrane-Orcutt transformation (which imposes untested restrictions that may not hold, as has been discussed in detail earlier in this chapter), as Witt and Martin did. Although a dynamic approach appears to be more appropriate for capturing the impact of factors, such as expensiveness or cheapness of a destination, or exchange rate fluctuations, on tourism consumption, the models proposed by Witt and Martin are static and discussion of the short as well as the long-run impact of the variables included is lacking. A lagged dependent variable, in a few cases only, was found to be statistically significant and, in most cases, was excluded from the

[8] The model that was estimated in most of the studies by Witt and Martin and Martin and Witt has been presented earlier in the thesis (Chapter 2).

models. Furthermore, some test-statistics included in Witt and Martin's models, such as the Durbin-Watson statistic, are not a reliable indicator of first-order autocorrelation when a lagged dependent variable is included as an explanatory variable (eg. Table 4.4c).

Apart from the econometric issues, some weaknesses regarding some of the signs and magnitudes of the variables considered are also evident. Table 4.4a, for example, presents Martin and Witt's (1988a) results from estimation attempts using alternative "substitute price" variables, and shows that the cost of air transport (Greece) appears to exert an unlikely positive impact on tourism demand, also being statistically insignificant; the same holds for the variable for the relative cost of surface transport to substitute destinations. In addition, the exchange rate (Spain) and income variable (Greece) were found to be statistically insignificant. Due to high multicollinearity between the variables included (eg. income and three cost of transport variables), Witt and Martin had difficulties in reaching clear-cut conclusions on substitute price effects. Table 4.4b presents some of Martin and Witt's (1987) estimation results based on alternative price indices -consumer price index and/or cost of tourism index. Some problems, however, were apparent; income and the cost of transport (Greece), for instance, are statistically insignificant and the oil crisis variable (Spain) was statistically insignificant and implausibly of positive sign. Table 4.4c, finally, presents Witt and Martin's (1987a) estimation results for independent tourism by air and inclusive tour tourism by air. Prices and the cost of air transport (Greece, Spain) in the independent tourism model, as well as income (Spain) and the cost of air transport (Greece, Italy) in the inclusive tour model, were found to be statistically insignificant.

It should be borne in mind, however, that any comparison between these studies of tourism demand should proceed with caution. The demand for tourism (dependent variable) has been defined in a different way in the studies compared here, while the models have been applied over different sample periods. Witt and Martin define tourism demand as the "numbers of tourist visits relative to the (UK) origin population", whereas in the present study tourism demand is measured as tourism receipts in the tourist destination. Past empirical studies (for example, Uysal and Crompton, 1984) have argued that, when tourism demand is defined as numbers of arrivals (visits/trips), the estimation results are expected to be statistically more satisfactory than those obtained when tourism expenditure (receipts) is applied instead. This may be due, to a certain extent, to the relatively higher reliability of data for tourist arrivals compared with those for tourism expenditure.

THE UK CASE

Table 4.4a: Martin & Witt's (1988a) Results for "Substitute Prices"

q_t: Total Tourism Demand (Air + Surface)			
Variable	GREECE	SPAIN	ITALY
c	-28.86 (-3.03)	-23.56 (-4.21)	-37.07 (-11.87)
y_t	0.38 (0.31)	1.77 (1.97)	4.39 (10.63)
p_{1t}	-5.60 (-8.59)	-	-1.60 (-7.64)
e_{1t}	-	0.63 (1.18)	-
ca_{2t}	0.49 (1.07)	-	-
cs_{1t}	-0.39 (-0.41)	-0.15 (-0.26)	-0.08 (-0.83)
cs_{2t}	5.06 (5.21)	0.92 (1.10)	-
dv_1	-0.42 (-3.12)	-0.02 (-0.26)	-0.17 (-4.43)
t	-	-	-0.11 (-11.42)
$\bar{R}^2$	0.95	0.84	0.86
D-W	1.68	1.73	2.38
OLS/COCR	COCR	COCR	COCR

Sample-period: 1965-1980
(The variables, in small letters, denote logs; t-statistics in brackets)

q_t=Number of Tourist Visits Per Head of Origin to Destination
c=constant
y_t=Real Personal Disposable Income Per Capita in Origin
p_{1t}=Relative Consumer Prices of Destination to Origin
e_{1t}=Relative Exchange Rates of Destination to Origin
ca_{2t}=Cost of Transport by Air between Destination and Competitors
cs_{1t}=Cost of Transport by Surface between Destination and Origin
cs_{2t}=Cost of Transport by Surface between Destination and Competitors
dv_1=Dummy Variable (1974: Oil Crisis, Political Factors in Greece)
t=Time Trend

$\bar{R}^2$=Adjusted Multiple Correlation Coefficient
D-W=Durbin-Watson Statistic (1st order autocorrelation)
OLS=Ordinary Least Squares Estimation
COCR=Cochrane-Orcutt Transformation

Table 4.4b: Martin & Witt's (1987) Results for "Cost of Living" Indices

q_t: Total Tourism Demand (Air + Surface)		
Variable	GREECE	SPAIN
y_t	0.36 (0.32)	1.59 (2.58)
p_{1t}	-5.88 (-9.86)	-
pt_{1t}	-	-0.60 (-1.95)
pt_{2t}	-	1.80 (4.98)
e_{1t}	-	0.99 (3.99)
ca_{1t}	-0.16 (-0.99)	-1.29 (-3.67)
ca_{2t}	0.95 (2.53)	0.86 (4.77)
cs_{2t}	4.70 (7.96)	-
dv_1	-0.42 (-3.38)	-
dv_2	-	0.08 (1.12)
dv_3	-	0.08 (1.12)
$\bar{R}^2$	0.96	0.89
D-W	1.80	1.88
OLS/COCR	COCR	COCR

Sample-period: 1965-1980
(The variables, in small letters, denote logs; t-statistics in brackets)

q_t=Number of Tourist Visits Per Head of Origin to Destination
c=constant
y_t=Real Personal Disposable Income Per Capita in Origin
p_{1t}=Relative Consumer Prices of Destination to Origin
pt_{1t}=Relative Tourist Prices of Destination to Origin
pt_{2t}=Relative Tourist Prices of Destination to Competitors
e_{1t}=Relative Exchange Rates of Destination to Origin
ca_{1t}=Cost of Transport by Air between Destination and Origin
ca_{2t}=Cost of Transport by Air between Destination and Competitors
cs_{2t}=Cost of Transport by Surface between Destination and Competitors
dv_1=Dummy Variable (1974: Oil Crisis, Political Factors in Greece)
dv_2=Dummy Variable (1979: Oil Crisis)
dv_3=Dummy Variable (1967-69: UK Currency Restrictions)

$\bar{R}^2$=Adjusted Multiple Correlation Coefficient
D-W=Durbin-Watson Statistic (1st order autocorrelation)
OLS=Ordinary Least Squares Estimation
COCR=Cochrane-Orcutt Transformation

Table 4.4c: Witt & Martin's (1987a) Results for "Independent/Inclusive Tour" Tourism

q_t:Tour. Dem.	Indep. Air			Incl. Tour. Air		
Variable	GREECE	SPAIN	ITALY	GREECE	SPAIN	ITALY
c	-22.44 (-3.52)	-16.72 (-1.70)	-35.09 (-6.85)	-55.34 (-4.25)	-8.71 (-1.63)	-52.71 (-7.69)
q_{t-1}	0.47 (3.03)	0.62 (3.69)	-	-	0.52 (3.37)	-
y_t	2.52 (3.55)	1.45 (1.52)	2.69 (4.51)	6.35 (4.00)	0.86 (1.40)	5.55 (7.09)
p_{1t}	-1.73 (-0.69)	-0.34 (-1.18)	-0.32 (-1.93)	-0.95 (-1.64)	-0.75 (-3.31)	-0.11 (-0.44)
e_{1t}	-	0.71 (3.51)	1.07 (7.41)	-	-	0.76 (3.90)
ca_{1t}	-1.84 (-1.86)	-0.19 (-0.08)	-	-0.12 (-0.44)	-	-0.30 (-0.42)
dv_1	-0.50 (-4.61)	-	-0.21 (-3.03)	-	-	-0.31 (-2.68)
t	-	-	-0.54 (-4.12)	-	-	-0.11 (-6.62)
$\bar{R}^2$	0.97	0.96	0.93	0.87	0.91	0.76
D-W	2.06	2.02	2.00	-	-	-
OLS/COCR	COCR	OLS	OLS	COCR	COCR	COCR

Sample-period: 1967-1983 (Greece); 1965-1983 (Spain, Italy)
(The variables, in small letters, denote logs; t-statistics in brackets)

q_t=Number of Tourist Visits Per Head of Origin to Destination
c=constant
q_{t-1}=Lag q_t
y_t=Real Personal Disposable Income Per Capita in Origin
p_{1t}=Relative Consumer Prices of Destination to Origin
e_{1t}=Relative Exchange Rates of Destination to Origin
ca_{1t}=Cost of Transport by Air between Destination and Origin
dv_1=Dummy Variable (1974: Oil Crisis, Political Factors in Greece)
t=Time Trend

$\bar{R}^2$=Adjusted Multiple Correlation Coefficient
D-W=Durbin-Watson Statistic (1st order autocorrelation)
OLS=Ordinary Least Squares Estimation
COCR=Cochrane-Orcutt Transformation

THE ESTIMATION RESULTS: THE SINGLE EQUATION MODEL

THE UNITED KINGDOM

Table 4.5a: Tourism Demand by British Tourists

Δd_t: Tourism Demand Change, 1960-1987					
Variable	GREECE	SPAIN	PORTUGAL	ITALY	TURKEY
Δy_t	1.05 (5.58)	0.89 (3.67)	1.72 (3.67)	0.58 (1.56)	0.84 (2.07)
$\Delta^2 y_t$	-	-	-	-	-0.92 (-1.95)
Δp_{1t}	-5.61 (-5.28)	-0.98 (-2.22)	-	-3.01 (-1.93)	-
$\Delta^2 p_{1t}$	3.68 (5.30)	0.93 (1.24)	2.98 (3.54)	1.74 (1.95)	-
Δe_{1t}	3.95 (7.53)	0.94 (1.86)	0.94 (1.94)	-	-
$\Delta^2 e_{1t}$	-2.46 (-6.26)	-1.47 (-3.83)	-0.27 (-1.73)	-	2.39 (1.67)
Δp_{2t}	-	-	-3.71 (-2.43)	-1.28 (-2.90)	-
$\Delta^2 p_{2t}$	-	-	-	-0.45 (2.85)	-
Δe_{2t}	-	-	-	-	1.62 (2.47)
$\Delta^2 e_{2t}$	-0.81 (-2.77)	-	-	-	-1.10 (-2.25)
Δd_{t-1}	-0.57 (-5.64)	-0.18 (-2.94)	-0.51 (-3.45)	-0.16 (-1.72)	-
$(d-y)_{t-2}$	-0.37 (-4.31)	-0.60 (-2.93)	-0.25 (-2.99)	-0.05 (-2.19)	-0.35 (-2.88)
y_{t-2}	0.42 (4.30)	-	0.45 (5.52)	0.07 (2.49)	0.62 (3.33)
rp_{1t-2}	-0.29 (-1.65)	-1.26 (-3.68)	-0.46 (-2.96)	-0.06 (-2.46)	-
rp_{2t-2}	-1.04 (-4.18)	-	-0.74 (-2.90)	-0.09 (-1.17)	-0.98 (-2.59)
dv	-0.23 (-4.38)	-	-0.38 (-3.59)	-	-0.14 (-1.45)

d_t=Real Tourism Receipts, Δd_t=d_t-d_{t-1}
y_t=Real Personal Disposable Income Per Capita in Origin
Δy_t=y_t-y_{t-1}, $\Delta^2 y_t$=Δy_t-Δy_{t-1}
$(d-y)_{t-2}$=Tourism Consumption Propensity
p_{it}=(Nominal) Relative Prices, Δp_{it}=p_{it}-p_{it-1}, $\Delta^2 p_{it}$=Δp_{it}-Δp_{it-1}
e_{it}=(Nominal) Relative Exchange Rates, Δe_{it}=e_{it}-e_{it-1}, $\Delta^2 e_{it}$=Δe_{it}-Δe_{it-1}
rp_{it}=Effective Relative Prices
dv=Dummy Variable (Political Factors)
i=1, 2: 1=Destination to Origin, 2=Destination to Competitors
(The variables, in small letters, denote logs; t-statistics in brackets)

Table 4.5b: Diagnostic Statistics

Statistics	GREECE	SPAIN	PORTUGAL	ITALY	TURKEY
$\bar{R}^2$	0.71	0.37	0.61	0.67	0.57
SER/MDV	0.02	0.05	0.04	0.01	0.05
LM_3	2.42	2.05	1.04	1.07	0.85
$(F_{(3,T-k-3)})$	(3.41)	(3.20)	(3.34)	(3.29)	(3.24)
$BP_{(m-1)}$	2.97	4.79	8.83	8.45	6.69
$(X^2_{(m-1)})$	(19.67)	(14.06)	(18.30)	(16.91)	(15.50)
$CH_{(k,T-2k)}$	0.52	1.25	0.34	1.38	0.11
$(F_{(k,T-2k)})$	(5.91)	(2.85)	(4.03)	(3.34)	(3.02)
ARCH	2.09	0.21	1.74	0.93	3.18
(X_1)	(3.84)	(3.84)	(3.84)	(3.84)	(3.84)

$\bar{R}^2$=Adjusted Multiple Correlation Coefficient
SER=Standard Error of Regression
MDV=Mean of Dependent Variable
LM_3=Lagrange Multiplier Test (3nd-Order Autocorrelation)
$BP_{(m-1)}$=Breusch-Pagan Test (Heteroskedasticity)
$CH_{(k,T-2k)}$=Chow Test (Structural Changes)
ARCH=Autoregressive Conditional Heteroskedasticity Test
T=No of Observations, k=No of Parameters, f,s,m=Degrees of Freedom
(Critical statistics values in brackets)

Table 4.5c: Long - Run Elasticities

Elasticity	GREECE	SPAIN	PORTUGAL	ITALY	TURKEY
Y	2.13	1.00	2.80	2.40	2.77
RP_1	-0.78	-2.10	-1.84	-1.20	-
RP_2	-2.81	-	-2.56	-1.80	-2.80

Y = Income Elasticity
RP_1 = Effective Own-Price Elasticity (Relative to Origin)
RP_2 = Effective Substitute-Price Elasticity (Relative to Competitors)

WEST GERMANY

Table 4.6a: Tourism Demand by German Tourists

Δd_t: Tourism Demand Change, 1960-1987					
Variable	GREECE	SPAIN	PORTUGAL	ITALY	TURKEY
Δy_t	1.05 (4.77)	0.99 (6.94)	1.50 (3.00)	0.76 (2.24)	0.29 (2.46)
$\Delta^2 y_t$	-0.89 (-3.29)	-	-1.38 (-2.54)	-	-
Δp_{1t}	-2.49 (-4.38)	-0.96 (-2.03)	-3.36 (-2.92)	-5.36 (-3.50)	-0.34 (-2.48)
$\Delta^2 p_{1t}$	-	1.21 (2.19)	2.75 (2.50)	0.66 (1.66)	-
Δe_{1t}	1.29 (1.79)	-	3.12 (2.50)	2.07 (2.38)	0.59 (2.51)
$\Delta^2 e_{1t}$	-	-0.54 (-2.86)	-1.25 (-1.69)	-1.56 (-2.45)	-0.42 (-2.18)
Δp_{2t}	-	-	-	-	-
$\Delta^2 p_{2t}$	-	-	-	-	-
Δe_{2t}	-	-	-	-	-
$\Delta^2 e_{2t}$	-	-	-	-	-
Δd_{t-1}	-0.31 (-2.43)	-0.30 (-1.88)	-0.44 (-2.20)	-0.45 (-3.70)	-
$(d-y)_{t-2}$	-0.23 (-2.17)	-0.29 (-5.35)	-0.21 (-3.04)	-0.18 (-2.34)	-0.25 (-2.24)
y_{t-2}	-	0.23 (5.15)	0.39 (2.39)	-	0.45 (2.74)
rp_{1t-2}	-0.36 (-2.42)	-0.43 (-2.09)	-0.47 (-1.69)	-0.29 (-1.95)	-0.36 (-1.70)
rp_{2t-2}	-0.55 (-2.20)	-	-	-0.40 (-4.37)	-
dv	-0.16 (-1.35)	-	-	-	-

d_t=Real Tourism Receipts, $\Delta d_t = d_t - d_{t-1}$
y_t=Real Personal Disposable Income Per Capita in Origin
$\Delta y_t = y_t - y_{t-1}$, $\Delta^2 y_t = \Delta y_t - \Delta y_{t-1}$
$(d-y)_{t-2}$=Tourism Consumption Propensity
p_{it}=(Nominal) Relative Prices, $\Delta p_{it} = p_{it} - p_{it-1}$, $\Delta^2 p_{it} = \Delta p_{it} - \Delta p_{it-1}$
e_{it}=(Nominal) Relative Exchange Rates, $\Delta e_{it} = e_{it} - e_{it-1}$, $\Delta^2 e_{it} = \Delta e_{it} - \Delta e_{it-1}$
rp_{it}=Effective Relative Prices
dv=Dummy Variable (Political Factors)
i=1, 2: 1=Destination to Origin, 2=Destination to Competitors
(The variables, in small letters, denote logs; t-statistics in brackets)

Table 4.6b: Diagnostic Statistics

Statistics	GREECE	SPAIN	PORTUGAL	ITALY	TURKEY
$\bar{R}^2$	0.56	0.74	0.43	0.45	0.42
SER/MDV	0.02	0.01	0.04	0.01	0.05
LM_3	1.54	1.42	1.45	1.69	1.20
$(F_{(3,T-k-3)})$	(3.24)	(3.20)	(3.29)	(3.24)	(3.16)
$BP_{(m-1)}$	7.66	11.03	16.61	4.06	11.08
$(X^2_{(m-1)})$	(15.50)	(14.06)	(16.91)	(15.50)	(12.59)
$CH_{(k,T-2k)}$	0.63	0.34	1.58	1.08	1.91
$(F_{(k,T-2k)})$	(3.02)	(2.85)	(3.34)	(3.02)	(2.77)
ARCH	0.35	0.01	1.78	0.14	1.51
(X_1)	(3.84)	(3.84)	(3.84)	(3.84)	(3.84)

$\bar{R}^2$=Adjusted Multiple Correlation Coefficient
SER=Standard Error of Regression
MDV=Mean of Dependent Variable
LM_3=Lagrange Multiplier Test (3nd-Order Autocorrelation)
$BP_{(m-1)}$=Breusch-Pagan Test (Heteroskedasticity)
$CH_{(k,T-2k)}$=Chow Test (Structural Changes)
ARCH=Autoregressive Conditional Heteroskedasticity Test
T=No of Observations, k=No of Parameters, f,s,m=Degrees of Freedom
(Critical statistics values in brackets)

Table 4.6c: Long - Run Elasticities

Elasticity	GREECE	SPAIN	PORTUGAL	ITALY	TURKEY
Y	1.00	1.79	2.85	1.00	2.80
RP_1	-1.56	-1.48	-2.23	-1.61	-1.44
RP_2	-2.40	-	-	-2.22	-

Y = Income Elasticity
RP_1 = Effective Own-Price Elasticity (Relative to Origin)
RP_2 = Effective Substitute-Price Elasticity (Relative to Competitors)

THE UNITED STATES

Table 4.7a: Tourism Demand by American Tourists

Δd_t: Tourism Demand Change, 1960-1987					
Variable	GREECE	SPAIN	PORTUGAL	ITALY	TURKEY
Δy_t	0.02 (1.82)	0.21 (1.86)	0.26 (3.58)	0.61 (1.21)	0.43 (1.85)
$\Delta^2 y_t$	-	-	-0.16 (-3.55)	-0.27 (-1.06)	-0.27 (-1.57)
Δp_{1t}	-6.71 (-4.32)	-	-3.42 (-1.67)	-1.24 (-1.24)	-2.01 (-1.96)
$\Delta^2 p_{1t}$	3.53 (2.14)	-	4.59 (2.52)	-0.71 (-0.85)	5.99 (2.73)
Δe_{1t}	1.32 (2.40)	0.66 (2.40)	-	-	2.96 (2.45)
$\Delta^2 e_{1t}$	-0.92 (-1.21)	-0.25 (-1.16)	-	-	-1.75 (-4.02)
Δp_{2t}	-	-0.28 (-0.68)	-5.71 (-3.57)	-	-
$\Delta^2 p_{2t}$	-	-	3.29 (2.65)	-	-2.60 (-1.59)
Δe_{2t}	-	1.42 (3.35)	4.97 (3.64)	1.29 (4.46)	1.87 (2.94)
$\Delta^2 e_{2t}$	-	-1.00 (-3.36)	-2.76 (-2.30)	-1.26 (-3.79)	-
Δd_{t-1}	-	-	-0.34 (-2.01)	-0.26 (-2.03)	-
$(d-y)_{t-2}$	-0.019 (-2.21)	-0.28 (-5.02)	-0.184 (-2.31)	-0.31 (-2.92)	-0.05 (-2.57)
y_{t-2}	-	0.27 (4.59)	0.43 (4.21)	0.29 (2.67)	-
rp_{1t-2}	-0.05 (-2.37)	-0.33 (-1.86)	-0.29 (-3.82)	-0.12 (-2.30)	-0.09 (-1.44)
rp_{2t-2}	-0.03 (-1.63)	-0.35 (-1.21)	-0.189 (-0.24)	-0.10 (-1.23)	-0.18 (-2.31)
dv	-0.06 (-0.66)	-	-0.70 (-2.49)	-	-0.28 (-0.71)

d_t=Real Tourism Receipts, $\Delta d_t=d_t-d_{t-1}$
y_t=Real Personal Disposable Income Per Capita in Origin
$\Delta y_t=y_t-y_{t-1}$, $\Delta^2 y_t=\Delta y_t-\Delta y_{t-1}$
$(d-y)_{t-2}$=Tourism Consumption Propensity
p_{it}=(Nominal) Relative Prices, $\Delta p_{it}=p_{it}-p_{it-1}$, $\Delta^2 p_{it}=\Delta p_{it}-\Delta p_{it-1}$
e_{it}=(Nominal) Relative Exchange Rates, $\Delta e_{it}=e_{it}-e_{it-1}$, $\Delta^2 e_{it}=\Delta e_{it}-\Delta e_{it-1}$
rp_{it}=Effective Relative Prices
dv=Dummy Variable (Political Factors)
i=1, 2: 1=Destination to Origin, 2=Destination to Competitors
(The variables, in small letters, denote logs; t-statistics in brackets)

Table 4.7b: Diagnostic Statistics

Statistics	GREECE	SPAIN	PORTUGAL	ITALY	TURKEY
$\bar{R}^2$	0.41	0.54	0.40	0.57	0.61
SER/MDV	0.01	0.02	0.02	0.01	0.02
LM_3	0.88	4.38	1.68	1.43	1.57
$(F_{(3,T-k-3)})$	(3.49)	(3.41)	(3.20)	(3.34)	(3.29)
$BP_{(m-1)}$	7.42	15.21	18.13	4.94	14.62
$(X^2_{(m-1)})$	(15.50)	(16.91)	(22.36)	(18.30)	(19.67)
$CH_{(k,T-2k)}$	0.71	1.18	0.10	1.52	2.59
$(F_{(k,T-2k)})$	(3.02)	(3.35)	(2.06)	(4.03)	(5.91)
ARCH	0.04	0.04	0.53	0.03	0.04
(X_1)	(3.84)	(3.84)	(3.84)	(3.84)	(3.84)

$\bar{R}^2$=Adjusted Multiple Correlation Coefficient
SER=Standard Error of Regression
MDV=Mean of Dependent Variable
LM_3=Lagrange Multiplier Test (3nd-Order Autocorrelation)
$BP_{(m-1)}$=Breusch-Pagan Test (Heteroskedasticity)
$CH_{(k,T-2k)}$=Chow Test (Structural Changes)
ARCH=Autoregressive Conditional Heteroskedasticity Test
T=No of Observations, k=No of Parameters, f,s,m=Degrees of Freedom
(Critical statistics values in brackets)

Table 4.7c: Long - Run Elasticities

Elasticity	GREECE	SPAIN	PORTUGAL	ITALY	TURKEY
Y	1.00	1.96	3.32	1.93	1.00
RP_1	-2.78	-1.22	-1.61	-0.38	-1.80
RP_2	-1.58	-1.25	-1.03	-0.32	-3.60

Y = Income Elasticity
RP_1 = Effective Own-Price Elasticity (Relative to Origin)
RP_2 = Effective Substitute-Price Elasticity (Relative to Competitors)

FRANCE

Table 4.8a: Tourism Demand by French Tourists

Δd_t: Tourism Demand Change, 1960-1987					
Variable	GREECE	SPAIN	PORTUGAL	ITALY	TURKEY
Δy_t	1.88 (6.52)	0.77 (3.35)	1.16 (2.46)	1.08 (3.95)	0.45 (0.66)
$\Delta^2 y_t$	-	-	-1.22 (-2.58)	-	-
Δp_{1t}	-5.17 (-6.53)	-	-	-3.17 (-1.82)	-8.43 (-4.42)
$\Delta^2 p_{1t}$	-	-	-	1.99 (1.49)	3.42 (1.34)
Δe_{1t}	-	-	-	2.12 (1.81)	-
$\Delta^2 e_{1t}$	-1.66 (-3.68)	-	-	-1.69 (-1.61)	-
Δp_{2t}	-	-1.45 (-1.39)	-4.86 (-2.90)	-	-7.37 (-3.01)
$\Delta^2 p_{2t}$	-	0.93 (1.48)	-	-	-3.57 (-1.41)
Δe_{2t}	2.96 (2.61)	0.69 (1.01)	2.30 (2.15)	-	-
$\Delta^2 e_{2t}$	-1.31 (-2.27)	-0.67 (-1.58)	-	-	-
Δd_{t-1}	-0.55 (-5.12)	-	-0.26 (-1.70)	-0.11 (-1.09)	-0.54 (-5.83)
$(d-y)_{t-2}$	-0.11 (-1.34)	-0.02 (-2.90)	-0.13 (-1.83)	-0.23 (-3.42)	-0.18 (-2.87)
y_{t-2}	0.19 (2.04)	-	0.11 (2.06)	0.30 (2.71)	-
rp_{1t-2}	-	-	-	-	-
rp_{2t-2}	-0.30 (-2.74)	-0.64 (-2.96)	-0.40 (-1.89)	-0.55 (-2.07)	-0.35 (-1.34)
dv	-0.16 (-2.74)	-	-	-	-0.26 (-0.80)

d_t=Real Tourism Receipts, $\Delta d_t = d_t - d_{t-1}$
y_t=Real Personal Disposable Income Per Capita in Origin
$\Delta y_t = y_t - y_{t-1}$, $\Delta^2 y_t = \Delta y_t - \Delta y_{t-1}$
$(d-y)_{t-2}$=Tourism Consumption Propensity
p_{it}=(Nominal) Relative Prices, $\Delta p_{it} = p_{it} - p_{it-1}$, $\Delta^2 p_{it} = \Delta p_{it} - \Delta p_{it-1}$
e_{it}=(Nominal) Relative Exchange Rates, $\Delta e_{it} = e_{it} - e_{it-1}$, $\Delta^2 e_{it} = \Delta e_{it} - \Delta e_{it-1}$
rp_{it}=Effective Relative Prices
dv=Dummy Variable (Political Factors)
i=1, 2: 1=Destination to Origin, 2=Destination to Competitors
(The variables, in small letters, denote logs; t-statistics in brackets)

Table 4.8b: Diagnostic Statistics

Statistics	GREECE	SPAIN	PORTUGAL	ITALY	TURKEY
$\bar{R}^2$	0.57	0.45	0.40	0.34	0.67
SER/MDV	0.02	0.01	0.03	0.01	0.02
LM_3	3.92	2.60	2.59	2.65	2.16
$(F_{(3,T-k-3)})$	(3.41)	(3.71)	(3.59)	(3.49)	(3.49)
$BP_{(m-1)}$	5.47	9.53	10.37	5.82	11.80
$(X^2_{(m-1)})$	(16.91)	(12.59)	(14.06)	(15.50)	(15.50)
$CH_{(k,T-2k)}$	0.97	1.12	1.57	2.08	0.40
$(F_{(k,T-2k)})$	(3.35)	(2.77)	(2.85)	(3.02)	(3.02)
ARCH	0.18	0.19	0.82	0.30	0.46
(X_1)	(3.84)	(3.84)	(3.84)	(3.84)	(3.84)

$\bar{R}^2$=Adjusted Multiple Correlation Coefficient
SER=Standard Error of Regression
MDV=Mean of Dependent Variable
LM_3=Lagrange Multiplier Test (3nd-Order Autocorrelation)
$BP_{(m-1)}$=Breusch-Pagan Test (Heteroskedasticity)
$CH_{(k,T-2k)}$=Chow Test (Structural Changes)
ARCH=Autoregressive Conditional Heteroskedasticity Test
T=No of Observations, k=No of Parameters, f,s,m=Degrees of Freedom
(Critical statistics values in brackets)

Table 4.8c: Long - Run Elasticities

Elasticity	GREECE	SPAIN	PORTUGAL	ITALY	TURKEY
Y	2.72	1.00	1.84	2.30	1.00
RP_1	-	-	-	-	-
RP_2	-2.72	-0.80	-3.63	-2.39	-1.94

Y = Income Elasticity
RP_1 = Effective Own-Price Elasticity (Relative to Origin)
RP_2 = Effective Substitute-Price Elasticity (Relative to Competitors)

SWEDEN

Table 4.9a: Tourism Demand by Swedish Tourists

Δd_t: Tourism Demand Change, 1960-1987					
Variable	GREECE	SPAIN	PORTUGAL	ITALY	TURKEY
Δy_t	0.53 (0.75)	1.08 (4.32)	0.63 (1.52)	1.63 (7.30)	1.36 (1.01)
$\Delta^2 y_t$	-1.25 (-1.94)	-	-	-	-3.14 (-1.33)
Δp_{1t}	-8.40 (-4.05)	-	-6.89 (-3.76)	-3.42 (-2.23)	-3.90 (-2.16)
$\Delta^2 p_{1t}$	3.44 (1.45)	-	4.95 (3.60)	-	4.50 (2.81)
Δe_{1t}	4.56 (2.86)	-	4.83 (1.94)	0.47 (0.84)	3.16 (2.54)
$\Delta^2 e_{1t}$	-2.50 (-2.46)	-	-3.74 (-2.42)	-1.48 (-3.40)	-3.33 (-4.01)
Δp_{2t}	-	-	-	-	-
$\Delta^2 p_{2t}$	-	-	-	-	-
Δe_{2t}	1.64 (2.10)	0.22 (1.03)	-	0.71 (3.57)	-
$\Delta^2 e_{2t}$	-	-	-	-	-
Δd_{t-1}	-0.24 (-1.56)	-0.34 (-2.11)	-0.33 (-1.81)	-0.30 (-2.62)	-0.20 (-1.39)
$(d-y)_{t-2}$	-0.59 (-3.03)	-0.29 (-4.30)	-0.12 (-1.32)	-0.30 (-3.55)	-0.21 (-1.51)
y_{t-2}	0.65 (3.45)	0.28 (4.70)	0.09 (1.62)	0.36 (3.65)	0.12 (1.36)
rp_{1t-2}	-1.30 (-3.75)	-0.37 (-1.60)	-0.21 (-0.77)	-0.45 (-0.88)	-
rp_{2t-2}	-	-	-	-0.99 (-2.60)	-0.19 (-0.32)
dv	-0.69 (-2.94)	-	-0.69 (-3.93)	-	-0.73 (-1.03)

d_t=Real Tourism Receipts, $\Delta d_t = d_t - d_{t-1}$
y_t=Real Personal Disposable Income Per Capita in Origin
$\Delta y_t = y_t - y_{t-1}$, $\Delta^2 y_t = \Delta y_t - \Delta y_{t-1}$
$(d-y)_{t-2}$=Tourism Consumption Propensity
p_{it}=(Nominal) Relative Prices, $\Delta p_{it} = p_{it} - p_{it-1}$, $\Delta^2 p_{it} = \Delta p_{it} - \Delta p_{it-1}$
e_{it}=(Nominal) Relative Exchange Rates, $\Delta e_{it} = e_{it} - e_{it-1}$, $\Delta^2 e_{it} = \Delta e_{it} - \Delta e_{it-1}$
rp_{it}=Effective Relative Prices
dv=Dummy Variable (Political Factors)
i=1, 2: 1=Destination to Origin, 2=Destination to Competitors
(The variables, in small letters, denote logs; t-statistics in brackets)

Table 4.9b: Diagnostic Statistics

Statistics	GREECE	SPAIN	PORTUGAL	ITALY	TURKEY
$\bar{R}^2$	0.56	0.46	0.55	0.67	0.51
SER/MDV	0.01	0.01	0.04	0.02	0.01
LM_3	1.19	3.01	3.29	2.71	2.23
$(F_{(3,T-k-3)})$	(3.41)	(3.13)	(3.29)	(3.29)	(3.34)
$BP_{(m-1)}$	5.13	4.92	15.23	15.52	8.97
$(X^2_{(m-1)})$	(19.65)	(11.07)	(16.91)	(16.91)	(18.30)
$CH_{(k,T-2k)}$	0.10	1.74	0.25	3.19	0.55
$(F_{(k,T-2k)})$	(5.91)	(2.74)	(3.34)	(3.34)	(4.03)
ARCH	0.55	0.60	0.54	0.31	0.07
(X_1)	(3.84)	(3.84)	(3.84)	(3.84)	(3.84)

$\bar{R}^2$=Adjusted Multiple Correlation Coefficient
SER=Standard Error of Regression
MDV=Mean of Dependent Variable
LM_3=Lagrange Multiplier Test (3nd-Order Autocorrelation)
$BP_{(m-1)}$=Breusch-Pagan Test (Heteroskedasticity)
$CH_{(k,T-2k)}$=Chow Test (Structural Changes)
ARCH=Autoregressive Conditional Heteroskedasticity Test
T=No of Observations, k=No of Parameters, f,s,m=Degrees of Freedom
(Critical statistics values in brackets)

Table 4.9c: Long - Run Elasticities

Elasticity	GREECE	SPAIN	PORTUGAL	ITALY	TURKEY
Y	2.10	1.96	1.79	2.20	1.57
RP_1	-2.20	-1.27	-1.75	-1.50	-
RP_2	-	-	-	-3.30	-1.00

Y = Income Elasticity
RP_1 = Effective Own-Price Elasticity (Relative to Origin)
RP_2 = Effective Substitute-Price Elasticity (Relative to Competitors)

CHAPTER 5

A CONSUMER MODEL OF DEMAND FOR TOURISM

Introduction

A model of tourism demand, based on the theory of consumer behaviour, will be discussed in this chapter. It consists of a system of demand functions focusing on the tourism expenditure allocation by main European tourism generating countries, namely the United Kingdom, West Germany, France and Sweden, as well as the USA, between the main South European (Mediterranean) tourism destinations, Greece, Spain, Portugal, Italy and Turkey. The model is of importance because it is explicitly founded on economic theory, and, specifically, on the theory of consumer behaviour. Moreover, it provides interesting empirical evidence relating, in particular, to the elasticity values of variables which have useful policy implications. The aim is, on the one hand, to shed light on the relationship between the theoretical specification and the empirical application; and, on the other hand, to provide an alternative theoretical and empirical framework that can be compared and contrasted with the single equation model. Prior to the formulation of the model, some relevant concepts of the underlying consumer theory will be presented.

5.1 CONSUMER THEORY AND DEMAND FUNCTIONS[1]

Tourism represents a special form of economic demand (Schulmeister, 1979): the demand for tourism is directed towards consumption of specific types of commodities and services, such as accommodation, transportation, food, entertainment etc. Despite the fact that, internationally, business (as well as government) tourism holds an increasing share of total tourism (eg. World

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[1] The fundamental concepts in consumer theory as well as the theoretical analysis in the sections that follow are based on Deaton and Muellbauer (1980a), and, particularly, on: Chapter 2: Preferences and Demand; Chapter 3: The Theory at Work; Chapter 5: Restrictions on Preferences; and, Chapter 6: The Theory of Market Demand.

Tourism Organisation Statistics, 1989), the demand for Mediterranean tourism is mainly for vacation and entertainment. Tourism expenditure, in this case, consists primarily a part of private (household) consumption.

An expenditure allocation model explains the way that a consumer allocates a certain (given) level of expenditure (budget) among various goods and services in order to maximise his/her utility. Suppose q is a vector of quantities of n finite goods and services and p a vector of the prices per unit of those goods and services then, the utility maximising condition may be written:

$$\max q_i = g_i\,(x,p) \qquad i=1,\ldots,n$$

for the set of n consumer demand functions, relating the quantities demanded q_i to expenditure x and prices p, subject to the conventional linear budget constraint:

$$\sum_{i=1}^{n} p_i\, q_i = x$$

These equations describe a system of Marshallian demand functions. Using the concept of "duality", the objective can also be presented as a cost (ie. outlay) minimisation one. Duality refers to the two equivalent consumer's problems: either utility maximisation for a given cost (outlay) or cost minimisation to reach certain utility level[2]. The essential feature of the duality approach is a change of variables: originally, preferences and utility are defined over quantities as the object of choice, in direct form as v(q); nevertheless, the position of a linear budget constraint (that the consumer faces) is defined by x and p, and this determines maximum attainable utility level u; u then can be considered as a function of x and p (the indirect utility function, ψ(x,p)) or, inversely, x can be considered as a function of u and p (the cost function, c(u,p)); thus, there is a change of variables since there is transformation from the direct form v(q) into the indirect forms ψ(x,p) and c(u,p). Given a utility level u, to be reached (or maintained) then,

$$\min x = \sum_{i=1}^{n} p_i\, q_i$$

[2] It should be noted that optimal values of the vector q of commodities are sought in both problems; obviously, these values of q finally chosen must be the same in both cases.

subject to the constraint:

$$q_i = h_i\ (u,p)$$

These are Hicksian or compensated[3] demand functions. As the solution in the two problems coincide[4], it is,

$$q_i = g_i\ (x,p) = h_i\ (u,p) \qquad i=1,...n$$

Substitution of each of these solutions back into their respective problems gives, first, maximum attainable utility and, second, minimum attainable cost; therefore,

$$u = v\ (q_1, q_2, \ldots, q_n) = v\ [g_1(x,p),\ g_2(x,p),...,\ g_n(x,p)] = \psi(x,p)$$

$$x = \sum_{i=1}^{n} p_i\ h_i\ (u,p) = c(u,p)$$

The function $\psi(x,p)$ is the maximum attainable utility, given the cost (outlay) x and prices p. It is the indirect utility function and an alternative definition is,

$$\psi\ (x,p) = \max_q\ [v\ (q);\ p\ q = x]$$

which, in other words, is the solution to the original problem. The function c (u, p) is the minimum cost of attaining utility u at prices p and this is the cost function. It can be given, alternatively, by:

$$c\ (u,p) = \min_q\ [p\ q\ ;\ v\ (q) = u]$$

and this is the solution to the dual problem[5]. Since c (u, p) = x, inversion gives u, as a function of x and p: $u = \psi\ (x,p)$. Alternatively, starting from $u = \psi\ (x,p)$ and inverting, leads directly to x = c (u, p)[6].

The importance of the "fundamental theorem of duality" (that is, the retrievability of preferences from the dual) lies in the fact that it allows us to go beyond the use of $\psi\ (x,p)$ and c (u,

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[3] Because Hicksian demand functions show how q is affected by prices with u held constant, they are also called compensated demand functions.

[4] In both problems, utility u and expenditure x are the same. This is because, in the dual problem (cost minimisation), the utility u, which is also the maximum attainable in the original problem (utility maximisation), is simply used. Moreover, since the same choice is implied by utility maximisation as well as by cost minimisation, the outlay in the original problem must be the cost minimum in the dual problem.

[5] The indirect utility and cost functions give alternative expressions of the same information.

[6] Practically, it is useful to be able to generate Marshallian demand functions from the cost functions, which is a matter of substitution: starting from the cost function c (u, p) and differentiating it, the Hicksian demand functions h (u, p) can be obtained; inverting c (u, p) gives the indirect utility function $\psi\ (x,p)$; substituting $\psi\ (x,p)$ into h (u, p) gives the Marshallian demand functions g (x, p).

p), as alternative representations of some known utility function v (q). In other words, an important contribution of the duality concept in the theory of demand is that any function c (u, p) that satisfies certain properties[7] can be regarded as a cost function that represents some underlying preference ordering; therefore, it is not necessary to be able to express v (q) explicitly. This convenience is of great importance for empirical work in particular, since, fairly easily specified c (u, p) and $\psi\ (x,p)$ functions can be converted into demand functions[8] (by differentiation or use of "Roy's identity")[9].

A major theoretical difficulty can also be overcome by the "fundamental theorem of duality", namely the question of the circumstances according to which -from a given set of demand functions- it is possible to return to preferences; this is the "integrability problem". Once the utility maximisation is considered as the cost minimisation, it becomes clear that the demand functions must allow integration into a concave, linearly homogeneous function (ie. into a cost function)[10], whereas, dealing with direct utility and Marshallian demand functions, it is not clear how we get to direct utility from Marshallian demand functions.

At this stage, it is helpful to study the properties of the Hicksian and the Marshallian demand functions and consider how they relate to the analysis of the duality concept. The properties that characterise the Hicksian and the Marshallian demand functions are as follow:

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[7] These properties are: a) the cost function is homogeneous of degree one in prices; b) the cost function is increasing in u, non-decreasing in p and increasing in at least one price; c) the cost function is concave in prices; d) the cost function is continuous in p and the first and second derivatives, with respect to p, exist everywhere (except possibly at a set of specific price vectors); e) where they exist, the partial derivatives of the cost function, with respect to prices, are the Hicksian demand functions (Shephard's Lemma).

[8] This line of approach is more attractive compared to the frequent intractability of the first-order conditions, derived from the conventional approach (using Marshallian demand functions).

[9] Roy's identity is as follows:

$$q_i = g_i\ (x,p) = -\frac{\frac{\partial\psi}{\partial p_i}}{\frac{\partial\psi}{\partial x}}$$

See, for example, Thomas (1987), p. 97.

[10] That is how the conditions required for demand functions to be consistent with preferences are known as integrability conditions. As Muellbauer (1976) notes, "the integrability condition is nothing more or less than the condition that one should be able to "integrate back" to his/her utility function given his/her market behaviour, ie. integrate back to the specification of preferences from the implicit marginal conditions for utility maximising or cost minimising behaviour" (pp. 981-2).

a) Adding up: the sum of the individual expenditures is equal to total expenditures, that is,

$$\sum_{i=1}^{n} p_i \; h_i \; (u,p) = \sum_{i=1}^{n} p_i \; q_i \; (x,p) = x$$

The total expenditure constraint ensures that the values of the expenditure on the different goods and services add up to the predetermined total under all circumstances. It is important to make clear that expenditure is not identical to income (an income constraint would not necessarily satisfy the adding up property; Deaton, 1975a). In fact, the way that empirical data are constructed usually guarantees that the adding up property will be satisfied.

b) Homogeneity: Hicksian demand functions are homogeneous of degree zero in prices and Marshallian demand functions are homogeneous of degree zero in total expenditure and prices, that is,

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

and the scalar $\theta > 0$.

This means that a proportional change in expenditure and all of the prices has no effect on the quantities purchased or, further, on the budget allocation; this is the "absence of money illusion" (eg. Thomas, 1987)[11].

c) Symmetry (or Slutsky condition): the cross-price derivatives of the Hicksian demand functions are symmetric, that is,

$$\frac{\partial h_i \; (u,p)}{\partial p_j} = \frac{\partial h_j \; (u,p)}{\partial p_i} \qquad \text{for } all \;\; i \neq j$$

In other words, the matrix of the compensated price derivatives, or substitution matrix, must be symmetric. These derivatives are calculated after the consumer has been compensated for changes in real income brought about by the price change considered. Symmetry can be regarded as a guarantee of consistency of (the consumer's) choice. It rules out the possibility that the consumer's demand functions are such that there exists a sequence of price and income changes which will lead the consumer through a series of positions each of which is preferred to the

[11] The "absence of money illusion" is the starting point for expressing demand functions in terms of real income and relative prices; it has long-run rather than short-run implications; (Barten, 1977).

previous one but which, at the end, leads back to the starting point (Brown and Deaton, 1972; p. 1164).

d) Negativity: the n X n matrix formed by the elements $\frac{\partial h_i}{\partial p_j}$ is negative semidefinite, that is, for any n-vector ξ, the quadratic form[12]

$$\sum_i \sum_j \xi_i \xi_j \frac{\partial h_i}{\partial p_j} \leq 0$$

This means, among other things, that compensated own-price increases lead to lower demand levels for the commodity involved -the well known "law of demand".

The adding up and homogeneity conditions are consequences of the specification of a linear budget constraint whereas symmetry and negativity derive from the requirement of consistent preferences. It is worth noting that "the validity of these four properties, deduced from the theory, also guarantees, at least locally, the validity of the theory itself" (Deaton, 1975a; p. 13). Moreover, from an empirical (econometric) point of view, these properties imply certain restrictions on a system of demand functions, which ease insuperable burdens regarding the estimation of such a system (as well as constraints associated with issues such as "degrees of freedom" inadequacies -usually due to a large number of variables to be included compared to a relatively small data series). Furthermore, in relation to the duality approach, it can be shown (Deaton and Muellbauer, 1980b; p. 50) that the Slutsky substitution matrix is the fundamental integrability condition of demand theory[13].

To conclude, utility maximisation, on the one hand, leads to demand functions, that add up, are homogeneous of degree zero and have symmetric, negative semidefinite compensated price responses; on the other hand, demand functions that add up, are homogeneous of degree zero and

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[12] If ξ is proportional to p, the inequality becomes an equality and the quadratic form is zero.

[13] Concavity and linear homogeneity are required for the function that results from integration to be a proper cost function (see, in relation, the earlier analysis about integrability conditions). Nevertheless, this will hold, if the substitution matrix is not only symmetric but, in addition, negative semidefinite and satisfies the singularity property:

$$\sum_j s_{ij} p_j = 0$$

where s_{ij} denotes $\frac{\partial h_i}{\partial p_j}$.

have symmetric, negative semidefinite compensated price responses are integrable into a consistent preference ordering. The empirical importance of the previous analysis then lies in the fact that the properties of the demand functions, namely adding up, homogeneity, symmetry and negativity, are the only consequences of utility maximisation. By applying these conditions empirically, we apply, in fact, a preference ordering; should, alternatively, these conditions hold, after having been tested empirically, a preference ordering can be said to exist.

Apart from the four properties mentioned earlier, i.e. adding-up, homogeneity, symmetry and negativity, that impose restrictions on the demand systems, consumer theory provides further restrictions on consumer preferences, which are useful in constructing commodity groupings for empirical analysis. The "separability of preferences" assumption, in particular, is vital for the "utility tree" approach and the "stage budgeting" assumption, which are, further, of crucial importance for the ultimate objective of this study -the formulation of a tourism demand system. A preference ordering is separable into mutually exclusive groups of goods/services, if the preference ordering of a given group is independent of the consumption of the goods and services outside that group (Katzner, 1970). A more formal definition of the separability concept is as follows (Deaton and Muellbauer, 1980b; p. 127): assume a vector of commodities q in the form $(q_G, q_{\bar{G}})$, q_G being the vector of commodities within a group and $q_{\bar{G}}$ the vector of excluded commodities; for any arbitrary fixed vector, $\bar{q}_{\bar{G}}$, the consumer's preferences over q will define an ordering on q_G. This is a "conditional" ordering on the goods in the group and the preselected values $\bar{q}_{\bar{G}}$ will, generally, determine the position of different bundles within the group in the ordering. When this is not so and the conditional ordering on goods in the group is independent of consumption levels outside the group, the group is separable. Only then can the conditional ordering be represented by a sub-utility function for the group, $v_G(q_G)$. If the whole commodity vector q can be partitioned into N such groups, the preferences are (weakly) separable. The form of the utility function that represents separable preferences is then,

$$u = f\,[\,v_1(q_1),\ v_2(q_2),\dots,v_G(q_G),\dots,v_N(q_N)\,]$$

for sub-vectors q_1 ,..., q_G ,..., q_N and f function is increasing in all its arguments. Moreover, a utility function of the above form implies sub-group (conditional) demands of the form:

$$q_i = g_{Gi}\,(x_G, p_G) \qquad \text{for } \textit{all i belonging in G}$$

and,

$$x_G = \sum_i p_{Gi}\, q_{Gi}$$

is total expenditure on group G. Obviously, the adding-up, homogeneity, symmetry and negativity properties apply also in the sub-group approach. To put it in a different way, if the separability of preferences holds, the commodities can be partitioned into groups so that preferences within groups can be described independently of the quantities in other groups. The combined values of the sub-utility functions for each group give total utility. By similar reasoning, each sub-utility function could have deeper sub-groupings within it and possibly some group(s) may contain only one good. This line of reasoning eventually leads to the "utility tree" concept. To extend further the analysis, two main stages in the consumer's decision process can be distinguished. At the first stage, it is decided what to spend on each group in total; expenditure is allocated to broad groups of goods. At the second stage, the actual choice of the quantities of the goods in each group is made, given the total expenditure for the group; group expenditures are allocated to the individual commodities. At each of these stages information appropriate to that stage only is required. While at the first stage allocation must be possible given knowledge of total expenditure and group prices (appropriately defined), at the second stage individual expenditures must be functions of group expenditures and prices within that group only. This is the concept of "two-stage budgeting"[14]. It is required that both of these allocations are perfect in the sense that the outcome of the two-stage budgeting must be identical to that of one step -overall- allocation with complete information. The further implications are that the allocation decisions related to each stage can be considered as corresponding to a utility maximisation problem of its own. It should also be clear that two-stage budgeting involves aggregation -to construct the broad groups- as well as separable decision making- for each of the groups' sub-problems.

[14] Obviously, the "two-stage budgeting" can be extended to consist of more stages (multi-stage budgeting).

Separability is a necessary and sufficient condition for the second stage of two-stage budgeting[15]. The quantities purchased within a sub-group can always be expressed as a function of group expenditure and prices within that group alone, if the sub-group appears only in a separable sub-utility function. The importance of the separability of preferences lies in the fact that it imposes restrictions on behaviour that limit the possible substitution effects between goods in different groups, with further implications for the convenience of the estimation procedure of a demand system. These restrictions will be satisfied (and the grouping of goods in different branches of the utility function can be carried out), if goods that are specially related to one another in consumption -being either substitutes or complements- are always kept in the same group.

A major problem arises from the fact that the theoretical basis for (systems of) demand functions relates mainly to the individual agent - the "representative" consumer - so that, when it comes to applying the theory, practical problems related to the "aggregation bias" appear. The aggregation problem is twofold: it concerns aggregation over commodities and aggregation over consumers. As regards aggregation over commodities, it is practically impossible to divide all goods into groups of completely homogeneous goods. What is required then is some sort of aggregation procedure. An acceptable allocation method is to group all commodities according to the different needs they satisfy, ensuring that no commodity is included in more than one group.

Whereas aggregation of commodities seems to be sufficiently accurate in many cases, and less of a problem (since the approximation procedures employed require rather weak assumptions), aggregation of consumers deserves more attention (Brown and Deaton, 1972). This is so because, in order that all consumers together should behave as the single consumer of the theory, it is necessary for the Engel (quantity - expenditure) curves of all consumers to be parallel straight lines. However, this not only imposes constraints upon the demand functions for each individual but also requires an unreasonable degree of uniformity of behaviour among individuals. The problem is worsened by the fact that statistical data almost always relate to groups of

[15] Separability of preferences and two-stage budgeting, though related to one another, are not equivalent.

consumers (and not to the single individual of the theory).

The question then arises as to what error should be expected, if aggregate models are used, when the true conditions of aggregation are not met. Unfortunately, almost all applied work is subject to errors, and errors of aggregation may not significantly add to the errors of measurement and omission of variables which are inevitably present. In addition, it appears that there have not been "any thorough going attempts to build truly aggregate systems of demand relations" (Brown and Deaton, 1972; p. 1170) and the problems posed by aggregation remain mainly unsolved[16]. Nevertheless, although the empirical importance of possible distortions caused by aggregation errors is largely unknown, they could well be of low importance relative to other imperfections (Barten, 1977).

5.2 FUNCTIONAL FORM OF PREFERENCES: THE AIDS MODEL

Choice of appropriate functional form for the representation of consumer preferences is one of the most important issues in the empirical analysis of consumer behaviour. It is essential to chose a functional form that is theoretically consistent and empirically applicable without being unduly restrictive. From a variety of functional forms that have been suggested at times (Brown and Deaton, 1972; Blundell, 1988), the Almost Ideal Demand System (AIDS), proposed by Deaton and Muellbauer (1980a), is a particularly attractive and convenient specification. The advantages of the AIDS model are that "it gives an arbitrary first-order approximation to any demand system; it satisfies the axioms of choice exactly; it aggregates perfectly over consumers without invoking parallel linear Engel curves; it has a functional form which is consistent with known household-budget data; it is simple to estimate, largely avoiding the need for non-linear estimation; and it can be used to test the restrictions of homogeneity and symmetry through linear restrictions on fixed parameters" (Deaton and Muellbauer, 1980a; p. 312). While "many of these desirable properties are possessed by one or other of the Rotterdam or translog models, neither

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[16] Muellbauer (1975, 1976) has made some significant contribution in the area of the aggregation problem. One of the attractive features of the AIDS model, proposed by Deaton and Muellbauer (1980a) and extensively analysed in the subsequent section in this thesis, is the fact that it takes into account the aggregation problem and, more specifically, "it aggregates perfectly over consumers without invoking parallel linear Engel curves" (Deaton and Muellbauer, 1980a; p. 312).

possesses all of them simultaneously" (Deaton and Muellbauer, 1980a; p. 312).

Deaton and Muellbauer extended a simpler model proposed by Working (1943) and Leser (1963), the Working-Leser model[17], to include price effects. The Working-Leser model relates the shares of the budget spent on different groups of goods, w_i, to the logarithm of total expenditure, x, that is[18]:

$$w_i = a_i + b_i \log x$$

Deaton and Muellbauer started not from some arbitrary preference ordering but from a specific class of preferences that permits exact aggregation over consumers[19]: "the representation of market demands as if they were the outcome of decisions by a rational representative consumer" (Deaton and Muellbauer, 1980a; p. 313)[20]. The representation of this class of preferences -the PIGLOG class[21]- is obtained by using the cost (expenditure) function c (u, p), that defines the minimum expenditure necessary to attain a certain utility level u, given prices p[22].

The cost function corresponding to the PIGLOG class can take the following form[23]:

$$\log c\,(u, p) = (1 - u) \log \{a\,(p)\} + u \log \{b\,(p)\}$$

[17] This model has been the subject of renewed investigation by Theil, Suhm and Meinser (1981).

[18] This is the PIGLOG Engel curve.

[19] In the theorems on aggregation he proposed, Muellbauer (1975, 1976) showed that "aggregate market demand equations are consistent with the micro-demand equations corresponding to some level of income [expenditure] so that this level does not vary as relative prices vary, if and only if "price independent generalised linearity" (PIGL) holds" (1975, p. 526).

[20] To reach this, Muellbauer (1975, 1976) took into account the contribution by Gorman (1953), who had established the following points: a) given that each consumer has sufficient income, then community preferences exist if the marginal propensity to consume for any good is the same across consumers, and b) given a), income redistribution "does not matter" in that it does not affect market behaviour. However, in Muellbauer (1976), the representative consumer is defined through the representativeness of his/her budget shares rather than the quantities (or values) purchased. "This permits the Engel curves to be non-linear and the effect of this is to re-introduce explicitly a behavioral influence for income distribution" (Muellbauer 1976; p. 980), leading to a more general framework than Gorman's (whose theorem is a special case in Muellbauer's approach).

[21] PIGLOG stands for the Log of Price Independent Generalised Linearity (class of preferences), which is a sub-set of a more general -the Generalised Linear (GL)- class having the form:

$$w_i(x,p) = v\,(x,p)\,A_i(p) + B_i(p) + C_i(p)$$

Constraining the v(x,p) function to be independent of price leads from the GL to the PIGLOG class. More discussion on this in: Deaton and Muellbauer (1977), Ray (1982) and Blundell (1988).

[22] PIGL is the only case where, if changes in incomes [expenditure] are equiproportional, no aggregation error is made by fitting aggregate market equations. If the representative income level is restricted to be mean income, the traditional linear Engel curves are obtained; Muellbauer (1975), p. 526. (The earlier (1975) paper by Muellbauer was in the context of "identical preferences", while, in the subsequent (1976) one, a broader perspective was followed).

[23] With some exceptions, $0 \leq u \leq 1$, where u = 0 is the subsistence level and u = 1 is the bliss (affluence) level. The positive, linearly homogeneous functions a(p) and b(p) can be regarded as the cost of subsistence and bliss, respectively. It can be shown (Deaton and Muellbauer, 1977; p. 6) that the generality of PIGL is such that includes all models with linear Engel curves (eg. the Linear Expenditure System, the Quadratic Utility, the Indirect Translog) as special cases.

The practical application of the PIGLOG class requires selection of specific functional forms for the functions of prices a(p) and b(p), as linear, homogeneous, concave functions of price vector p; thus, the following functional forms have been proposed:[24]

$$\log a(p) = a_0 + \sum_{i=1}^{n} a_i \log p_i + \frac{1}{2} \sum_{i=1}^{n}\sum_{j=1}^{n} \gamma^*_{ij} \log p_i \log p_j$$

and,

$$\log b(p) = \log a(p) + b_0 \prod_{i=1}^{n} p_i^{b_i}$$

The AIDS cost function becomes:

$$\log c(u,p) = a_0 + \sum_{i=1}^{n} a_i \log p_i + \frac{1}{2} \sum_{i=1}^{n}\sum_{j=1}^{n} \gamma^*_{ij} \log p_i \log p_j + u\, b_0 \prod_{i=1}^{n} p_i^{b_i} \tag{1}$$

where a_i, b_i and γ^*_{ij} are parameters[25].

Since it is a fundamental property of the cost function that its price derivatives are the quantities demanded[26], then,

$$\frac{\partial c(u,p)}{\partial p_i} = q_i \tag{2}$$

Multiplying both sides of equation (2) by $\frac{p_i}{c(u,p)}$ gives:

$$\frac{\partial c(u,p)}{\partial p_i} \frac{p_i}{c(u,p)} = \frac{p_i\, q_i}{c\,(u,p)} \tag{2a}$$

or,

$$\frac{\partial \log c(u,p)}{\partial \log p_i} = \frac{p_i\, q_i}{c(u,p)} = w_i \tag{2b}$$

where, w_i = budget share of the ith good. By logarithmic differentiation in $\log p_i$ from equation (1) -also taking into account equations (2), (2a) and (2b) - and also taking $\gamma_{ij}=\frac{1}{2}(\gamma^*_{ij}+\gamma^*_{ij})$, the AIDS

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[24] For the resulting cost function to be a flexible functional form, it must contains enough parameters that would allow, at any single point, its derivatives $\frac{\partial c}{\partial p_i}$, $\frac{\partial c}{\partial u}$, $\frac{\partial c^2}{\partial p_i p_j}$, $\frac{\partial c^2}{\partial u p_i}$ and $\frac{\partial c^2}{\partial u^2}$ to be set equal to those of an arbitrary cost function. Apart from ensuring the flexibility of the functional form, the specific choice of the a(p) and b(p) proposed by Deaton and Muellbauer (1980a) leads to a system of demand functions with the desired properties mentioned earlier.

[25] It can be shown (Deaton and Muellbauer, 1980a; p. 313) that c (u, p) is linearly homogeneous in p (as it must be for the representation of preferences to be valid), should the restrictions: $\sum_{i=1}^{n} a_i=1$, $\sum_{j=1}^{n}\gamma^*_{ij}=0$, $\sum_{i=1}^{n}\gamma^*_{ij}=0$, $\sum_{j=1}^{0} b_j=0$ hold.

[26] See, for example, Shephard (1953, 1970) and Diewert (1971); see, in addition, footnote [9].

model is reached, where a system of budget shares equations are defined for each of n goods as:

$$w_i = a_i + \sum_{j=1}^{n} \gamma_{ij} \log p_j + b_i \log(\frac{x}{P}) + u_i \qquad i = 1,...,n \tag{3}$$

w_i = Budget Share of the ith Good
p_i = Price of the ith Good
x = Total Expenditure on all Goods of the Group (in the System)
P = Aggregate Price Index (in the Group)
u_i = Normal Disturbance Term with Zero Mean and Constant Variance

The aggregate price index P is defined as:

$$\log P = a_0 + \sum_{i=1}^{n} a_i \log p_i + \frac{1}{2}\sum_{i=1}^{n}\sum_{j=1}^{n} \gamma_{ij} \log p_i \log p_j \tag{4}$$

In general, estimation can proceed by substituting (4) into (3) to give:

$$w_i = (a_i - b_i a_0) + \sum_j \gamma_{ij} \log p_j + b_i (\log x - \sum_i \log p_i - \frac{1}{2} \sum_i \sum_j \gamma_{ij} \log p_i \log p_j) \tag{3a}$$

A linear approximation, however, can be obtained by replacing P with the approximation P^* (where prices are relatively collinear), so that

$$\log P^* = \sum_{i=1}^{n} w_i \log p_i \qquad (or,\ P^* = \prod_{i=1}^{n} p_i^{\ w_i}) \tag{5}$$

and w_i are the observed sample budget shares. In this case, the aggregate P^* is a geometric average of the individual prices. Such an index can be calculated directly before estimation, so that equation (3) becomes straightforward to estimate. Equation (3) then "can be thought of as a first - order approximation to the general relation between w_i, log x and the log p's"[27].

The b parameters of the AIDS model determine whether goods are luxuries or necessities (normal goods); with $b_i > 0$, w_i increases with x, thus, good i is a luxury and, with $b_i < 0$, goods are necessities. The γ_{ij} parameters measure the change in the ith budget share following a one percentage proportional change in p_j with (x / P) held constant.

Restrictions implied by the consumer demand theory, discussed earlier, can be imposed on the AIDS model. These restrictions are necessary if the model is to be consistent with the basic axioms of utility and demand theory. The restrictions that can be imposed on the AIDS model are

[27] It should be noted that total expenditure x in the model is adjusted to give total expenditure per capita, in order to be consistent with aggregation over households, implicitly assuming that the distribution of total expenditure over households remains constant in proportional terms over the period under study; Deaton and Muellbauer (1977), p. 9 and p. 14.

as follow, for i, j = 1,...,n:

a) Adding up: all budget shares must add up to one; this restriction automatically holds (by the way the model is built) and implies:

$$\sum_{i=1}^{n} a_i = 1$$

$$\sum_{i=1}^{n} \gamma_{ij} = 0$$

$$\sum_{i=1}^{n} b_i = 0$$

b) Homogeneity: demand is homogeneous of degree zero in prices, for all i's, requires:

$$\sum_{j=1}^{n} \gamma_{ij} = 0$$

c) Symmetry: the matrix of price substitution effects, γ_{ij}, to be symmetric, requires:

$$\gamma_{ij} = \gamma_{ji}$$

Neither the homogeneity nor the symmetry restriction is automatically imposed and both can, in principle, be tested against the data.

d) Negativity: it is satisfied if the matrix c_{ij} is negative semi-definite[28], where c_{ij} is defined by:

$$c_{ij} = \gamma_{ij} + b_i\, b_j \log\left(\frac{x}{P}\right) - w_i\, \delta_{ij} + w_i\, w_j$$

where, δ_{ij} = Kronecker delta: $\delta_{ij} = 1$, if i = j and $\delta_{ij} = 0$, if i≠j. One important sub-set of conditions for negativity to hold is that the compensated own-price elasticities should be negative. In other words, if the resulting complete system of demand equations is generated by a consumer attaining a cost minimum given by a function of the AIDS form, it would satisfy the above restrictions. Testing these restrictions then provides information on long-run consumer rationality.

The various elasticities in the AIDS model are as follow (White, 1982):

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[28] Unlike the discussion about negativity in the previous section, for negativity in the context of the AIDS model, the matrix with elements the γ_{ij}'s is not required to be negative semidefinite. Negativity cannot be ensured by any restrictions on the parameters alone; it can, however, be checked for any given estimates by calculating the eigenvalues of the Slutsky matrix s_{ij}. Nevertheless, in practice, it is easier to use $c_{ij} = \frac{p_i p_j s_{ij}}{x}$, (instead of s_{ij}), the eigenvalues of which have the same signs as those of s_{ij}, c_{ij} being defined above.

a) Expenditure elasticities, n_i -implementing P^*:

$$n_i = \frac{b_i}{w_i} + 1$$

b) Uncompensated - own, e_{ii}, and cross, e_{ij} - price elasticities:

$$e_{ii} = \frac{\gamma_{ii}}{w_i} - b_i - 1$$

$$e_{ij} = \frac{\gamma_{ij}}{w_i} - b_i \frac{w_j}{w_i}$$

c) Compensated - own, e^*_{ii}, and cross, e^*_{ij} -price elasticities:

$$e^*_{ii} = e_{ii} + w_i n_i = \frac{\gamma_{ii}}{w_i} + w_i - 1$$

$$e^*_{ij} = e_{ij} + w_j n_i = \frac{\gamma_{ij}}{w_i} + w_j$$

The estimates of the price elasticities allow for the classification of goods by their degree of substitutability or complementarity. Furthermore, the uncompensated own and cross price elasticities indicate how a percentage change in the price of one good affects quantity demanded of that good and of each of the other goods, whereas, the compensated price elasticities measure these effects assuming that real expenditure is held constant. Positive compensated cross price elasticities ($e^*_{ij} > 0$) indicate substitutes, while negative values ($e^*_{ij} < 0$) indicate complements.

As a final word, it should be emphasised that, in what has been discussed above, it is implicitly assumed that there is separability between consumption and labour supply decisions. Moreover, effects related to the consumer's savings are ignored and, consequently, it is total consumption expenditure rather than income that is allocated to consumer goods and services. Possibilities of rationing (constraints on the consumer behaviour) are also excluded (Blundell, 1988).

5.3 TOURISM DEMAND AND THE AIDS MODEL

After having discussed certain fundamental concepts of consumer behaviour, crucial for the purposes of this study, we now turn to the case of tourism -and in particular to tourism demand and the allocation of tourism expenditures - to study how the consumer theory, outlined earlier, can apply adjusted to the case of tourism. The objective is to study the budget shares allocated to the main Mediterranean (South European) tourist destinations[29] -Spain, Portugal, Italy, Greece and Turkey- in total tourism expenditure of the main European tourism generating origin countries -the United Kingdom, West Germany, France and Sweden- as well as the USA, in order to relate closely general consumer behaviour theory with the demand for tourism in particular.

The discussion of the tourism expenditure allocation will be based on a system of demand equations aiming to link economic theory with econometric application in a more rigorous and detailed way than that followed in past empirical studies of tourism demand (White, 1982; O'Hagan and Harrison, 1984). It is interesting to note that no attempt to estimate a system of demand equations for the countries concerned here has previously been undertaken. Surprisingly, there are no studies of the demand for tourism in some of the Mediterranean countries and the studies of the others are inadequate in many respects (Zacharatos, 1986). The countries were chosen owing to their high shares of international tourist flows. Greece, Spain, Portugal, Italy and Turkey together accounted for approximately 20 per cent of total world tourist arrivals and tourism receipts in 1987, for instance (World Tourism Organisation Statistics, 1989). Thus, it is hoped that this study will contribute to understanding the impact of important variables on tourism demand for these countries, given the important role that tourism plays in their economies.

The crucial concepts of consumer theory, that allow us to study the demand for tourism using a system-wide approach, are (weak) separability, a concept of vital importance that allows for the two-stage budgeting and greatly influences the variables chosen, as well as the concept of two-stage budgeting; both concepts have been analysed in an earlier section. It is assumed that, generally, goods and services can be partitioned into groups, so that preferences within groups of goods and services can be described independently of quantities demanded in other groups. Moreover, consumption expenditures are allocated over goods and services in two stages; the first

[29] It should be noted that the study focuses on certain only Mediterranean tourism destinations, and in particular on the main recipients of the heaviest tourist flows in Southern Europe. Despite the fact that some Mediterranean countries (e.g. Cyprus, Tunisia, Morocco, Egypt etc.) are not taken into account, the South European tourist destination countries considered in the study comprise a sufficiently large share of the overall tourist flows in the Mediterranean (Organisation for Economic Cooperation and Development Tourist Statistics, various issues).

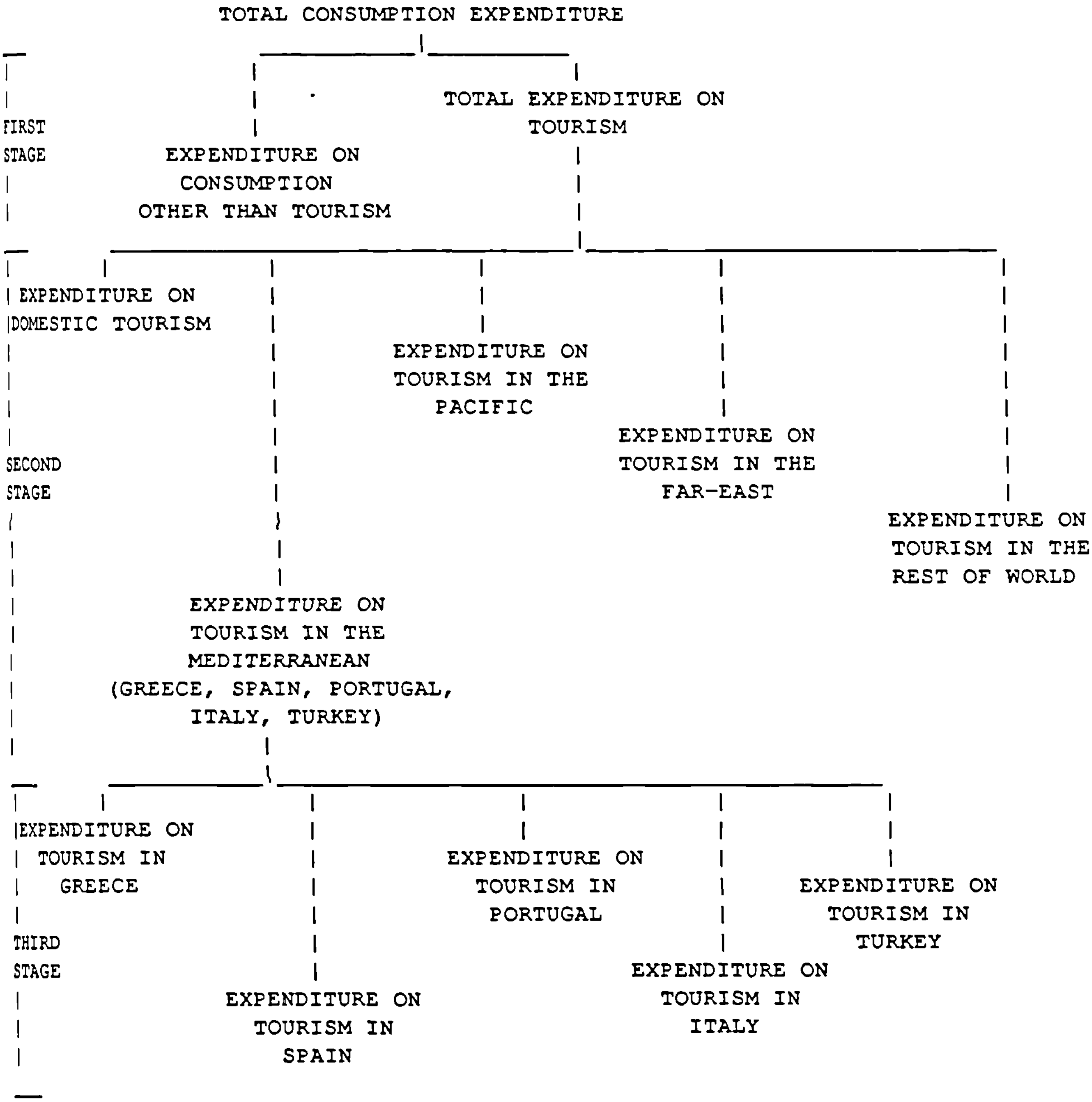
stage consists of the allocation between broad groups of goods and services while, at the second stage, group expenditures are allocated to the individual goods and services. Only information concerning the group under study is required and individual expenditures can be expressed as functions of group expenditures and prices of goods within the group only. Despite the fact that separability is a strong assumption, it may be considered acceptable if goods and services which bear special relationships to one another in consumption - either as substitutes or complements - are always kept in the same group (Deaton and Muellbauer, 1980b).

For the allocation of tourism expenditure by the USA and the European tourism generating countries with respect to the Mediterranean tourism destinations concerned here, it seems plausible to suggest that the above is the case. Hence, it is assumed that tourism expenditures on the Mediterranean are separable from other consumption as well as other tourism expenditures. The group of countries comprising the Mediterranean basin have common attributes specific to the group, such as the natural and climatic conditions, the characteristics "sun-sea-sand" and similar levels of economic development. Thus, it can be assumed that there is very low substitutability between tourism in one of the countries in this group and tourism in an individual country in the Far East group, for example. Nevertheless, individual countries in the Mediterranean group are likely to be substitutes or complements, given that most of them share various common characteristics and given, also, that the tourists in the Mediterranean may extend their trips to include several Mediterranean destinations at a time.

Considering the budgeting procedure, it seems reasonable to argue that expenditure allocation on Mediterranean tourism is a three-stage procedure. The consumer first allocates his/her consumption expenditures to various goods and services excluding expenditure on tourism and to tourism expenditures in general (first stage). The tourist then allocates his/her expenditure between tourism (in our case) in the Mediterranean (Spain, Portugal, Italy, Greece, Turkey) -and in other areas such as the Far East, Latin America, and the home country (second stage). The consumer, finally, chooses among the alternative Mediterranean destinations (third stage). This study, as already mentioned, is only concerned with the tourism expenditure allocation in the third stage. The figure that follows illustrates the sequential steps of the consumption and tourism expenditure allocation.

FIGURE 5.1

THE STAGES OF TOURISM EXPENDITURE ALLOCATION



It is worth noting that the approach to analysing tourism demand proposed here has not been undertaken in any previous study. The AIDS model has been estimated for tourism demand in different destinations in only two past cases (White, 1982; O'Hagan & Harrison, 1984). The approach taken in the previous studies, however, differed from that of this study for a number of reasons. Whereas the earlier study (White, 1982) was more consistent with the consumer theory underlying the AIDS model than the study by O'Hagan and Harrison (1984), tourism expenditure allocation by USA residents was considered in relation to certain groups of European countries rather than to individual destinations. In addition to causing inaccuracies in the empirical results and difficulties in their interpretation, such a grouping of heterogeneous countries casts doubt on the validity of the crucial separability assumption, which was not discussed in the study. In the more recent study, O'Hagan & Harrison (1984), following lines similar to White's (1982) study, focussed on the USA tourism expenditure allocation but to individual European destinations. An adjusted AIDS model was considered in this case and a single price variable was adopted instead of the individual price variables suggested by the initial AIDS formulation. This, however, had immediate implications for the (price) coefficients, γ_{ij}, since certain implicit (untested and possibly unrealistic) restrictions were automatically imposed. Apart from the imposition of the homogeneity restriction and the possible inconsistency of that model with the consumer theory underlying the original AIDS model, certain empirical results appear to be odd, such as the positive uncompensated and compensated own-price elasticities in the case of Spain. The simplified model, however, was used mainly owing to the problem of too few degrees of freedom (18 observations and 17 parameters in each equation).

Despite its limitations, it is interesting to present briefly the model estimated by O'Hagan and Harrison (1984). The estimated model was modified from that of equation (3). In order to overcome problems that were apparent, due to the additive form of the relative prices in equation (3) (and the possibilities of multicollinearity related to that), O'Hagan and Harrison (1984, p. 925), used a single relative price variable for each country[1]. This price variable had the following

[1] Such a relative price variable has been used in previous studies of tourism and in particular in Bond (1979) and Schulmeister (1979).

form:

$$\log p_i^* = \log p_i - \frac{1}{\sum w_j} - \sum_{i\#j} w_j \log p_j$$

the denominator being similar to the definition of P^* in equation (5)[2].

The implications for the model and, in particular, for equation (3), of the adoption of p_i^*, to serve in place of the individual price variables in the original AIDS formulation, are straightforward. It can be shown that the use of p_i^* is equivalent to imposing the restriction:

$$\gamma_{ij} = -\frac{\gamma_{ij}\, w_j}{\sum w_j} \qquad i\#j$$

and that, the homogeneity restriction $\sum_{j=1}^{n} \gamma_{ij}=0$, is automatically imposed. Symmetry remains, in principle, testable, the condition $\gamma_{ij}=\gamma_{ji}$ reducing to:

$$\frac{\gamma_{ii}}{\gamma_{jj}} = \frac{w_i(1-w_i)}{w_j(1-w_j)}$$

Although the use of p_i^* involves the acceptance of fairly strong assumptions about γ_{ij}, the restrictions on cross price effects and homogeneity were maintained in the interest of estimation. Inevitably, "the relative simplicity of the formulation is purchased at the cost of some assumptions and limitations of scope" (Dunne and Smith, 1983; p. 385). The final model had the form:

$$w_i = a_i + \gamma_i \log p_i^* + b_i \log(\frac{x}{P^*}) + u_i \qquad i = 1,...n \quad (n = 5) \tag{6}$$

To conclude, the Almost Ideal Demand System (AIDS) is chosen in the present study as a satisfactory and suitable functional form, in order to estimate tourism demand in the Mediterranean countries of interest. We now turn to the discussion of the empirical results from the estimation of international demand for Mediterranean tourism provided by the application of the AIDS model.

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[2] The non-zero restrictions implied on the γ_{ij} may ease not only the problem of multicollinearity but also the problem of too few degrees of freedom. These restrictions may not unduly affect the generality of the model and their imposition is likely to be reasonably compatible with the data. An alternative procedure would be to impose certain a priori zero restrictions on the cross price effects, i.e. on the γ_{ij} parameters, $i \neq j$. Nevertheless, O'Hagan and Harrison (1984) expressed their doubts as to the success of the procedure (p. 924).

CHAPTER 6

THE ESTIMATION RESULTS: THE AIDS MODEL

Introduction

In this chapter the results from the estimation of the AIDS model regarding the British, West German, American, French and Swedish tourism expenditure allocation to Greece, Spain, Portugal, Italy and Turkey, are presented and discussed.

6.1 THE METHOD OF ESTIMATION[1]

The estimation of the AID System (and indeed of any system of equations) can be carried out by using a system of equations estimation technique such as Full Information Maximum Likelihood (FIML), or Generalised Least Squares (GLS). In the case of a system of interdependent equations Zellner's (1962) method for Seemingly Unrelated Regression Equations (SURE) can be followed. The gain in efficiency yielded by the Zellner estimator over ordinary least squares (OLS) increases directly with the correlation between disturbances from the different equations and decreases as the correlation between the different sets of explanatory variables increases. Nevertheless, in the absence of cross-equation restrictions, if the vector of the independent variables is identical in all equations of the system, OLS is as efficient as SURE (Johnston, 1984). The (unrestricted) system of equations of demand for tourism in Southern European countries was therefore estimated using the OLS method. As can be noted from equation (3), the vector of the independent variables is identical in all equations and the model is linear in the parameters.

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[1] I am grateful to Panos Pashardes for helpful discussion, comments and suggestions regarding the theory and application of the *AIDS model*.

As regards the hypothesis testing of the conditions implied by consumer demand theory (discussed in detail in a previous section), adding up is automatically imposed and satisfied by the way the model has been constructed. Homogeneity can be tested equation by equation applying OLS, since it is a restriction imposed within each share equation and does not imply cross-equation restrictions. Symmetry, nevertheless, implies cross-equation restrictions and should be tested estimating the complete system of the share equations applying SURE. Since, though, singularity of the disturbances (due to the share form of the model) does not allow for the proper estimation of the complete system, estimation can proceed after the deletion of one of the equations. It has been shown (Barten, 1969) that the estimates of a system of equations with additive disturbances are invariant with respect to the equation that is omitted. Consequently, the steps for the estimation and the testing of the theoretical restrictions are as follow:

a) The AIDS model is estimated equation by equation using OLS, without imposing any restriction, for each pair of tourist origin-Mediterranean destination (unrestricted model).

b) The homogeneity restriction is then imposed on the unrestricted model and the system is re-estimated equation by equation (using OLS), in order to test whether homogeneity is satisfied (homogeneity restricted model). The homogeneity constrained AIDS model to be tested now has the form:

$$w_i = a_i^* + \sum_{j=1}^{n-1} \gamma_{ij} \log(\frac{p_j}{p_n}) + b_i \, log\,(\frac{x}{P^*}) \qquad (7)$$

At this stage F-tests are calculated, considering the unrestricted as well as the restricted model, to test for homogeneity[2].

[2] To test whether the homogeneity restriction holds an F-test has been applied. It takes the following form:

$$F_{(R,N-k)} = \frac{\frac{(RSSR - RSSU)}{R}}{\frac{RSSU}{N-k}}$$

RSSR = Restricted Residual Sum of Squares;

RSSU = Unrestricted Residual Sum of Squares;

R = Number of Restrictions;

N = Number of Observations;

c) The complete AIDS model is finally estimated, using the SUR estimator this time, and the symmetry restriction is tested.

6.2 THE DATA

The sample period is from 1960 to 1987 using annual data. The data have been constructed so that the good "tourism in Southern Europe" exhausts the tourist's budget (second-stage of budget allocation). In order to estimate the share of tourism expenditure allocated to each tourist destination by each tourist origin country, total tourism receipts in each destination country were weighted by the relative share of tourist arrivals from the corresponding origin under study (European Economic Community Report, 1983). Total tourist expenditure undertaken by each origin country was computed by adding up tourist expenditure allocated in each of the five Mediterranean destinations under study[3]. The figures for the tourist arrivals, tourism receipts and total tourism expenditure were obtained, by correspondence, directly from the relevant National Tourism Organisations and/or National Central Banks as well as from the International Tourism and Tourism Policy in the Member Countries, Organisation for Economic Development and Cooperation (OECD) data base and the Balance of Payments Statistics, International Monetary Fund (IMF) data base.

Proper estimation of the AIDS model suggests that total expenditure should be in per capita form. The total tourism expenditure estimates, therefore, were divided by the population series of the origin country under study, reported by International Financial Statistics, IMF. Furthermore, the practical identification of the value of a (equations 4 and 3a) is problematic. This parameter

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k = Number of Explanatory Variables (including Constant);

Generally:

$$RSS = \sum (Y_t - \hat{Y}_t)^2$$

[3] It has been implicitly assumed that, at the second-stage of budget allocation, the tourist exhausts the budget on these destinations only. This is plausible considering that the main Mediterranean destinations in the study comprise a large share of the overall tourist flows in the region (OECD, various issues; see also relevant discussion in Chapter 5).

is only identified from the a_is in equation (3a) by the presence of these latter inside the term in braces, originally in the formula for log P (equation 4). However, in situations where individual prices are closely collinear, log P is unlikely to be very sensitive to its weights so that changes in the intercept term in (3a) due to variations in a_0 can be offset in the a's with minimal effect on log P. This can be overcome in practice by assigning a value to a_0 a priori. Since the parameter can be interpreted as the outlay required for a minimal standard of living when prices are unity (usually in the base year), choosing a plausible value is quite straightforward (Deaton and Muellbauer, 1980a; p. 316). It has been suggested (Muellbauer and Pashardes, 1982; p. 9) that, because of the difficulty in identifying a_0, a value which is in the region of the natural logarithm of 1/2 or 1/3 of the lowest level of real expenditure recorded in the sample, or of real expenditure in the base year, would give satisfactory results. From various alternative values of a_0, assigned in preliminary estimation attempts, the 1/3 of real expenditure level in the base year (1980) has been chosen for inclusion in the final models, presented in Tables 6.3-6.7 at the end of the chapter[4]. Finally, expenditure on transportation to and from each destination has been excluded from the discussion, regardless of the nationality of the carrier and the mode of transport[5].

Tourism price indices are not available, as was discussed in detail earlier in the thesis (Chapter 3), and, as a result, the consumer price index is used as a proxy for the tourism price index. For this study, the consumer price index for each tourist destination country has been obtained from the International Financial Statistics, IMF data base and 1980 was the base year. The consumer price index has subsequently been adjusted by the relevant exchange rates (also transformed into an index with 1980 as the base year), yielding an index of effective (real) prices. It is the effective price index that has been finally included in the AIDS model. Since the effective price indices for all destination countries were found to be collinear, the P^* approximation to the

[4] As a result, the term log x/P in equation 3 has been adjusted accordingly and the same holds when preferring log P^* in equation 5 in case of collinear prices instead of log P.

[5] Detailed discussion of transport costs has been presented elsewhere in the thesis (Chapter 3). See also the discussion by White (1982) and O'Hagan and Harrison (1984).

aggregate price index P was used.

While the original AIDS model assumes that budget shares can be explained by prices and aggregate expenditure, other factors may also be important for tourism demand. As a result, dummy variables (for political disturbances) and time trends (for changes in tourist patterns) were initially included in the model. However, unlike the single equation estimation which allows a different set of dummy variables to be included in any equation, the adding up condition of demand theory requires that a variable affecting one country must affect the budget shares of the other countries. Nevertheless, it turned out to be the case that inclusion of dummy variables and time trends complicated the estimation procedure without improving the estimation results and, as a result, these variables were subsequently dropped from the final version of the model.

6.3 DISCUSSION OF THE ESTIMATION RESULTS

The AIDS model was estimated a) unrestricted, b) homogeneity restricted and c) symmetry restricted. Tables 6.3a, 6.4a, 6.5a, 6.6a and 6.7a at the end of the chapter show the estimated parameter coefficients from the unconstrained, the homogeneity constrained and the symmetry constrained models. In addition, the sample mean values of the w_is, $\bar{w}_i$, are provided. The estimates of the parameter coefficients are heteroskedastic consistent[6]. In Tables 6.3b, 6.4b, 6.5b, 6.6b and 6.7b, the $\bar{R}^2$ for the goodness of fit, the Durbin-Watson statistic (D-W) for first-order serial correlation and the F-statistic for the overall significance of each regression in the unrestricted model are presented[7]. An F-test, testing for the homogeneity restriction, and a

[6] The variance of the coefficient estimates, the standard errors and associated t-statistics have been computed using formulae suggested by White and Chamberlain, among others. These estimates of the variance are consistent even when the disturbances are not homoskedastic (although they must be independent), and when their variances are correlated with the independent variable in the model (White, 1982).

[7] The critical value of the F-statistic given in Statistical Tables, for k-1=6 and N-k=21 degrees of freedom at the 5 per cent significance level, is $F_{(6,21)}$=2.57 and for k-1=5 and N-k=22, $F_{(5,22)}$=2.66. The critical value of the D-W statistic, for N=28 and k-1=6 degrees of freedom at the 5 per cent significance level, is d_L=0.95 and d_U=1.95 and for N=28 and k-1=5, d_L=1.02 and d_U=1.85. For the estimated D-W statistic d then: if $d>d_U$, d indicates zero autocorrelation; if $d<d_L$, d indicates positive autocorrelation; if $d_L<d<d_U$, d is in the inconclusive area. N=number of observations, k=number of independent variables (including constant).

likelihood ratio test, for symmetry, are also reported[1].

Statistical testing at the system level is more problematic than at single equation level, and the diagnostic checking of the underlying single equations is of sufficient interest. It should be emphasised, however, that the above mentioned statistics are neither well defined nor always particularly meaningful when they apply to systems of equations (Berndt and Savin, 1975; White, 1982; O'Hagan and Harrison, 1984). Moreover, test-statistics which are based on asymptotic distribution theory and appropriate for systems of equations may be biased when used in finite samples (Laitinen, 1978; Meinser, 1979). In any case, joint use of various test-statistics here is viewed as an aid to data analysis and diagnosis rather than as a rigorous attempt at formal hypothesis testing (O'Hagan and Harrison, 1984)[2].

The estimates of the parameter coefficients appear in general statistically satisfactory, most of them being significantly different from zero at the 5 per cent confidence level. The $\bar{R}^2$ (goodness of fit) varies considerably but this is not surprising given that the equations explain shares rather than levels. Market share equations typically tend to fit the data only loosely. Nevertheless, the overall significance of the regressions is satisfactory (as the relevant F-statistic indicates) and the hypothesis that the independent variables can jointly explain changes in the dependent variable is acceptable. No clear-cut conclusions, though, can be drawn about the likely presence of first-order autocorrelation in the disturbances of most equations. The value of the D-

[1] The critical value of the F-test, for r=1 and N-k=22 degrees of freedom at the 5 per cent significance level, is $F(1,22)=4.30$. The critical value of the likelihood ratio test for r=10 degrees of freedom at the 5 per cent significance level is $x^2_{10}=18.30$. r=number of restrictions, N=number of observations, k=number of independent variables (including constant).

[2] It is worth mentioning that, in the context of the present study, estimation attempts have also been undertaken in order to estimate the AIDS model in its transformed functional form proposed by O'Hagan and Harrison (1984), where a single price variable was included (equation (6), Chapter 5). The estimation results however were rather disappointing and that model was subsequently dropped from the analysis.

W statistic lies most frequently in the inconclusive area, since $d_L < d < d_U$. It seems that some equations just fail to pass the D-W test and the acceptance of an absence of autocorrelation. No attempt was made to correct for autocorrelation as this would further complicate the estimation procedure, prohibitively increasing the number of parameters. Any re-specification of this nature should be directed towards a dynamic model before autocorrelation corrections are introduced (Hendry and Mizon, 1978; more discussion in Chapter 4 of this thesis). As Anderson and Blundell (1984a, 1984b), for example, have proposed, a dynamic AIDS model could be of the following form:

$$\Delta w_{it} = \sum_j c_{ij}\ dlogp_{jt} + b_i\ dlog(\frac{x}{P})_t - \lambda\ [w_{it-1} - \sum_j \gamma_{ij}\ logp_{jt-1} - \beta_i \log(\frac{x}{P})_{t-1}]$$

The results from the homogeneity constrained model have been produced estimating the AIDS model given by equation (7) rather than by equation (3), both in Chapter 5. Despite the fact that homogeneity was accepted for some cases, as, for example, for the UK and Sweden, it was rejected on the whole. Though it is possible to test the homogeneity restriction on each equation individually, the test is only valid within the context of the homogeneity restriction imposed on the rest of the equations of the system, assuming the homogeneity restriction on the other equations is correct. In practice, the test on the individual restrictions is of rather limited value but, in any case, it still can give some broad idea about the rejection or not of homogeneity (Byron, 1970a). Taking into account this last point, the homogeneity hypothesis was tested again after the unrestricted and the homogeneity restricted models had been estimated as complete systems. Examination of the relevant likelihood ratio test indicated dramatic rejection of homogeneity once more. Similarly, symmetry was tested applying a likelihood ratio test on the complete system of equations, after homogeneity had been imposed, but the symmetry hypothesis was rejected in all cases.

The rejection of homogeneity and symmetry seems to be a frequent outcome in consumer demand studies (Barten, 1969; Byron, 1970a, 1970b; Deaton, 1974; Laitinen, 1978; Meinser, 1979; Deaton and Muellbauer, 1980a; Bera, Byron and Jarque, 1981; Bera, 1982; Muellbauer, 1982; Bewley, 1983; Mergos and Donatos, 1989; et al.). This may be attributed to inappropriate asymptotic standard tests that are seriously biased towards rejecting the homogeneity and symmetry hypotheses (Laitinen, 1978; Meinser, 1979; Bera, Byron and Jarque, 1981). It has also been suggested that complications may arise due to endogeneity resulting from the inclusion of total expenditure as an explanatory variable (Attfield, 1985)[10].

An interesting outcome from the estimated models is that, in each case where homogeneity is rejected, the Durbin-Watson statistic shows a sharp drop; that is, the imposition of homogeneity generates positive autocorrelation (Deaton and Muellbauer, 1980a). This supports the hypothesis that the rejection of homogeneity may be caused by an inappropriate specification of the dynamics of consumer behaviour. Other factors, such as consumer expectations about prices and expenditure as well as habit persistence, may also be important in providing a more adequate explanation of consumer demand. Whenever attempts to take into account some of these factors were undertaken, the estimation results showed considerable improvement (eg. Anderson and Blundell, 1983). Promising work on the dynamic specification of a system of equations (and of the AIDS system in particular) has been presented by Blundell and Anderson (1981), Muellbauer and Pashardes (1982), Anderson and Blundell (1983), Anderson and Blundell (1984a, 1984b), among others. Unfortunately, neither dynamic specification nor inclusion of a large number of explanatory variables would be convenient for studying tourism demand in the context of the system-wide approach, given the severe complication of the estimation procedure and the data constraints. It might be argued, nevertheless, that, given the number of variables and the relatively small number of observations, the imposition of some prior restrictions on the AIDS model may be warranted. It would seem reasonable that homogeneity as well as symmetry might be imposed prior to the estimation, just as the adding-up condition is imposed (White, 1982)[11]. Future research in the field of tourism demand is expected to provide more satisfactory empirical results, especially when the "dynamics" of tourism demand are also incorporated in the system of

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[10] The problem of endogeneity, however, is largely avoided in the case of multi-stage budgeting, since the true total expenditure is exogenous (Attfield, 1985; p. 198). Multi-stage budgeting has also been assumed in the present study.

[11] See also Phlips (1974), pp. 55-56 further justification for imposing restrictions prior to estimation.

equations models.

Tourism Expenditure and Effective Price Elasticities

We now turn to the discussion of the expenditure elasticities (n_i) as well as of the uncompensated (e_{ii}) and compensated (e^*_{ii}) own-price elasticities, given in Tables 6.3c, 6.4c, 6.5c, 6.6c and 6.7c and derived from the unconstrained AIDS model. The expenditure and own-price elasticities derived from the homogeneity and symmetry constrained models are also included in these tables in order to facilitate their direct comparison. It is also of interest to discuss the uncompensated (e_{ij}) and compensated (e^*_{ij}) cross-price elasticities, presented in Tables 6.3d, 6.4d, 6.5d, 6.6d and 6.7d, and obtained from the symmetry constrained model. The choice of the symmetry constrained model is not unreasonable, given that the AIDS model with symmetry (and homogeneity) imposed has less restrictions than are found in a large number of studies using, for instance, Stone's (1954a) Linear Expenditure System (LES). LES automatically imposes symmetry and homogeneity and, moreover, does not permit inferior or complementary goods[12].

6.3.1 Tourism Expenditure Elasticities

Tourism expenditure elasticity measures the impact of a percentage change of expenditure on tourism demand and, in the context of the AIDS model, these elasticities are relative to the budget shares in total tourism expenditure. Expenditure elasticities above unity ($n_i > 1$, corresponding to positive b_is -$b_i > 0$) are associated with luxuries, tourism expenditure elasticities below unity ($n_i < 1$, corresponding to negative b_is -$b_i < 0$) are associated with necessities and tourism expenditure inelasticity; negative expenditure elasticities ($n_i < 0$) indicate inferior goods.

The tourism expenditure elasticities estimated from the unconstrained AIDS model are

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[12] As was noted earlier, due to the large number of parameters in the AIDS model and the availability of only 28 observations, the imposition of some prior restrictions may be warranted and symmetry and homogeneity may be imposed prior to estimation. A similar line of argument and methodology has also been followed by White (1982) and O'Hagan and Harrison (1984).

positive and significantly different from zero, indicating that tourism in the Mediterranean is a normal good. In some cases, expenditure elasticity was found to be well above unity (eg. Swedish demand for Greek tourism; British, American and Swedish demand for Turkish tourism) and in others below unity (eg. British, German, American demand for Spanish tourism; British, American, French demand for Italian tourism). This indicates that tourism in the former destinations can be considered a luxury but tourism in the latter destinations a necessity. In addition, increases in total tourism expenditure in the tourist origin countries, associated with higher than unity expenditure elasticities, would result in higher than proportional increases in tourism expenditure in the former destinations (ceteris paribus). On the other hand, increases in total tourism expenditure would affect only marginally tourism expenditure allocation to the tourist destinations associated with lower than unity expenditure elasticities (Table 6.1). The relevant tables also show that, in general, the expenditure elasticities obtained from the homogeneity and symmetry constrained models are of similar magnitudes to the elasticities from the unconstrained model. Certain discrepancies, however, in the rankings of the tourist origins and destinations according to their elasticities, are apparent in the restricted compared with the unrestricted models.

Table 6.1: Expenditure Elasticities of Tourism Demand in the Mediterranean

COUNTRY	UK	W. GERMANY	USA	FRANCE	SWEDEN
GREECE	1.05	1.07	1.43	1.26	2.08
SPAIN	0.90	0.81	0.72	1.08	1.06
PORTUGAL	1.58	1.01	1.61	1.45	1.32
ITALY	0.88	1.02	0.83	0.85	0.91
TURKEY	2.65	1.73	1.75	2.40	2.09

Unconstrained Model.

The empirical findings with respect to the tourism expenditure elasticities support the argument that tourism can contribute considerable foreign exchange earnings as expenditure increases. Furthermore, major tourism generating countries can exhibit quite different patterns of demand for tourism in the Mediterranean. Sweden, followed by France and the UK, exhibits the most expenditure elastic demand for tourism in the Mediterranean. The relatively lower tourism expenditure elasticities of the USA and West Germany, on the other hand, may indicate a decline in the importance of tourism in the Mediterranean for these origin countries and a switch of tourist preference towards alternative tourist destinations. As noted in Chapter 4, for the USA market in particular, this may also have been related to an unfavourable political environment towards the US, associated with the presence of US military bases in Southern European countries as well as to anti-American terrorist activities. The range of the tourist origins from the most to the least tourism expenditure elastic is found to be:

Sweden > France > UK > Germany > USA

a) THE UK: Turkey, Portugal and Greece were found to be most tourism expenditure elastic. Tourism expenditure elasticities varied from 0.88 (Italy) to 2.65 (Turkey). The range of the destinations is:

Turkey > Portugal > Greece > Spain > Italy

b) WEST GERMANY: Turkey, Greece and Italy were found to be most tourism expenditure elastic. Tourism expenditure elasticities varied from 0.81 (Spain) to 1.73 (Turkey). The range of the destinations is:

Turkey > Greece > Italy > Portugal > Spain

c) THE USA: Turkey, Portugal and Greece were found to be most tourism expenditure elastic. Tourism expenditure elasticities varied from 0.72 (Spain) to 1.75 (Turkey). The range of the destinations is:

Turkey > Portugal > Greece > Italy > Spain

d) FRANCE: Turkey, Portugal and Greece were found to be most tourism expenditure elastic. Tourism expenditure elasticities varied from 0.85 (Italy) to 2.40 (Turkey). The range of the destinations is:

Turkey > Portugal > Greece > Spain > Italy

e) SWEDEN: Turkey, Greece and Portugal were found to be most tourist expenditure elastic. Tourism expenditure elasticities varied from 0.91 (Italy) to 2.09 (Turkey). The range of the destinations is:

Turkey > Greece > Portugal > Spain > Italy

For the Mediterranean economies considered in this study, tourism plays a major role in income generation. However, these tourist destinations will not benefit to the same extent from the allocation of tourism expenditure increases in major tourist origin countries. Turkey mainly and also Portugal and Greece appear to be the most tourism expenditure elastic destinations. This indicates that increases in total tourism expenditure in the tourist origin countries would result in more than proportional increases in tourism receipts in these destination countries. Turkey appears the most tourism expenditure elastic compared with all the tourist destinations considered. Spain and Italy, on the other hand, appear to benefit only marginally from increases in total tourism expenditure in the origin countries. Spain has a well-established image as a "mass-tourism" destination and seems to be reaching a saturation stage (Butler, 1980)[13] and Italy has attempted to diversify successfully its economy over the last decades away from the dominance of tourism and towards industrialisation. The range of the tourist destinations from the most to the least tourism expenditure elastic is:

Turkey > Portugal > Greece > Spain > Italy

a') GREECE appeared to be more tourism expenditure elastic with respect to Swedish, American and French tourism demand. Tourism expenditure elasticities for Greek tourism varied from 1.05 (UK) to 2.08 (Sweden). The range of the origin countries is:

Sweden > USA > France > Germany > UK

b') SPAIN appeared to be more tourism expenditure elastic with respect to French, Swedish and British tourism demand. Tourism expenditure elasticities for Spanish tourism varied from 0.72 (USA) to 1.08 (France). The range of the origin countries is:

France > Sweden > UK > Germany > USA

c') PORTUGAL appeared to be more tourism expenditure elastic with respect to American,

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[13] As Butler (1980, p. 8) notes, at the saturation stage, the rate of increase in numbers of tourists decline, although total numbers still increase; a major part of the economy has been tied to tourism and major franchises and chains in the tourist industry are present; in addition, marketing and advertising is wide-reaching.

British and French tourism demand. Tourism expenditure elasticities for Portuguese tourism varied from 1.01 (Germany) to 1.61 (USA). The range of the origin countries is:

USA > UK > France > Sweden > Germany

d') ITALY appeared to be more tourism expenditure elastic with respect to German, Swedish and British tourism demand. Tourism expenditure elasticities for Italian tourism varied from 0.83 (USA) to 1.02 (Germany). The range of the origin countries is:

Germany > Sweden > UK > France > USA

e') TURKEY appeared to be more tourism expenditure elastic with respect to British, French and Swedish tourism demand. Tourism expenditure elasticities for Turkish tourism varied from 1.73 (Germany) to 2.65 (UK). The range of the origin countries is:

UK > France > Sweden > USA > Germany

6.3.2 Effective Price Elasticities

6.3.2.1 Effective Own-Price Elasticities

The uncompensated price elasticity indicates how a percentage change in the price of one good (tourist destination) affects the demand for that good and each of the other goods. The compensated price elasticity measures these effects assuming that real expenditure is held constant. All of the uncompensated and compensated own-price elasticities derived from the unconstrained model are negative and most of them are significantly different from zero. However, as regards the homogeneity and symmetry constrained models, the own-price elasticities are positive in some cases, violating the crucial negativity condition implied by consumer demand theory[14]. Effective prices, in the unconstrained model, appear to be an important variable and tourism demand may fluctuate considerably when price changes take place (ceteris paribus) (Table 6.2). None of the destinations can be considered a "snob" or "Giffen" good. The discussion

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[14] Similar inconsistencies have been noted in past relevant studies, as for example, in O'Hagan and Harrison (1984) and in Mergos and Donatos (1989).

focuses on the uncompensated price elasticities, since they are most important for drawing policy implications.

Table 6.2: Effective Own-Price Elasticities of Tourism Demand in the Mediterranean

COUNTRY	UK	W. GERMANY	USA	FRANCE	SWEDEN
GREECE	-2.61	-2.03	-0.87	-0.27	-2.44
SPAIN	-1.11	-1.82	-0.44	-1.17	-1.53
PORTUGAL	-2.81	-1.35	-3.33	-1.90	-3.17
ITALY	-1.59	-0.80	-0.63	-0.95	-1.82
TURKEY	-0.60	-1.67	-1.66	-0.51	-1.89

Unconstrained Model; Uncompensated Price Elasticities.

Tourists' reactions to effective price changes follow a diversified pattern and affect tourism in the Mediterranean destinations to different extents. Tourists originating from Sweden, followed by the UK, and Germany, pay considerable attention to effective prices, and real price changes in the destinations considered would have a major impact on the tourist flows originating from these countries. The range of the tourist origins from the most to the least real price elastic is:

Sweden > UK > Germany > USA > France

a) THE UK: Demand by British tourists appears to be highly sensitive to changes in prices and Portuguese as well as Greek price changes have a considerable impact on UK tourist demand. However, real price changes in Turkey affect British tourism demand less than proportionally. Real price elasticities varied from -0.60 (Turkey) to -2.81 (Portugal). The range of the destinations is:

Portugal > Greece > Italy > Spain > Turkey

b) WEST GERMANY: For German tourists Greek as well as Spanish price changes have an adverse impact on tourism demand but price changes in Italy affect German tourist demand less than proportionally. Real price elasticities varied from -0.80 (Italy) to -2.03 (Greece). The range of the destinations is:

Greece > Spain > Turkey > Portugal > Italy

c) THE USA: Americans are sensitive to price changes in Portugal and to a lesser extent in Turkey whereas price changes in Greece, Italy and Spain affect US tourism demand less than proportionally. Real price elasticities varied from -0.44 (Spain) to -3.33 (Portugal). The range of the destinations is:

Portugal > Turkey > Greece > Italy > Spain

d) FRANCE: French tourists pay certain attention to real prices and appear to be most sensitive to price changes in Portugal and Spain whereas French tourist demand is affected less than proportionally by real price changes in Italy and Greece. Real price elasticities varied from -0.27 (Greece) to -1.90 (Portugal). The range of the destinations is:

Portugal > Spain > Italy > Turkey > Greece

e) SWEDEN: Of all nationalities considered Swedish tourists appear most concerned with real prices, and price changes in Portugal, Greece and to a lesser extent in Turkey have significant adverse implications on Swedish tourist demand. Real price elasticities varied from -1.53 (Spain) to -3.17 (Portugal). The range of the destinations is:

Portugal > Greece > Turkey > Italy > Spain

Examination of the own-price elasticities reveals that the effective price factor is particularly important and severe competition, related to fluctuations in price levels, may arise between the Mediterranean destinations. The significant impact of effective price changes on tourism expenditure allocation implies that tourism receipts in the Mediterranean destinations may fluctuate considerably, adversely affecting the benefits anticipated from high tourism expenditure elasticities. This point is of particular importance for most of the Southern European tourist destinations that are heavily dependent upon tourism and can be vulnerable to variations in tourism receipts. The diversified range of the values of the estimated effective price elasticities indicates that, despite some similarities in their touristic attributes, the Mediterranean destinations can be considered as differentiated "products" and this has important policy implications. Effective price rises in Portugal in particular, as well as in Greece, exert a highly adverse impact on tourism demand by all nationalities but they also have significant implications for Spain, Turkey, and to a lesser extent for Italy. For Portuguese tourism, specifically, the comparatively high returns from tourism, due to high tourism expenditure elasticities, may be partly offset when a highly adverse price impact is also taken into account. On the other hand, the high tourism expenditure elasticity for Turkey, combined with its fairly low price elasticity, indicates that this destination would benefit considerably from increases in total tourism expenditure, without experiencing large adverse effects from unfavourable price changes (ceteris paribus). The range of the tourist destinations from the most to the least real price elastic is:

Portugal > Greece > Spain > Turkey > Italy

a') GREECE: Real price changes in Greece exert the most significant adverse impact on the UK followed by Swedish and West German tourist demand. Real price elasticities varied from -0.27 (France) to -2.61 (UK). The range of the origin countries is:

UK > Sweden > Germany > USA > France

b') SPAIN: Spanish prices mainly affect German as well as Swedish and French tourist demand. Real price elasticities varied from -0.44 (USA) to -1.82 (Germany). The range of the origin countries is:

Germany > Sweden > France > UK > USA

c') PORTUGAL: Portugal appears to be most price elastic with respect to US, Swedish and UK tourist demand. Real price elasticities varied from -1.35 (Germany) to -3.33 (USA). The range of the origin countries is:

USA > Sweden > UK > France > Germany

d') ITALY: Italian price changes are most crucial for Swedish, British and French tourist demand. Real price elasticities varied from -0.63 (USA) to -1.82 (Sweden). The range of the origin countries is:

Sweden > UK > France > Germany > USA

e') TURKEY: Turkey appears most price elastic relative to Swedish, German and USA tourist demand. Real price elasticities varied from -0.51 (France) to -1.89 (Sweden). The range of the origin countries is:

Sweden > Germany > USA > UK > France

6.3.2.2 Effective Cross-Price Elasticities

Positive compensated cross-price elasticities ($e^*_{ij} > 0$) indicate substitutes and negative values ($e^*_{ij} < 0$) indicate complements among the tourist destinations. Whereas, in most cases, the Mediterranean destinations considered would be expected to be substitutes for each other, given their similar touristic characteristics, complementarity would not be unrealistic, given that tourists may include more than one destination in their holiday decisions. As cross-price elasticities indicate, a certain degree of complementarity between tourist destinations, such as Greece and Turkey and Greece and Italy, appears to be plausible. It could be justified on grounds of preference by tourists to combine sea-side with cultural tourism, for instance, or due to geographical proximity of certain tourist destinations. However, it is more difficult to justify intuitively (in the specific context of tourism demand) the complementarity of some tourist destinations, such as Spain and Turkey or Portugal and Turkey. It should be borne in mind, though, that competition for the tourist's budget may be from quite distant and not geographically contiguous destinations, provided relevant attributes are similar from the tourist's point of view (Hale, 1989; p. 406). Complementarity, furthermore, may be explained in a probabilistic framework, implying that tourists have the opportunity of visiting these destinations but without necessarily doing so.

It should be noted that the concept of complementarity in the context of tourism demand is not quite the same notion as in conventional consumer demand analysis. What is more, the above analysis indicates that cross-price elasticities of tourism demand should be viewed with caution. It is important to point out, however, that the empirical findings may be improved if a dynamic version of the AIDS model was estimated and it would be interesting if future research was directed towards the dynamic demand systems. Few well defined and credible cross-price effects have been estimated in past empirical work on consumer demand. It is still rather unclear how to obtain a robust classification of substitutes and complements, as Deaton and Muellbauer (1980b, p. 79) also note.

The AIDS model is currently the most advanced and flexible functional form to represent consumer preferences in a system of equations and has been used extensively in applied demand analysis. Various ambiguous results, however, may underline the fact that the theoretical framework provided by the static AIDS model may still be limited by a number of drawbacks: eg. absence of dynamics; inclusion of same independent variables in all equations. Other models, such as the Discrete Choice Models (eg. McFadden, 1973; Stopher and Meyburg, 1976; Hensher and Dalvi, 1978), may also be of help in studying tourism demand. A probabilistic framework, as to the discrete choice of a particular tourist destination among many alternatives, would be used in this case. The limitation of these models is that they require disaggregated data on individual households. Such data for tourism demand are, unfortunately, not widely available.

6.4 A CRITICAL APPRAISAL OF THE SINGLE EQUATION AND THE SYSTEM OF EQUATIONS MODELS

In this section, a comparison of the single equation and the system of equations models is undertaken, in order to present the advantages and the limitations of the two approaches followed in the thesis as well as to compare the empirical findings obtained. The theoretical framework, that both approaches are based on, is related to consumer behaviour theory, although the single equation model is only indirectly linked to it. In the single equation case, theoretical concepts and restrictions implied by the consumer theory are not imposed or tested and do not necessarily hold. This is not the case, however, in the system of equations model which is closely founded on consumer behaviour theory, and theoretical concepts, such as separability of preferences and multi-stage budgeting, are applied. Furthermore, restrictions implied by the consumer theory, such as adding up, homogeneity and symmetry can be tested, in order to examine whether theoretical assumptions hold in empirical applications.

The single equation model provides a flexible framework for the study of tourism demand, since specific variables that are expected to exert a significant influence on tourism demand, such as income, prices, exchange rates and political factors, are studied in depth and their quantitative impact is empirically estimated. The disaggregated, country-by-country, single equation approach also permits the inclusion in the model of variables important specifically to the countries under study. Dynamic aspects, moreover, can be introduced in the model and the short as well as long-run impact of variables of interest can be considered. The opportunity for examining in depth the impact of major factors affecting tourism demand and their dynamic aspects is diminished in the AIDS model. This is due to the complex nature of the system of equations and the subsequent difficulties in its estimation, which compels selection of only a few variables and requires the vector of the independent variables to be identical in all equations of the system.

The specification of the model in the single equation approach attempts to reconcile the short and long-run tourism consumption behaviour. Thus, the dependent variable (demand for tourism) as well as the independent variables are expressed in terms of changes in addition to levels. The system of equations model, on the other hand, describes an expenditure allocation process, where the tourist spends (in a multi-stage procedure) a predetermined budget on goods and services, in order to maximise utility. It is assumed that goods and services can be partitioned into mutually exclusive groups, so that preferences within a given group can be described independently from quantities demanded in other groups. By its specification, therefore, the system of equations model is constructed using budget shares allocated to various goods and services, in such a way that the given budget is completely exhausted at each stage of budgeting.

Some differences are apparent in the estimation of the two models. The estimation procedure in the single equation model follows the well-established "general to simple" econometric approach, which permits flexibility in the dynamics of the tourism demand function and rigorous testing of the model's validity and performance by application of a variety of tests-statistics. In the system of equations model, however, the estimation procedure is more complex and the seemingly unrelated regression equations (SURE) method is applied. Diagnostic testing at the system level is rather problematic and appropriate test-statistics are neither well defined nor always particularly meaningful.

The empirical findings should be discussed with caution, since the two models provide rather divergent information. In the single equation model, it is the quantitative impact (elasticity) values of major variables of interest that are of prime importance. While information on the elasticity values is also provided by the system of equations model, particular attention, in this case, has been paid to the statistical testing of the theoretical framework. It should be noted, however, that income elasticity values (single equation model), for example, are expected to show some divergence from tourism expenditure elasticity values (system of equations model), although it is anticipated that their impact should exhibit a similar direction.

As regards, more specifically, the empirical findings relative to the Southern European tourism demand, both models indicate that the United Kingdom and Sweden are among the most income and (tourism) expenditure elastic origin countries, whereas the USA appears the most inelastic origin country. From the destinations' point of view, Portugal and Turkey appear among the most income and (tourism) expenditure elastic destinations. The two models, however, show different indications as regards, in particular, the elasticity values for Italy. Furthermore, different indications are provided by both models concerning the effective own-price elasticity values. Both models indicate, however, that France appears to be the least price elastic tourist origin country. Examining the range of the price elasticity values in the destination countries, Greece and Portugal appear to be the most price elastic destinations, whereas price elasticities values for Italy and Turkey come lower in the range for both approaches. Regarding the cross-price elasticity values, it is apparent that substitute prices have a strong impact on tourism demand in the single equation model. However, the empirical results for cross-price effects are rather inconclusive in the system of equations model, although some complementarity between Greece and Turkey and Italy and Greece appears to be plausible. Admittedly, as was discussed earlier, it is rather unclear how to obtain robust, well defined cross-price empirical results.

From a policy-making viewpoint, both models agree on a number of issues related to policy conclusions. To begin with, there are variations in the demand patterns of tourists originating from different countries and the Mediterranean destinations will not benefit to the same extent from rising incomes in the origin countries. Tourism in the Mediterranean is a luxury good and (effective) prices are a critical factor that tourists take into account when choosing holidays. Whereas some origin countries, such as the United Kingdom and Sweden, still show a strong preference for Mediterranean tourism, others, such as West Germany and the US may be switching towards long-haul destinations. Although tourism receipts can make a positive contribution to the host economy, fluctuations in tourism demand raise some scepticism as to the stability of the tourism sector's earnings. Variations in tourism receipts are shown to be related to changes in variables such as income (expenditure), inflation and exchange rate differentials as well as to political factors. It appears that there is strong competition among the Mediterranean destinations for the tourist's budget share and the diversified range of the estimated price elasticities indicates that, despite their similar touristic attributes, the Mediterranean destinations can be considered as differentiated "tourism products".

To conclude, both models seem to be useful for the particular purposes they serve. It should be noted, however, that the models contribute to a plethora of findings, shedding light on different aspects of economic theory. However, it is worth pointing out that, whereas past research on tourism demand has tended to emphasise macro-models of aggregate tourism demand, studying usually the USA and Europe and applying standard multiple regression models, a large gap at tourism demand research appears to be in the level of micro-analysis (Sheldon, 1990). In this respect, the system of equations approach, under consideration here, also contributes to partly narrowing the gap of the research in the micro-level. The AIDS model is currently the most advanced and flexible functional form for representing consumer preferences and has been used in applied demand analysis. As, however, the application of the AIDS model indicates, the static model may provide some ambiguous results. Introduction of dynamics into the AIDS model may improve its performance, as has been suggested recently in the relevant literature. On the other hand, the single equation model can provide realistic and useful empirical results, particularly when the short as well as the long run behaviour of the variables is reconciled in the model.

THE ESTIMATION RESULTS: THE AIDS MODEL

THE UNITED KINGDOM

Table 6.3a: Tourism Demand by British Tourists

THE UNCONSTRAINED MODEL								
Destination i	a_i	b_i	γ_{i1}	γ_{i2}	γ_{i3}	γ_{i4}	γ_{i5}	$\bar{w}_i$
GREECE	0.117 (11.39)	0.004 (0.46)	-0.116 (1.85)	0.033 (0.94)	0.056 (2.57)	-0.128 (-2.92)	-0.022 (-1.39)	0.072
SPAIN	0.48 (16.80)	-0.043 (-1.41)	-0.440 (-2.40)	-0.069 (-0.63)	0.138 (2.13)	0.460 (3.93)	-0.161 (-3.10)	0.436
PORTUGAL	0.037 (3.80)	0.044 (4.72)	-0.210 (-2.54)	0.385 (3.45)	-0.133 (-2.67)	-0.100 (-1.66)	-0.026 (-1.13)	0.075
ITALY	0.382 (11.07)	-0.044 (-1.19)	0.578 (2.38)	-0.284 (-1.80)	-0.185 (-2.19)	-0.250 (-1.66)	0.200 (2.80)	0.394
TURKEY	-0.020 (-1.72)	0.038 (3.00)	-0.043 (-0.73)	-0.657 (-1.55)	0.122 (4.34)	0.016 (0.36)	0.010 (0.65)	0.023

THE HOMOGENEITY CONSTRAINED MODEL						
Destination i	a_i	b_i	γ_{i1}	γ_{i2}	γ_{i3}	γ_{i4}
GREECE	0.136 (13.94)	-0.014 (-2.14)	0.054 (0.98)	0.118 (4.49)	0.046 (2.22)	-0.170 (-3.82)
SPAIN	0.450 (24.53)	-0.019 (-1.32)	-0.362 (-2.20)	-0.176 (-2.37)	0.151 (2.44)	0.527 (4.48)
PORTUGAL	0.008 (0.74)	0.073 (5.73)	-0.115 (-1.83)	0.256 (3.58)	-0.118 (-2.40)	-0.022 (-0.48)
ITALY	0.401 (17.99)	-0.063 (-3.33)	0.513 (2.41)	-0.196 (-1.78)	-0.195 (-2.47)	-0.304 (-2.08)
TURKEY	-0.667 (-0.76)	0.024 (3.39)	-0.089 (-1.99)	-0.003 (-0.12)	0.115 (3.48)	-0.021 (-0.54)

THE SYMMETRY CONSTRAINED MODEL							
Destination i	a_i	b_i	γ_{i1}	γ_{i2}	γ_{i3}	γ_{i4}	γ_{i5}
GREECE	0.107 (2.59)	0.018 (0.44)	0.034 (0.26)	0.057 (0.23)	0.035 (0.86)	-0.045 (-0.20)	-0.014 (-0.27)
SPAIN	0.551 (13.29)	-0.132 (-2.51)	0.057 (0.23)	-0.263 (-0.95)	0.274 (1.91)	-0.008 (-0.02)	-0.188 (-1.13)
PORTUGAL	0.086 (2.34)	-0.017 (-0.42)	0.035 (0.86)	0.274 (1.91)	-0.055 (-1.00)	-0.360 (-1.86)	-0.022 (-0.28)
ITALY	0.277 (3.83)	0.089 (0.94)	-0.045 (-0.20)	-0.008 (-0.02)	-0.360 (-1.86)	0.351 (0.74)	0.201 (0.90)
TURKEY	-0.021 -	0.042 -	-0.014 (-0.27)	-0.188 (-1.13)	-0.022 (-0.28)	0.201 (0.90)	0.023 -

Sample Period: 1960-1987
(t-statistics are shown in brackets)

Table 6.3b: Diagnostic Statistics

THE UNCONSTRAINED MODEL			
Destination i	R^2	D - W	F (k-1,N-k)
GREECE	0.83	1.29	23.00
SPAIN	0.70	1.55	11.88
PORTUGAL	0.56	2.12	6.79
ITALY	0.76	1.52	15.99
TURKEY	0.57	1.26	6.97

THE HOMOGENEITY-SYMMETRY CONSTRAINED MODEL				
Destination i	$\bar{R}^2$	D - W	F-TEST	LR-TEST
GREECE	0.82	1.16	1.66 (Accept)	L_1=294.52
SPAIN	0.71	1.52	0.40 (Accept)	L_2=267.35
PORTUGAL	0.54	1.95	0.57 (Accept)	LR=54.33
ITALY	0.77	1.51	0.18 (Accept)	x_R^2=18.30
TURKEY	0.56	1.24	1.22 (Accept)	

Table 6.3c: *Expenditure and Own-Price Elasticities*

Destination i	Expenditure Elasticity $n_i=b_i/\bar{w}_i+1$	Uncompensated Own-Price Elasticity $e_{ii}=\gamma_{ii}/\bar{w}_i-b_i-1$	Compensated Own-Price Elasticity $e^*_{ii}=e_{ii}+\bar{w}_i n_i=\gamma_{ii}/\bar{w}_i+\bar{w}_i-1$
GREECE	1.05 (0.80) [1.25]	-2.61 (-0.23) [-0.54]	-2.54 (-0.18) [-0.45]
SPAIN	0.90 (0.95) [0.69]	-1.11 (-1.38) [-1.47]	-0.72 (-0.97) [-1.16]
PORTUGAL	1.58 (1.97) [0.77]	-2.81 (-2.64) [-1.71]	-2.69 (-2.49) [-1.65]
ITALY	0.88 (0.84) [1.22]	-1.59 (-1.70) [-0.20]	-1.24 (-1.37) [0.28]
TURKEY	2.65 (2.04) [2.82]	-0.60 - [-0.04]	-0.54 - [0.02]

(Expenditure and own-price elasticities from the homogeneity and symmetry constrained models are shown respectively in brackets).

Table 6.3d: Uncompensated and Compensated Cross-Price Elasticities

Destination i	Uncompensated Cross-Price Elasticity $e_{ij}=\gamma_{ij}/\bar{w}_i-b_i\bar{w}_j/\bar{w}_i$					Compensated Cross-Price Elasticity $e^*_{ij}=e_{ij}+\bar{w}_j n_i=\gamma_{ij}/\bar{w}_i+\bar{w}_j$				
	e_{i1}	e_{i2}	e_{i3}	e_{i4}	e_{i5}	e^*_{i1}	e^*_{i2}	e^*_{i3}	e^*_{i4}	e^*_{i5}
GREECE	-	0.68	0.47	-0.72	-0.19	-	1.22	0.56	-0.23	-0.17
SPAIN	0.15	-	0.65	0.10	-0.42	0.20	-	0.70	0.37	-0.40
PORTUGAL	0.48	3.75	-	-4.71	-0.28	0.53	4.08	-	-4.40	-0.27
ITALY	-0.13	-0.11	-0.92	-	0.50	-0.04	0.41	-0.83	-	0.53
TURKEY	-0.73	-8.96	-1.08	8.02	-	-0.53	-7.73	-0.88	9.13	-

Symmetry constrained model.

WEST GERMANY

Table 6.4a: Tourism Demand by German Tourists

THE UNCONSTRAINED MODEL

Destination i	a_i	b_i	γ_{i1}	γ_{i2}	γ_{i3}	γ_{i4}	γ_{i5}	$\bar{w}_i$
GREECE	0.035	0.002	-0.029	0.032	0.051	-0.055	-0.003	0.028
	(11.59)	(0.66)	(-2.73)	(3.33)	(5.73)	(-3.65)	(-0.73)	
SPAIN	0.230	-0.037	-0.408	-0.170	0.238	-0.027	-0.101	0.197
	(11.39)	(-1.66)	(-4.46)	(2.24)	(4.11)	(-0.23)	(-3.34)	
PORTUGAL	0.017	0.0003	-0.050	0.074	-0.006	-0.038	-0.007	0.017
	(1.92)	(0.04)	(-1.59)	(1.58)	(-0.32)	(-1.14)	(-1.00)	
ITALY	0.722	0.017	0.617	-0.267	-0.445	0.155	0.127	0.735
	(23.84)	(0.53)	(4.73)	(-2.31)	(-5.22)	(0.86)	(2.55)	
TURKEY	-0.006	0.017	-0.128	-0.010	0.160	-0.034	-0.015	0.023
	(-0.84)	(1.91)	(-3.54)	(-0.38)	(5.29)	(-0.58)	(-0.87)	

THE HOMOGENEITY CONSTRAINED MODEL

Destination i	a_i	b_i	γ_{i1}	γ_{i2}	γ_{i3}	γ_{i4}
GREECE	0.034	0.003	-0.027	0.026	0.051	-0.049
	(19.52)	(3.33)	(-2.64)	(2.62)	(5.58)	(-5.78)
SPAIN	0.188	0.012	-0.306	-0.036	0.236	0.166
	(14.45)	(1.02)	(-3.39)	(-0.64)	(3.45)	(2.50)
PORTUGAL	0.008	0.011	-0.028	0.029	-0.006	0.003
	(2.82)	(4.61)	(-1.24)	(1.62)	(-0.30)	(0.24)
ITALY	0.784	-0.055	0.468	0.034	-0.443	-0.128
	(48.97)	(-3.93)	(3.47)	(0.42)	(-4.45)	(-1.24)
TURKEY	-0.015	0.028	-0.106	-0.054	0.160	0.007
	(-3.46)	(5.98)	(-2.67)	(-2.77)	(5.34)	(0.22)

THE SYMMETRY CONSTRAINED MODEL

Destination i	a_i	b_i	γ_{i1}	γ_{i2}	γ_{i3}	γ_{i4}	γ_{i5}
GREECE	0.035	0.002	-0.029	0.028	0.065	-0.063	-0.007
	(1.18)	(0.06)	(-1.14)	(0.19)	(5.99)	(-0.35)	(-0.23)
SPAIN	0.259	-0.059	0.028	0.048	0.047	-0.101	-0.067
	(8.17)	(-1.99)	(0.19)	(0.29)	(0.54)	(-0.55)	(-0.66)
PORTUGAL	0.027	-0.006	0.065	0.047	-0.075	-0.050	0.009
	(1.30)	(-0.29)	(5.99)	(0.54)	(-2.80)	(-0.39)	(0.25)
ITALY	0.671	0.051	-0.063	-0.101	-0.050	0.215	0.038
	(11.07)	(0.76)	(-0.35)	(-0.55)	(-0.39)	(0.66)	(0.24)
TURKEY	0.008	0.012	-0.057	-0.067	0.009	0.038	0.047
	-	-	(-0.23)	(-0.66)	(0.25)	(0.24)	-

Sample Period: 1960-1987
(t-statistics are shown in brackets)

Table 6.4b: Diagnostic Statistics

THE UNCONSTRAINED MODEL			
Destination i	$\bar{R}^2$	D - W	F (k-1,N-k)
GREECE	0.89	2.19	39.00
SPAIN	0.77	1.42	216.44
PORTUGAL	0.10	1.73	1.55
ITALY	0.77	1.57	16.32
TURKEY	0.68	1.41	10.60

THE HOMOGENEITY-SYMMETRY CONSTRAINED MODEL				
Destination i	$\bar{R}^2$	D - W	F-TEST	LR-TEST
GREECE	0.89	2.16	0.18 (Accept)	L_1=392.28
SPAIN	0.73	1.16	4.48 (Reject)	L_2=363.42
PORTUGAL	0.22	1.76	2.41 (Accept)	LR=57.71
ITALY	0.73	1.32	4.69 (Reject)	x_R^2=18.30
TURKEY	0.68	1.35	1.02 (Accept)	

Table 6.4c: Expenditure and Own-Price Elasticities

Destination i	Expenditure Elasticity $n_i=b_i/\bar{w}_i+1$	Uncompensated Own-Price Elasticity $e_{ii}=\gamma_{ii}/\bar{w}_i-b_i-1$	Compensated Own-Price Elasticity $e^*_{ii}=e_{ii}+\bar{w}_i n_i=\gamma_{ii}/\bar{w}_i+\bar{w}_i-1$
GREECE	1.07 (1.10) [1.07]	-2.03 (-1.96) [-2.03]	-2.00 (-1.93) [-2.00]
SPAIN	0.81 (1.06) [0.70]	-1.82 (-1.19) [-0.70]	-1.66 (-0.98) [-0.56]
PORTUGAL	1.01 (1.64) [0.65]	-1.35 (-1.36) [-5.40]	-1.33 (-1.33) [-5.39]
ITALY	1.02 (0.92) [1.07]	-0.80 (-1.12) [-0.76]	-0.05 (-0.44) [0.02]
TURKEY	1.73 (2.21) [1.52]	-1.67 - [1.03]	-1.63 - [1.06]

(Expenditure and own-price elasticities from the homogeneity and symmetry constrained models are shown respectively in brackets).

Table 6.4d: Uncompensated and Compensated Cross-Price Elasticities

Destination i	Uncompensated Cross-Price Elasticity $e_{ij}=\gamma_{ij}/\bar{w}_i-b_i\bar{w}_j/\bar{w}_i$					Compensated Cross-Price Elasticity $e^*_{ij}=e_{ij}+\bar{w}_j n_i=\gamma_{ij}/\bar{w}_i+\bar{w}_j$				
	e_{i1}	e_{i2}	e_{i3}	e_{i4}	e_{i5}	e^*_{i1}	e^*_{i2}	e^*_{i3}	e^*_{i4}	e^*_{i5}
GREECE	-	0.98	2.32	-2.30	-0.25	-	1.19	2.33	-1.51	-0.22
SPAIN	0.15	-	0.24	-0.29	-0.33	0.17	-	0.25	0.22	-0.31
PORTUGAL	3.83	2.83	-	-2.68	0.53	3.85	2.96	-	-2.20	0.55
ITALY	-0.08	-0.16	-0.06	-	0.05	-0.05	0.05	-0.05	-	0.07
TURKEY	-1.18	-3.01	0.38	1.27	-	-1.14	-2.71	0.40	2.38	-

Symmetry constrained model.

THE UNITED STATES

Table 6.5a: Tourism Demand by American Tourists

THE UNCONSTRAINED MODEL

Destination i	a_i	b_i	γ_{i1}	γ_{i2}	γ_{i3}	γ_{i4}	γ_{i5}	$\bar{w}_i$
GREECE	0.069	0.049	0.020	0.008	0.219	-0.210	0.013	0.113
	(9.13)	(6.63)	(0.37)	(0.17)	(5.62)	(-5.47)	(0.78)	
SPAIN	0.217	-0.063	-0.182	0.111	-0.038	-0.049	-0.068	0.225
	(13.63)	(-3.88)	(-1.43)	(0.81)	(-0.50)	(-0.36)	(-1.40)	
PORTUGAL	0.001	0.052	-0.074	0.202	-0.194	0.073	-0.052	0.085
	(0.09)	(3.11)	(-0.48)	(1.12)	(-2.17)	(0.64)	(-1.40)	
ITALY	0.718	-0.084	0.369	-0.211	-0.231	0.146	0.111	0.517
	(40.68)	(-3.96)	(1.97)	(-1.56)	(-2.20)	(0.82)	(1.40)	
TURKEY	-0.007	0.045	-0.132	-0.111	0.244	-0.018	-0.037	0.060
	(-0.55)	(3.07)	(-1.23)	(-1.38)	(4.45)	(-0.91)	(-0.94)	

THE HOMOGENEITY CONSTRAINED MODEL

Destination i	a_i	b_i	γ_{i1}	γ_{i2}	γ_{i3}	γ_{i4}
GREECE	0.078	0.037	-0.038	0.081	0.225	-0.271
	(10.12)	(8.88)	(-0.85)	(1.66)	(5.57)	(-7.30)
SPAIN	0.175	-0.006	0.075	-0.210	-0.064	0.220
	(13.27)	(-0.98)	(0.68)	(-3.37)	(-0.75)	(2.62)
PORTUGAL	-0.006	0.063	-0.022	0.138	-0.199	0.127
	(-0.53)	(5.08)	(-0.17)	(1.38)	(-2.05)	(1.55)
ITALY	0.735	-0.127	0.159	0.050	-0.210	-0.073
	(47.63)	(-10.19)	(0.92)	(0.61)	(-2.03)	(-0.54)
TURKEY	-0.002	0.037	-0.173	-0.059	0.249	-0.046
	(-0.27)	(3.69)	(-1.65)	(-1.27)	(4.34)	(-0.91)

THE SYMMETRY CONSTRAINED MODEL

Destination i	a_i	b_i	γ_{i1}	γ_{i2}	γ_{i3}	γ_{i4}	γ_{i5}
GREECE	0.067	0.057	-0.030	0.059	0.159	-0.147	0.021
	(4.92)	(3.67)	(-0.33)	(0.53)	(2.88)	(-1.48)	(1.00)
SPAIN	0.197	-0.038	0.059	-0.011	-0.062	-0.021	-0.105
	(12.54)	(-2.27)	(0.53)	(-0.07)	(-0.68)	(-0.16)	(-1.75)
PORTUGAL	0.003	0.021	0.159	-0.062	0.044	-0.131	-0.065
	(0.18)	(0.94)	(2.88)	(-0.68)	(0.43)	(-1.27)	(-0.96)
ITALY	0.739	-0.114	-0.147	-0.021	-0.131	0.179	0.170
	(40.77)	(-4.35)	(-1.48)	(-0.16)	(-1.27)	(0.85)	(2.16)
TURKEY	-0.006	0.074	0.021	-0.105	-0.065	0.170	-0.021
	-	-	(1.04)	(-1.75)	(-0.96)	(2.16)	-

Sample Period: 1960-1987
(t-statistics are shown in brackets)

Table 6.5b: Diagnostic Statistics

THE UNCONSTRAINED MODEL			
Destination i	R^2	D - W	F (k-1,N-k)
GREECE	0.87	2.41	33.66
SPAIN	0.48	0.87	5.23
PORTUGAL	0.54	1.32	6.36
ITALY	0.79	1.61	21.10
TURKEY	0.59	1.46	7.62

THE HOMOGENEITY-SYMMETRY CONSTRAINED MODEL				
Destination	R^2	D - W	F-TEST	LR-TEST
GREECE	0.87	2.25	1.70 (Accept)	L_1=269.52
SPAIN	0.38	0.69	5.32 (Reject)	L_2=253.44
PORTUGAL	0.56	1.32	0.17 (Accept)	LR=32.17
ITALY	0.78	1.44	2.18 (Accept)	x_R^2=18.30
TURKEY	0.60	1.47	0.28 (Accept)	

Table 6.5c: Expenditure and Own-Price Elasticities

Destination i	Expenditure Elasticity $n_i=b_i/\bar{w}_i+1$	Uncompensated Own-Price Elasticity $e_{ii}=\gamma_{ii}/\bar{w}_i-b_i-1$	Compensated Own-Price Elasticity $e^*_{ii}=e_{ii}+\bar{w}_i n_i=\gamma_{ii}/\bar{w}_i+\bar{w}_i-1$
GREECE	1.43 (1.32) [1.50]	-0.87 (-1.37) [-1.32]	-0.71 (-1.22) [-1.15]
SPAIN	0.72 (0.96) [0.83]	-0.44 (-1.92) [-1.01]	-0.28 (-1.70) [-0.82]
PORTUGAL	1.61 (1.74) [1.25]	-3.33 (-3.40) [-0.50]	-3.19 (-3.25) [-0.39]
ITALY	0.83 (0.75) [0.78]	-0.63 (-1.01) [-0.54]	-0.20 (-0.62) [-0.14]
TURKEY	1.75 (1.61) [2.23]	-1.66 - [-1.42]	-1.55 - [-1.29]

(Expenditure and own-price elasticities from the homogeneity and symmetry constrained models are shown respectively in brackets).

Table 6.5d: Uncompensated and Compensated Cross-Price Elasticities

Destination i	Uncompensated Cross-Price Elasticity $e_{ij}=\gamma_{ij}/\bar{w}_i-b_i\bar{w}_j/\bar{w}_i$					Compensated Cross-Price Elasticity $e^*_{ij}=e_{ij}+\bar{w}_j n_i=\gamma_{ij}/\bar{w}_i+\bar{w}_j$				
	e_{i1}	e_{i2}	e_{i3}	e_{i4}	e_{i5}	e^*_{i1}	e^*_{i2}	e^*_{i3}	e^*_{i4}	e^*_{i5}
GREECE	-	0.40	1.36	-1.56	0.15	-	0.74	1.49	-0.78	0.24
SPAIN	0.28	-	-0.24	-0.006	-0.45	0.37	-	-0.19	0.42	-0.40
PORTUGAL	1.85	-0.78	-	-1.66	-0.79	1.98	-0.50	-	-1.02	-0.70
ITALY	-0.24	0.05	-0.23	-	0.34	-0.15	0.18	-0.16	-	0.38
TURKEY	0.21	-2.02	-1.18	2.20	-	0.46	-1.52	-0.99	3.35	-

Symmetry constrained model.

Table 6.5e: A Comparison of the Elasticity Values for the USA

Destination i	Expenditure Elasticity			Compensated Own-Price Elasticity		
	WHITE (1982)	O'HAGAN & HARRISON (1984)	SYRIO-POULOS (1989)	WHITE (1982)	O'HAGAN & HARRISON (1984)	SYRIO-POULOS (1989)
GREECE	0.93	0.92	1.43	-0.90	-2.10	-0.71
SPAIN	1.31	1.99	0.72	-1.12	0.50	-0.28
PORTUGAL	1.31	2.02	1.61	-1.12	-1.64	-3.19
ITALY	0.93	0.51	0.83	-0.90	-0.90	-0.20
TURKEY	-	-	1.75	-	-	-1.55

FRANCE

Table 6.6a: Tourism Demand by French Tourists

THE UNCONSTRAINED MODEL								
Destination i	a_i	b_i	γ_{i1}	γ_{i2}	γ_{i3}	γ_{i4}	γ_{i5}	$\bar{w}_i$
GREECE	0.014	0.004	0.011	-0.006	0.030	-0.030	0.005	0.015
	(7.66)	(1.94)	(0.93)	(-0.65)	(5.58)	(-3.57)	(1.63)	
SPAIN	0.351	0.040	-0.208	-0.066	0.169	0.053	-0.082	0.510
	(11.17)	(1.37)	(-1.54)	(-0.44)	(2.08)	(0.37)	(-1.72)	
PORTUGAL	0.005	0.009	0.002	0.027	-0.018	-0.011	-0.005	0.020
	(1.87)	(3.70)	(0.11)	(1.16)	(-1.32)	(-0.72)	(-0.80)	
ITALY	0.638	-0.068	0.239	0.083	-0.271	-0.010	0.076	0.445
	(20.04)	(-2.28)	(1.69)	(0.56)	(-3.27)	(-0.70)	(1.44)	
TURKEY	-0.008	0.014	-0.045	-0.038	0.090	-0.003	0.005	0.010
	(-2.88)	(4.74)	(-3.12)	(-3.01)	(9.36)	(-0.22)	(1.05)	

THE HOMOGENEITY CONSTRAINED MODEL						
Destination i	a_i	b_i	γ_{i1}	γ_{i2}	γ_{i3}	γ_{i4}
GREECE	0.017	0.001	0.001	0.009	0.028	-0.041
	(14.85)	(1.28)	(0.12)	(1.82)	(5.22)	(-5.37)
SPAIN	0.310	0.082	-0.077	-0.267	0.190	0.200
	(16.09)	(5.81)	(-0.69)	(-4.27)	(2.37)	(2.09)
PORTUGAL	0.004	0.011	0.007	0.019	-0.017	-0.005
	2.10)	(5.48)	(0.38)	(1.34)	(-1.31)	(-0.48)
ITALY	0.673	-0.105	0.125	0.260	-0.290	-0.139
	(34.68)	(-7.40)	(1.03)	(4.38)	(-3.52)	(-1.33)
TURKEY	-0 005	0.010	-0.056	-0.021	0.088	-0.013
	-3.65)	(8.49)	(-4.75)	(-3.14)	(8.10)	(-1.32)

THE SYMMETRY CONSTRAINED MODEL							
Destination i	a_i	b_i	γ_{i1}	γ_{i2}	γ_{i3}	γ_{i4}	γ_{i5}
GREECE	0 010	0.007	0.001	-0.022	0.043	-0.013	0.008
	0.51)	(0.39)	(0.02)	(-0.19)	(2.46)	(-0.13)	(0.39)
SPAIN	0 366	0.026	-0.022	-0.042	0.110	-0.080	-0.116
	(11.36	(0.91)	(-0.19)	(-0.28)	(1.47)	(-0.56)	(-2.68)
PORTUGAL	0.026	-0.006	0.043	0.110	-0.082	-0.096	-0.019
	2.16)	-0.61)	(2.46)	(1.47)	(-3.35)	(-1.29)	(-0.86)
ITALY	0 589	-0.030	-0.013	-0.080	-0.096	0.250	0.132
	(17.46	(-0.90)	(-0.13)	(-0.56)	(-1.29)	(1.16)	(2.19)
TURKEY	0 009	0.003	0.008	-0.116	-0.019	0.132	-0.005
	-	-	(0.39)	(-2.68)	(-0.86)	(2.19)	-

Sample Period: 1960-1987

(t-statistics are shown in brackets)

Table 6.6b: Diagnostic Statistics

THE UNCONSTRAINED MODEL			
Destination i	$\bar{R}^2$	D - W	F (k-1,N-k)
GREECE	0.78	1.65	17.16
SPAIN	0.76	1.11	15.37
PORTUGAL	0.55	2.10	6.67
ITALY	0.78	1.16	17.32
TURKEY	0.85	1.84	27.26

THE HOMOGENEITY-SYMMETRY CONSTRAINED MODEL				
Destination i	$\bar{R}^2$	D - W	F-TEST	LR-TEST
GREECE	0.77	1.56	1.58 (Accept)	L_1=425.69
SPAIN	0.75	1.01	1.32 (Accept)	L_2=396.45
PORTUGAL	0.57	2.12	0.08 (Accept)	LR=58.48
ITALY	0.74	1.10	34.42 (Reject)	x_R^2=18.30
TURKEY	0.47	0.67	1.96 (Accept)	

Table 6.6c: Expenditure and Own-Price Elasticities

Destination i	Expenditure Elasticity $n_i=b_i/\bar{w}_i+1$	Uncompensated Own-Price Elasticity $e_{ii}=\gamma_{ii}/\bar{w}_i-b_i-1$	Compensated Own-Price Elasticity $e^*_{ii}=e_{ii}+\bar{w}_i n_i=\gamma_{ii}/\bar{w}_i+\bar{w}_i-1$
GREECE	1.26 (1.06) [1.46]	-0.27 (-0.93) [-0.94]	-0.25 (-0.92) [-0.92]
SPAIN	1.08 (1.16) [1.05]	-1.17 (-1.60) [-0.10]	-0.62 (-1.01) [-0.57]
PORTUGAL	1.45 (1.55) [0.70]	-1.90 (-1.86) [-5.09]	-1.88 (-1.83) [-5.08]
ITALY	0.85 (0.76) [0.93]	-0.95 (-1.20) [-0.41]	-0.57 (-0.87) [0.006]
TURKEY	2.40 (2.00) [1.30]	-0.51 - [-1.50]	-0.49 - [-1.50]

(Expenditure and own-price elasticities from the homogeneity and symmetry constrained models are shown respectively in brackets).

Table 6.6d: Uncompensated and Compensated Cross-Price Elasticities

Destination i	Uncompensated Cross-Price Elasticity $e_{ij}=\gamma_{ij}/\bar{w}_i-b_i\bar{w}_j/\bar{w}_i$					Compensated Cross-Price Elasticity $e^*_{ij}=e_{ij}+\bar{w}_j n_i=\gamma_{ij}/\bar{w}_i+\bar{w}_j$				
	e_{i1}	e_{i2}	e_{i3}	e_{i4}	e_{i5}	e^*_{i1}	e^*_{i2}	e^*_{i3}	e^*_{i4}	e^*_{i5}
GREECE	-	-1.69	2.85	-1.07	0.52	-	-0.95	2.80	-0.42	0.54
SPAIN	-0.05	-	0.21	-0.17	-0.22	-0.02	-	0.23	0.28	-0.21
PORTUGAL	2.15	5.65	-	-4.53	-0.94	2.16	6.01	-	-4.35	-0.94
ITALY	-0.02	-0.14	-0.21	-	0.29	-0.01	0.33	-0.19	-	0.30
TURKEY	0.79	-11.90	-1.90	13.07	-	0.81	-11.09	-1.88	13.64	-

Symmetry constrained model.

SWEDEN

Table 6.7a: Tourism Demand by Swedish Tourists

THE UNCONSTRAINED MODEL

Destination i	a_i	b_i	γ_{i1}	γ_{i2}	γ_{i3}	γ_{i4}	γ_{i5}	$\bar{w}_i$
GREECE	0.195	0.114	-0.164	0.413	0.086	-0.668	-0.053	0.105
	(11.41)	(0.70)	(-1.13)	(4.11)	(1.11)	(-6.37)	(-1.35)	
SPAIN	0.250	0.020	-0.263	-0.155	0.253	0.248	-0.098	0.305
	(9.18)	(0.78)	(-1.26)	(-1.16)	(2.02)	(1.54)	(-1.87)	
PORTUGAL	0.034	0.014	0.004	-0.035	-0.093	-0.068	0.037	0.043
	(4.41)	(1.89)	(0.92)	(-0.70)	(-3.36)	(-2.20)	(2.48)	
ITALY	0.537	-0.048	0.210	-0.192	-0.559	-0.460	0.133	0.525
	(22.35)	(-2.22)	(1.09)	(-1.75)	(-7.93)	(-3.07)	(2.11)	
TURKEY	-0.018	0.024	-0.116	-0.030	0.125	0.027	-0.019	0.022
	(-2.08)	(2.93)	(-1.27)	(-0.57)	(2.41)	(0.43)	(-0.67)	

THE HOMOGENEITY CONSTRAINED MODEL

Destination i	a_i	b_i	γ_{i1}	γ_{i2}	γ_{i3}	γ_{i4}
GREECE	0.183	0.003	0.237	0.316	0.087	-0.602
	(13.74)	(0.38)	(2.06)	(4.64)	(1.09)	(-6.22)
SPAIN	0.247	0.024	-0.243	-0.181	0.253	0.265
	(12.39)	(2.11)	(-1.47)	(-1.98)	(2.01)	(2.09)
PORTUGAL	0.041	0.005	-0.036	0.019	0.092	-0.105
	(6.77)	(1.17)	(-0.90)	(0.64)	(3.40)	(-4.62)
ITALY	0.549	-0.061	0.142	-0.102	-0.560	0.399
	(28.48)	(-4.93)	(0.76)	(-1.40)	(-8.04)	(3.37)
TURKEY	-0.021	0.028	-0.100	-0.051	0.126	0.042
	(-2.60)	(3.77)	(-1.35)	(-1.88)	(2.44)	(0.83)

THE SYMMETRY CONSTRAINED MODEL

Destination i	a_i	b_i	γ_{i1}	γ_{i2}	γ_{i3}	γ_{i4}	γ_{i5}
GREECE	0.167	0.018	0.061	0.176	0.072	-0.279	0.052
	(6.07)	(0.63)	(0.29)	(0.89)	(0.95)	(-1.63)	(1.16)
SPAIN	0.292	-0.004	0.176	0.207	0.050	-0.321	-0.262
	(8.97)	(-0.13)	(0.89)	(1.02)	(0.44)	(-1.79)	(-3.85)
PORTUGAL	0.044	0.005	0.072	0.050	0.065	-0.197	0.003
	(2.98)	(0.41)	(0.95)	(0.44)	(1.89)	(-2.15)	(0.10)
ITALY	0.524	-0.065	-0.279	-0.321	-0.197	0.609	0.186
	(15.32)	(-1.76)	(-1.63)	(-1.79)	(-2.15)	(3.04)	(2.37)
TURKEY	-0.027	0.046	0.052	-0.262	0.003	0.186	0.021
	-	-	(1.16)	(-3.85)	(0.10)	(2.37)	-

Sample Period: 1960-1987
(t-statistics are shown in brackets)

Table 6.7b: Diagnostic Statistics

THE UNCONSTRAINED MODEL			
Destination i	R^2	D - W	F (k-1,N-k)
GREECE	0.80	1.64	19.06
SPAIN	0.33	1.72	3.30
PORTUGAL	0.56	1.81	6.94
ITALY	0.84	1.67	25.56
TURKEY	0.40	1.19	4.11

THE HOMOGENEITY-SYMMETRY CONSTRAINED MODEL				
Destination i	R^2	D - W	F-TEST	LR-TEST
GREECE	0.80	1.59	0.48 (Accept)	L_1=283.48
SPAIN	0.36	1.71	0.01 (Accept)	L_2=263.33
PORTUGAL	0.56	1.76	1.07 (Accept)	LR=40.31
ITALY	0.85	1.60	0.28 (Accept)	x_R^2=18.30
TURKEY	0.43	1.18	0.06 (Accept)	

Table 6.7c: Expenditure and Own-Price Elasticities

Destination i	Expenditure Elasticity $n_i=b_i/\bar{w}_i+1$	Uncompensated Own-Price Elasticity $e_{ii}=\gamma_{ii}/\bar{w}_i-b_i-1$	Compensated Own-Price Elasticity $e^*_{ii}=e_{ii}+\bar{w}_in_i=\gamma_{ii}/\bar{w}_i+\bar{w}_i-1$
GREECE	2.08 (1.03) [1.17]	-2.44 (1.25) [-0.43]	-2.22 (1.36) [-0.31]
SPAIN	1.06 (1.08) [0.99]	-1.53 (-1.61) [-0.31]	-1.20 (-1.29) [-0.01]
PORTUGAL	1.32 (1.11) [1.11]	-3.17 (1.13) [0.50]	-3.10 (1.18) [0.55]
ITALY	0.91 (0.88) [0.87]	-1.82 (-0.17) [0.22]	-1.34 (0.29) [0.68]
TURKEY	2.09 (2.27) [3.09]	-1.89 - [-0.09]	-1.84 - [-0.02]

(Expenditure and own-price elasticities from the homogeneity and symmetry constrained models are shown respectively in brackets).

Table 6.7d: Uncompensated and Compensated Cross-Price Elasticities

Destination i	Uncompensated Cross-Price Elasticity $e_{ij}=\gamma_{ij}/\bar{w}_i-b_i\bar{w}_j/\bar{w}_i$					Compensated Cross-Price Elasticity $e^*_{ij}=e_{ij}+\bar{w}_jn_i=\gamma_{ij}/\bar{w}_i+\bar{w}_j$				
	e_{i1}	e_{i2}	e_{i3}	e_{i4}	e_{i5}	e^*_{i1}	e^*_{i2}	e^*_{i3}	e^*_{i4}	e^*_{i5}
GREECE	-	1.62	0.67	-2.83	0.49	-	1.98	0.72	-2.13	0.51
SPAIN	0.57	-	0.16	-1.04	-0.08	0.68	-	0.20	-0.52	-0.83
PORTUGAL	-1.66	1.12	-	-4.64	0.06	1.77	1.46	-	-4.05	0.09
ITALY	-0.50	-0.57	-0.37	-	0.35	-0.42	-0.30	-0.33	-	0.37
TURKEY	2.14	-12.54	0.04	7.36	-	2.46	-11.60	0.17	8.97	-

Symmetry constrained model.

CHAPTER 7

POLICY IMPLICATIONS FOR TOURISM DEMAND

Introduction

In the preceding chapters of the thesis, econometric models have been estimated in order to study the demand for tourism in the Mediterranean region. The estimated results have indicated the significance and the magnitude of the impact, in the short and the long-run, of changes in important economic and social variables, such as income, inflation rates, exchange rate differentials and political instability. The present chapter discusses the related economic policy implications for tourism. The policy implications are based on the values of the estimated elasticities of variables of interest as well as on projections of tourism demand for 1990 and 1991, discussed subsequently. However, prior to the discussion of the projections of tourism demand and specific policy issues, it is important to provide a framework about the background of the Mediterranean economies (Greece, Spain, Portugal, Italy and Turkey), in addition to an economic background of the tourist origin countries (the UK, West Germany, France, Sweden and the USA). The analysis focuses on the trends in inflation, exchange rates, the balance of payments, income (of the tourist origins) as well as on the tourism sectors (of the destination countries). Emphasis is placed on the developments during the last fifteen years and particularly between 1987 and 1989. This approach contributes to explaining and understanding the values of future income, inflation and exchange rates and provides a useful framework for forecasting the values of the aforementioned variables in the short-term (i.e., in 1990 and 1991). The forecast values of the variables of interest will then be included in the long-run steady state equations obtained from the dynamic single equation models of tourism demand, in order to predict steady state equilibrium paths of tourism demand, in the context of the previously discussed economic developments in the tourist destination and origin countries.

The analysis of the economic developments in the countries concerned, as well as the forecasts of the individual variables of interest, are based mainly on the issues of the OECD Economic Surveys and OECD Economic Outlook (1987/88, 1988/89, 1989/90). Thus, the projections are based on realistic assumptions, rather than on hypothetical simulation variables, about the levels of income, inflation and exchange rates in the origin and destination countries; this appears to be another contribution of the thesis in the field of tourism demand. The analysis followed here will illustrate the usefulness of the empirical approach applied in the thesis and will provide interesting insights into policy implications regarding tourism in the Mediterranean. We now turn to the discussion of the Mediterranean economies.

7.1 THE MEDITERRANEAN ECONOMIES

7.1.1 GREECE

7.1.1.1 Overview

Since mid-1970s, Greece has entered a phase of pronounced stagflationary trends, which succeeded a period of more than thirty years of growth significantly faster than the OECD average. The picture of the economy in the 1980s indicated that, on the one hand, the earlier positive growth differentials have turned strongly negative, while, on the other, unfavourable inflation differentials have widened sharply. The adverse situation has been characterised by rapidly rising labour costs (associated with flat or declining productivity), which resulted in rising prices and declining cost-competitiveness in the export markets. At the same time, dramatic rises in both public sector deficits and public debt created a destabilising environment for the whole economy. It has been the steep increase in the PSBR/GDP, debt/GDP and interest payments/GDP ratios that have become the primary sources of an unfavourable impact on inflation, growth and financial stability.

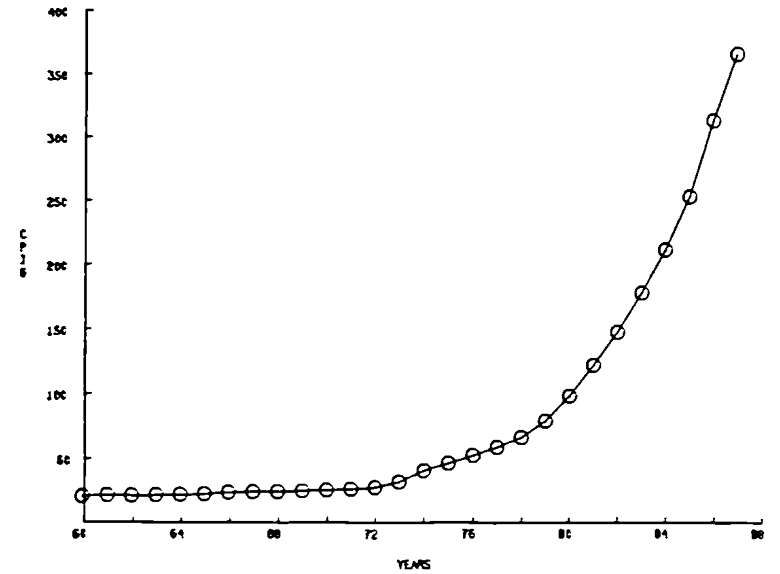
Following feeble growth rates and very high inflation in the first half of the 1980s, an

Economic Stabilisation Programme for the 1986-87 period was introduced. It involved tight budgetary and monetary policy and wage controls and intended to reverse the serious macroeconomic imbalances, namely, inflation, the public sector deficit and the current external deficit. The programme did succeed in bringing down these imbalances to more manageable levels. It failed, however, to tackle explicitly microeconomic and structural issues as well as to bring about sustainable growth and stability. When the programme ended, the imbalances were still severe: the inflation rate was reduced from more than 22 per cent in 1985 to 12 per cent in 1987; the PSBR declined from 18 per cent of GDP in 1985 to 13 per cent of GDP in 1987; and the current balance of payments deficit dropped from 10 per cent of GDP in 1985 to 2.7 per cent of GDP in 1987. Nevertheless, the termination of the 1986-87 Economic Stabilisation Programme was followed by relaxation of fiscal and incomes policies. While this permitted a temporary revival of output and employment growth, it entailed a considerable loss of earlier stabilisation gains. The years that followed the 1986-87 Stabilisation Programme have indicated that most of its initial strength and positive contribution have faded and imbalances have increased to nearly uncontrollable levels with strong adverse pressures building-up for the whole economy.

7.1.1.2 Inflation

For most of 1988, lagged effects of the Stabilisation Programme and relatively weak import price increases continued to damp inflation pressures, disguising the acceleration of domestic cost inflation. However, apart from the freeze in administered prices (increasing, though, sharply the deficits of public enterprises) and reduced taxation (lowering the consumer price index by about 2 per cent in 1989), inflationary pressures started to build up again in 1989. Consumer price inflation increased once more to about 15 per cent on a year-to-year basis (nearly four times higher than the EC average), and the already large differentials of cost-inflation relative to major trading partners have been widening tremendously since. Figure 7.1a illustrates the trend in the consumer price index in Greece for 1960-1987.

Figure 7.1a: CONSUMER PRICE INDEX IN GREECE



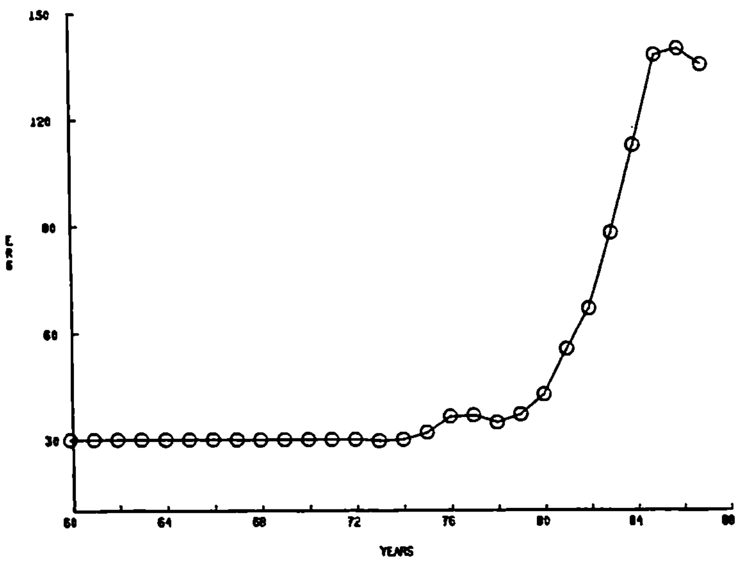
The increase of about 17 per cent annually in non-agricultural unit labour costs for three consecutive years, in addition to the adjustment (sharp increase) of administered prices, exerted more pressure on price inflation. Moreover, in 1989 the PSBR was 19 per cent of GDP (mainly due to considerable tax allowances, higher interest payments, stronger public consumption and tax evasion , reaching record levels and adversely affecting inflation.

Inflation during recent years has increased significantly, owing to the high and increasing PSBR (which, furthermore, may induce capital flight and undermine the external value of the currency), creating a climate of increasing uncertainty and affecting expectations about the exchange rate. The risk of such adverse effects seems to have been higher in the recent past in the context of the overall Greek economic and political climate. The steep rise in public sector foreign debt over the past ten years in particular, in combination with the tendency of the drachma to appreciate in real cost terms over the same period, point to exchange rate crowding-out mechanisms in the case of Greece. Exchange rate crowding-out occurs in the event of external borrowing or when foreign capital is being attracted by high interest rates. (The exchange rate appreciation induces reductions in exports, increases in imports and affects investment adversely). Although market interest rates were maintained at high levels in real terms, allowing for cost-inflation differentials (and subsequently strengthening the real value of the drachma), monetary management has been progressively difficult and initial targets were not attained. The rapid build-up in liquidity, therefore, increased further the risks of inflation rises.

7.1.1.3 The Exchange Rate

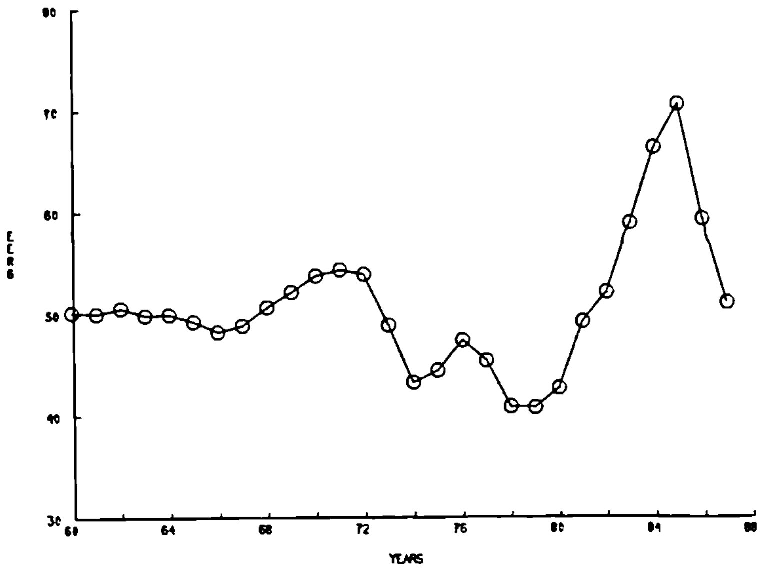
The adverse economic environment since 1988 amplified expectations for devaluation of a weakening drachma. In fact, during recent years, the exchange rate policy applied has been that of partial accommodation of inflation differentials. This contributed to keeping the increase of import prices in the last two years well below the increase in domestic costs. Figure 7.1b shows the drachma/dollar nominal exchange rate for 1960-1987.

Figure 7.1b: GREEK DRACHMA/US DOLLAR NOMINAL EXCHANGE RATE



Despite the fact that positive and even widening interest rate differentials may not prevent the exchange rate from coming under recurrent downward pressure (and considering also the fragile character of the balance of payments position), the authorities aim to maintain the exchange rate policy of partial accommodation of inflation differentials; the effective nominal depreciation of the drachma is to be kept below relative unit labour cost increases. Figure 7.1c presents the drachma/dollar real exchange rate (nominal exchange rates adjusted for consumer prices) for 1960-1987.

Figure 7.1c: GREEK DRACHMA/US DOLLAR REAL EXCHANGE RATE



For 1989 in particular, the drachma depreciated in nominal effective terms by slightly more than 0.6 per cent per month on average. A slightly faster pace of depreciation is expected for 1990.

The unfavourable developments in the economic situation of Greece have been largely related to the deterioration in cost-competitiveness and the inadequate adaptation of supply to changing demand patterns (leading to considerable loss in export market shares and rapidly rising import penetration). Despite the fact that favourable demand and price developments contributed to the shrinking of the current account deficit to 1.8 per cent of GDP in 1988, it was twice as large in 1989 and the balance of payments deficit started widening rapidly. The worsening of international cost-competitiveness since 1984 has been influenced by the development of high labour costs, in combination with an exchange rate policy only partially accommodating inflation differentials; (unit labour costs, measured in common currency, increased faster in Greece than in main competing countries). Even the non-trade balance, that was usually robust, has deteriorated sharply recently and the usual rise of net invisible receipts was smaller than in previous years. More specifically, although shipping and tourism have traditionally contributed a high surplus in the services balance, the loss in competitiveness has affected even these sectors.

7.1.1.4 The Tourism Sector

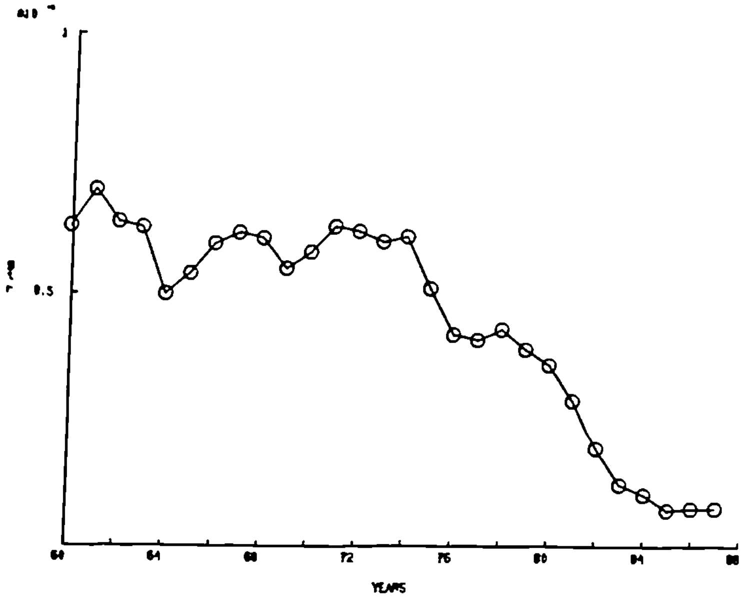
Since the mid-1970s Greece has shown spectacular tourism growth rates and has appeared as a major competitor of Spain. Despite the rich cultural heritage, tourism for seaside holidays (including 337 inhabited Greek islands) is the prime motive for tourists visiting Greece. The seasonality of the sector, as a result, is among the most extreme in Europe, and the degree of seasonality is increasing over time. International tourist flows increased sharply during the 1970s and foreign tourist arrivals trebled in the period 1960-70, despite declines during 1967-68 and 1974 (due to internal political unrest and the world recession following the oil crises). The upward trends in tourism growth rates were partly related to the growth of package holidays and partly to the fact that Greece appeared as an alternative to the maturing tourism industry of Spain. Charter passengers increased from 16 per cent in 1970 to 43 per cent of total arrivals in 1984 (Leondidou, 1988). Total tourist nights spent in all types of accommodation grew by 19.8 per cent per annum in 1970-78 but only by 2.3 per cent in 1981-86. The average length of stay has varied by nationality but has grown on average from 11.4 days in 1967 to 14 days in 1984-85 (Fragakis, 1987).

The largest numbers of tourists originate from Europe (63.4 per cent in 1971 to 82.5 per cent in 1985). In the 1970s, the share of Scandinavians was relatively higher but in the 1980s tourists originating from the United Kingdom and West Germany, followed by France, predominated. The heavy dependence of Greek tourism on US tourism flows during 1963-73 has declined in the 1980s. Tourists from Northern Europe usually prefer seaside resorts, unlike Southern European tourists who show a more dispersed pattern of regional distribution (also being interested in cultural tourism). During the 1970s, there was remarkable stability in the regional pattern of tourism demand. Tourism flows have been concentrated in the area of Greater Athens and in the islands of Rhodes, Crete and Corfu as well as, to a lesser extent, in Chalkidiki. Nevertheless, changes in the preferences of the tourists since the late 1970s indicated a sharp fall in the popularity of Attica and a shift towards Corfu, Northern Crete, Chalkidiki and the Dodecanese. The spatial polarisation and concentration of different nationalities and types of accommodation in specific regions has been a consequence of mass tourism; concentration of the tourist flows has intensified seasonality (Leondidou, 1988; p. 93).

The contribution of tourism in the Greek economy is crucial in providing foreign exchange and alleviating the balance of payments constraints, providing at the same time vital resources for the structural adjustment of the economy. Tourism receipts showed high growth rates of 21.4 per cent per annum on average for the 1960-78 period, while exports, invisible receipts and current account receipts grew by 16 per cent. The share of tourism receipts in GDP increased from 1.6 per cent in 1960 to 4.9 per cent in 1978 but decreased to 3.4 per cent of GDP in 1985. The contribution of tourism to total invisible receipts increased from 18 per cent to 32 per cent in the period 1960-78 (OECD, 1985). The impact of tourism on the employment has also been significant. The labour force recorded in hotels and restaurants grew from 6.1 per cent during 1961-71 to 10.5 per cent of total employment in 1971-84 (OECD, 1987). Tourism has made a positive contribution to regional development and has improved welfare in previously isolated areas and islands. Promotion of small-scale local tourist developments had a positive economic impact as the amount of income remaining within the region increased. Some problems of congestion and environmental pollution, however, have been apparent, as in some cases the carrying capacity of a resort was far exceeded, segmentation intensified, illegal building and unrecorded activities increased, adversely affecting the quality of services supplied (Leondidou, 1988; p. 99).

It is important to note that average tourism expenditure per head has always been low in Greece by international standards and this is mainly related to the heavy dependence on mass tourism and also to cheap services, especially in the informal sector. Figure 7.1d presents real per capita Greek tourism receipts (Greek tourism receipts/tourist arrivals) for 1960-1987, which, as can be seen, experienced a decreasing trend.

Figure 7.1d: REAL PER CAPITA GREEK TOURISM RECEIPTS



It appears that medium or even low income tourists keep visiting Greece. In recent years, despite increases in tourist arrivals, per capita expenditure has fallen consistently and the number of nights spent in hotels has remained stable. In the mid-1980s, foreign tourists tended to prefer auxiliary accommodation and considered Greece a place of cheap vacations (Leondidou, 1988; p. 95). It is likely that changes in the national composition of tourist arrivals rather than a general decline in spending levels account for the apparent drop in per capita exchange earnings (International Tourism Quarterly, 1976; p. 38).

As regards the supply side of tourism, public investment was allocated to infrastructural work in the 1960s, whereas, in the 1970s, the state contribution to the tourism sector involved credit for investment on accommodation as well as direct investment on accommodation construction and its management. Special concessions for hotels in the form of tax and depreciation allowances were also provided. Private investment, as a result, rose sharply in 1962-74 and foreign investment showed a peak in 1968; it concentrated mainly in hotel businesses around coastal resorts. Accommodation facilities and infrastructure improved, especially in the largest cities and the islands. Mass, large-scale tourism was promoted and, with it, large numbers of undeclared accommodation establishments appeared at increasing rates. In fact, Greek tourism is, to a large extent, based on enterprises that are frequently small-scale and family-run. The 1976-80 and 1983-87 Five-Year National Plans emphasise the role of local capital and of small non-hotel tourism as means of regional development, discouraging large units and foreign capital, although the 1988-92 Plan relaxes some of the constraints on foreign investment. Particular attention in the future is to be paid to the upgrading of Greek tourism in an attempt to attract the upper-end of the market. Other forms of tourism, such as cultural, rural and special incentives tourism, are also to be promoted, with a view to reducing the high seasonality and to spreading tourism more widely in terms of both time and space.

7.1.1.5 Short-Term Forecasts

After a recent period of serious political instability with successive rounds of inconclusive parliamentary elections, during 1989-90, without the application of any strict economic policies, the current (1990-92) policies aim to the reduction of the PSBR by 2.5 to 3 per cent of GDP in 1990. The rate of consumer price inflation is anticipated to increase to close to 20 per cent in 1990, due to strong upward pressures in the price-wage spiral (recent adjustment in administered prices, higher indirect taxes and pay increases covered by the wage indexation mechanism); inflation may moderate, however, to around 15 per cent by the end of 1991 (on the assumption of discontinuation of the wage indexation system). The current external deficit will be around 5 per cent of GDP in 1990 (further worsening competitiveness but with some recovery in the invisible surplus, mainly due to EC transfers). These trends are expected to have an impact on confidence for the economy and may jeopardise future growth prospects. Economic policies, consequently, are to be tightened considerably for the 1990-92 period. On the basis of the recent economic developments discussed earlier, it is assumed that inflation (as measured by consumer prices) will increase by 20.5 per cent in 1990 and by 19 per cent in 1991 (OECD Economic Outlook, Vol. 47, 1990, Table: Greece, p. 97). The nominal exchange rate relative to the US dollar is anticipated to decrease and be at 166.3 in 1990 and 189.0 in 1991 (OECD Economic Outlook, Vol. 47, 1990, Table 57, p. 140). The figures of forecasts discussed earlier are included in Table 7.1, presented at the end of this section, and will be used subsequently for the calculation of the steady state values of tourism demand.

7.1.2 SPAIN

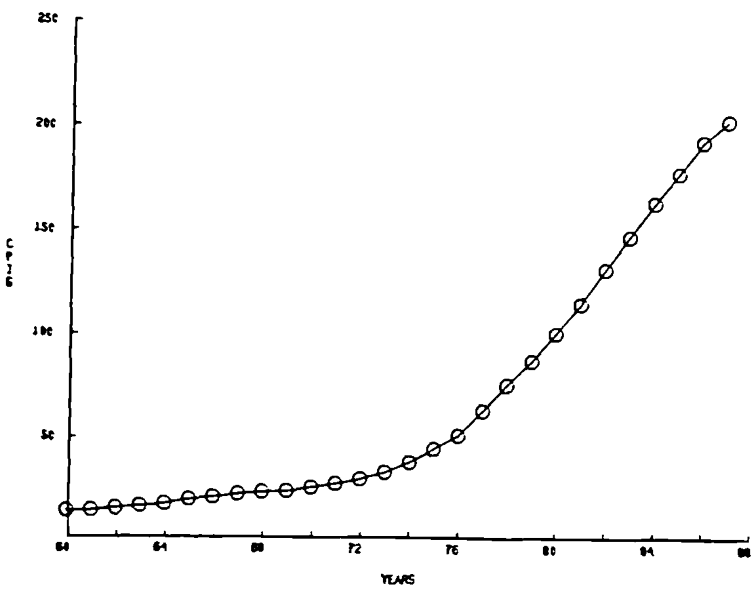
7.1.2.1 Overview

Since the mid-1980s (particularly during 1986-88), the Spanish economy has experienced considerable growth and dynamism, entering a phase of strong expansion of output and employment with a marked slowdown in inflation. These developments succeeded a period of sluggish growth, slow progress towards disinflation and high unemployment during the late 1970s and the first half of the 1980s, and were assisted by a favourable international environment as well as appropriate economic policies. The improvement in the overall economic situation of Spain can be explained by two major factors. On the one hand, the tighter financial policies during 1983-84 and the application of the appropriate industrial policy (in combination with measures towards labour market flexibility and financial market liberalisation) were crucial to strengthening the operational conditions of all sectors of the economy, creating an appropriate climate for the subsequent non-inflationary upswing. On the other hand, Spain's accession to the EC induced dynamic growth, while the reduction of trade barriers (abolition of many custom duties and high import quotas) as well as huge long-term capital inflows (partly due to the availability of a large skilled industrial labour force) contributed to bring down inflation. Despite reduction of inflation differentials relative to the OECD Europe average, however, strong demand pressure resulted in a growing deficit on the current external balance. Massive capital inflows, nevertheless, contributed to a significant balance of payments surplus and to upward pressure on the peseta.

7.1.2.2 Inflation

Following some slowing of activity around the mid-1988, the economic expansion showed some strength towards the end of the year but signs of overheating became apparent in 1989, leading to the introduction of restrictive economic policies. Inflation, as measured by the increase in the consumer price index, came up to about 7 per cent in 1989. Traditionally, inflation has been high by international standards, despite the fact that it has been a major policy objective to reduce inflation closer to the levels prevailing in major trading partners (particularly countries in the European Monetary System). In the early 1970s, Spain experienced a small positive inflation differential relative to the OECD average, which widened excessively between the two oil shocks. Although inflation reached a low of 2.8 per cent in 1980, it increased to 7 per cent in 1983 and has been stabilised at around this annual rate since, despite a peak at 16 per cent in 1987. There has been a steady narrowing of the gap with the OECD average to about 1 per cent in 1989). Figure 7.2a shows the upward trend that the consumer price index experienced in Spain during the 1960-1987 period.

Figure 7.2a: CONSUMER PRICE INDEX IN SPAIN

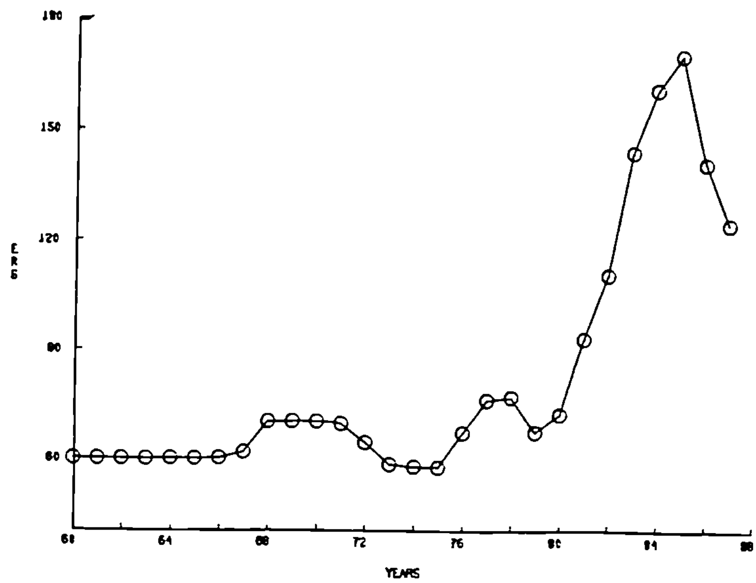


Considering the behaviour of major price components, it appears that the disinflation process is related to the decline in volatile food prices and mainly energy prices. The reacceleration of consumer prices since the mid-1988 partly reflected unfavourable food price developments. It appears that the performance of inflation indicates growing demand pressure rather than increasing cost push. Nevertheless, real wage rigidity and the persistence of strong inflationary expectations affected the relatively slow disinflationary process until 1984 (although inflationary pressures have eased since then). More recently, wage negotiations have been influenced by the policy objective to reduce inflation. However, unit labour costs relative to those in competitor countries (measured in common currency) increased by almost 7 per cent in 1988 (while productivity remained on average the same) and, thus, cost competitiveness deteriorated for the third consecutive year. User costs of capital seemed to have changed little in 1988 (given the fall in interest rates and the stability of prices of imported capital goods). Energy prices have continued to exert a damping effect on inflation since 1986, in combination with the small effective appreciation of the peseta, but non-energy import prices (after declining in 1986 and being stable in 1987) accelerated in 1988. The continued flat price trend of industrial consumer goods in 1988 can be understood by the greater than previous years stability of import prices of finished manufactures. The behaviour of import prices and volumes over the last years has contributed to keeping the economy on a sustainable growth path by damping inflationary pressures. Finally, prices of services (even excluding rent) rose faster than average earnings. The public sector financial requirements have also contributed to inflationary pressures in recent years, being an obstacle to efficient monetary management as well. The general government deficit, negligible until 1976, rose steadily to reach 7.3 per cent of GDP in 1985, before declining below 6 per cent in 1986 and to 2.1 per cent of GDP in 1989 (due to increases in tax receipts).

7.1.2.3 The Exchange Rate

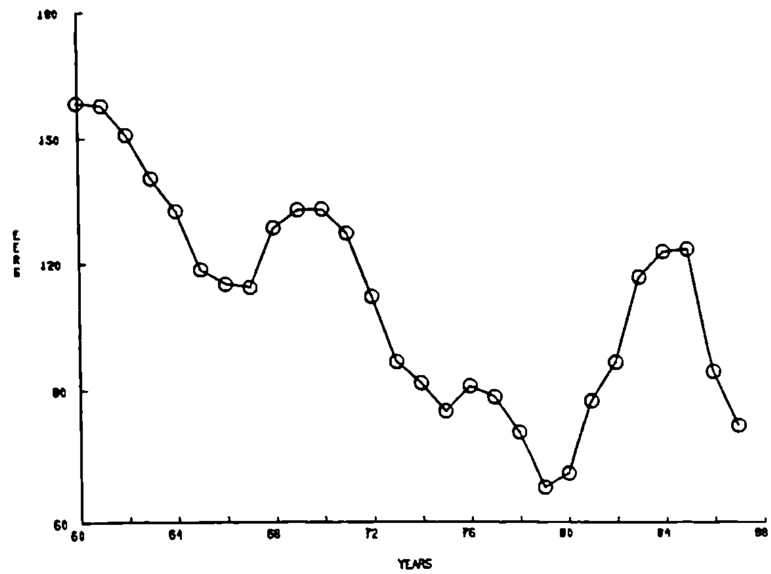
A policy objective consistently pursued has been to provide a stable peseta and, indeed, a roughly stable effective exchange rate has prevailed since mid-1985. At times, upward pressure on the exchange rate reinforced monetary accommodation. Except for the once and for all devaluations (in 1976, 1977 and 1982), the authorities showed a tendency to intervene in foreign markets. When the pressure on the exchange rate was upward, restrictive domestic policy and considerations of external competitiveness came into conflict (particularly since controls have tended to prevent outflows rather than discourage inflows). This conflict was particularly present in 1978-79 and again since 1984. In both cases the current account was in surplus. In the former, the authorities were in favour of the maintenance of the competitive gains of the 1977 devaluation; and, in the latter, they were worried about an erosion of competitiveness, given the (prospective and then actual) entry into the EC in 1986. A smaller government deficit would have lessened short-run pressure on the exchange rate as well, reducing the conflict of goals. Figure 7.2b shows the performance of the peseta/dollar nominal exchange rate for 1960-1987.

Figure 7.2b: SPANISH PESETA/US DOLLAR NOMINAL EXCHANGE RATE



Exchange rate policy also changed in the course of 1987. After resisting a revaluation of the peseta until the spring, leading to a sizeable accumulation of foreign exchange reserves, the authorities let the peseta appreciate during the second half of the year. Between April and end-November 1987, the peseta appreciated by almost 8 per cent in effective terms. An effective appreciation did not only occur against the ECU (by 4 per cent during the same period) but also against the dollar. This represents some shift in policy, which, before, had focused on broadly maintaining competitiveness relative to Spain's EC partners, even if this meant a marked deterioration relative to North America, especially since mid-1985. Figure 7.2c illustrates the trends in the peseta/dollar real exchange rate for 1960-1987.

Figure 7.2c: SPANISH PESETA/US DOLLAR REAL EXCHANGE RATE



In 1988, the peseta appreciated in effective terms by more than 3 per cent (even more in real terms), despite heavy foreign exchange interventions. The persistently strong upward pressure on the peseta in real and effective terms, during recent years, has adversely affected international competitiveness. Nevertheless, the real appreciation of the peseta was moderated in June 1989, when Spain joined the European Monetary System (EMS) and the exchange rate is anticipated to be broadly stable.

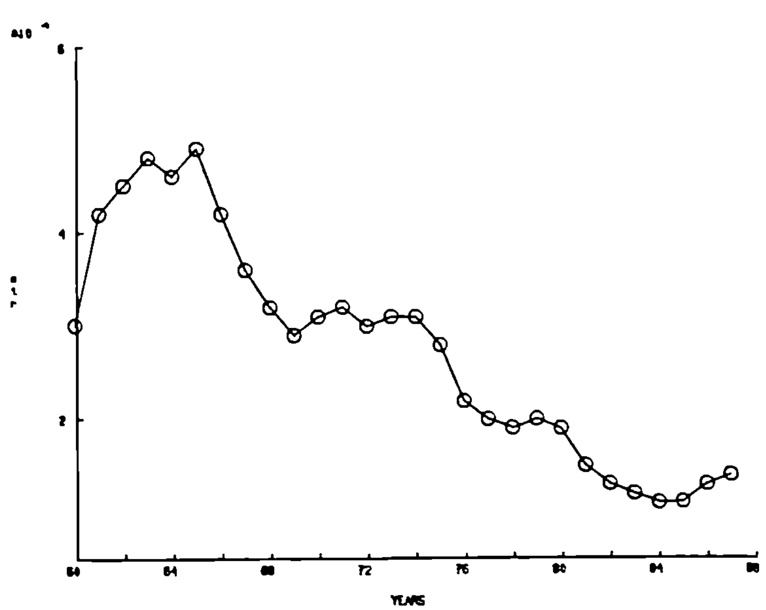
Whereas, however, the Spanish peseta appreciated and foreign exchange reserves rose over the recent years, strong economic activity resulted in high imports and the trade deficit doubled between 1986 and 1987; it further deteriorated in 1988 but stopped widening towards the end of 1989. Nevertheless, after declining in real terms between 1978-82, the total invisible surplus has been on a steep upward trend since then and has compensated for the adverse developments in the trade balance. In 1988, net transfers from the EC trebled whereas net tourism receipts continued to increase considerably (despite a sharp increase in Spanish tourist expenditure abroad). Despite some shrinking in tourism receipts in 1989, tourism has remained a major source of foreign exchange.

7.1.2.4 The Tourism Sector

The growth rates of the Spanish tourism have been spectacular over the last three decades. This has been related, on the one hand, to the domestic social and economic conditions (moderate price level, absence of labour conflicts) and, on the other hand, on the official policy that favoured tourism promotion (provision of financial credit and marketing expenditure abroad) as well as on the monopolistic power of the tour operators. Despite the diversity of touristic interests, seaside tourism predominates and Spain has been established as a tourism destination offering cheap seaside holidays. Three quarters of nights spent by foreigners, on average, are spent in the coastal resorts (International Tourism Quarterly, 1976). Over the past decades, Spanish tourism has experienced long periods of uninterrupted growth and tourism earnings have contributed to the overcoming of structural deficiencies of the economy (lack of industrial investment, trade balance deficit).

A major expansion in the volume of tourist flows to Spain was experienced after the 1950s (from 2.5 million visitors in 1955 to 47.4 million in 1986) and the increase continued until 1973. The 1974 oil crisis and the world recession induced a reduction in tourism growth rates in the 1973-1978 period. Despite the mid-1970s stagnation, however, the performance of the Spanish tourism improved (after 1983) and the sector became the most significant in the economy. Figure 7.2d presents real per capita Spanish tourism receipts for 1960-1987. Despite some increase in the trend during the 1960s, and 1970s to a lesser extent, the growth in both tourist arrivals and revenue showed a downward trend in recent years.

Figure 7.2d: REAL PER CAPITA SPANISH TOURISM RECEIPTS



The development of mass tourism in Spain has been followed by rapid increases in tourism growth rates in other Mediterranean countries; it resulted partly from the growth in package tour holidays and partly from the congestion that many Spanish holiday resorts started to experience. In a world scale, Spain became the second most important country (following France) in absorbing international tourism flows; (it attracted 8.8 per cent of total tourist arrivals and 10.5 per cent of total tourism receipts in 1986). Approximately 50 per cent of foreign tour operators sell holidays to Spain and charter tourism in 1986 accounted for 29.8 per cent of the total (Valenzuela, 1988).

The British (who tend to stay in the Balaeric Islands and the Costa del Sol), West Germans (preferring the Costa Brava and the Canary Islands) and French (mainly in the Costa Brava and the Costa Blanca) cover more than 50 per cent of tourist arrivals. In general, however, the average per capita expenditure of European tourists is low compared with Americans (favouring inland resorts, such as Madrid, Seville and Granada but also Alicante and Malaga) or Japanese. Europeans are usually characterised by a low consumption propensity, visiting Spain in package holidays during the peak summer season and spending one or two weeks of holidays (Valenzuela, 1988; p. 45). The strong trends in geographical concentration are partly related to climatic reasons and partly to the monopolistic power of the tour operators to channel tourism demand towards resorts that they promote. Despite efforts undertaken by the authorities, the discrepancies in the regional dispersion of the tourist flows have not been diminished. The airports of Palma de Mallorca, followed by Madrid and Malaga, receive over half of all tourist arrivals (by air). Apart from the regional concentration, the seasonality of demand induces major problems for Spanish tourism. The policies addressed to this problem (promotion of cultural and historic attractions, rural tourism) have not been particularly successful yet.

Realising the potential economic importance of tourism the Spanish authorities introduced, in the 1960s, a series of measures to promote tourism. The contribution of the state, however, was mainly related to sectoral intervention aiding the provision of marinas, natural spaces, access to coasts, but the supply of basic infrastructure has sometimes been inadequate. In some cases, regional planning has not been efficient and some resorts face problems of congestion, environmental pollution and touristic depreciation. The significant contribution of tourism to the economy, however, is reflected in its share of GDP, on average around 10 per cent. The generation of foreign exchange earnings has been vital for the Spanish economy and, in 1986, tourism receipts covered 44.6 per cent of total exports of goods and services. The effect of tourism on employment has also been crucial. Tourist activities directly employed 500.000 persons in the mid-1960s and 1.234.000 in 1986, accounting for 11 per cent of the economically active (Valenzuela, 1988). One of the paradoxes of Spanish tourism, however, seems to be that the areas which receive the greater number of tourists have not necessarily become the richest areas. Whereas tourism receipts have increased, empirical evidence indicates that expenditure per head has fallen in real terms and this supports the criticism of heavy dependence on cheap package tours (International Tourism Quarterly, 1976; p. 36).

Spanish tourism is firmly based on package tours and collective groups. Charter flights have been facilitated by airports developed near tourist resorts and close links have been created between hoteliers in Spain and tour operators in other countries. Despite the fact that Spanish authorities have realised the necessity for diversifying the orientation of Spanish tourism towards the upper end of the market, this would be extremely costly, given that most of the tourism infrastructure has been developed to serve the package tour market. Existing types of accommodation, for instance, cannot readily be converted to luxury hotels and increases in different types of accommodation (such as self-catering) have been directed towards the cheaper end of the market. Furthermore, tourism infrastructure (eg. airports, roads) covers mostly the coastal rather than the inland resorts. The supply of accommodation has been "the critical element in the organisation of tourism and the chief component of the built environment of tourist settlements" (Valenzuela, 1988; p. 46). It is the accommodation and the real estate sectors that most of the foreign investment has been channelled to. Nevertheless, consideration of the structure and organisation of Spanish tourism supply indicates that, despite increasing competition from other Southern European or Northern African countries, Spain should continue to attract the mass-type of tourist. It is doubtful, however, whether the spectacular tourism growth rates experienced in the past can ever be repeated or whether it is feasible to attract a higher spending and longer staying type of tourist. The recent downturn in growth of tourist arrivals and receipts justifies this argument (WTO, 1989). In many cases, the saturation of tourist resorts on the Mediterranean coasts and the destruction of the physical environment would not permit further expansion of the tourist facilities. It is to these points that competition from Greece or Turkey may be related.

7.1.2.5 Short-Term Forecasts

The fact that in 1989 the Spanish economy was in its fourth year of boom raises considerable complications in economic policy. It appears that the overall economic conditions are becoming less favourable. The situation has been mainly affected by the process of disinflation coming to an end; the limits of demand expansion (which was already large); the supply constraints (after four years of strong output growth); and, the increasing trade union militancy for higher pay and social benefits (after some years of industrial peace). It is expected, therefore, that fiscal policy will be restrictive and government consumption restrained. Inflation pressure may ease slightly, due to weakening of domestic demand pressure, slowdown in import prices and faster productivity growth.

Deterioration in cost and price competitiveness (rise in relative unit labour costs from increase in wages, due to strong demand for labour and automatic inflation adjustment) are expected to affect export growth during 1990-91. The deterioration in the trade balance may be partly offset by higher net transfer receipts and the increase in the current account deficit may be over 4 per cent of GDP in 1991. A large part of the deficit, however, is expected to be covered by capital inflows. The structural deficit of the public sector (adversely affected by tax evasion) is still high and further efforts to strengthen public finance are anticipated, in order to attain the objective of eliminating the deficit by 1992. Since the 1989 annual monetary targets were significantly overshot, monetary policy is to remain restrictive in 1990, given also the objective of containing inflation. Real interest rates, however, are expected to persist at high levels (as in the first half of 1990). A policy objective is towards reduction of the upward pressure on the peseta. Although the peseta continued to be the strongest currency within the EMS at the beginning of 1990, no more significant upward pressure on it is anticipated. Taking into account the above economic developments, it is assumed that inflation (as measured by consumer prices) will increase by 6.8 per cent in 1990 and by 6.4 per cent in 1991 (OECD Economic Outlook, Vol. 47, 1990, Table: Spain, p. 107). The nominal exchange rate relative to the US dollar is anticipated to appreciate slightly and be at 106.9 in 1990 and at 106.1 in 1991 (OECD Economic Outlook, Vol.

47, 1990, Table 57, p. 140). These figures are included in Table 7.1 at the end of this section, and will be used subsequently to calculate the steady state values of tourism demand.

7.1.3 PORTUGAL

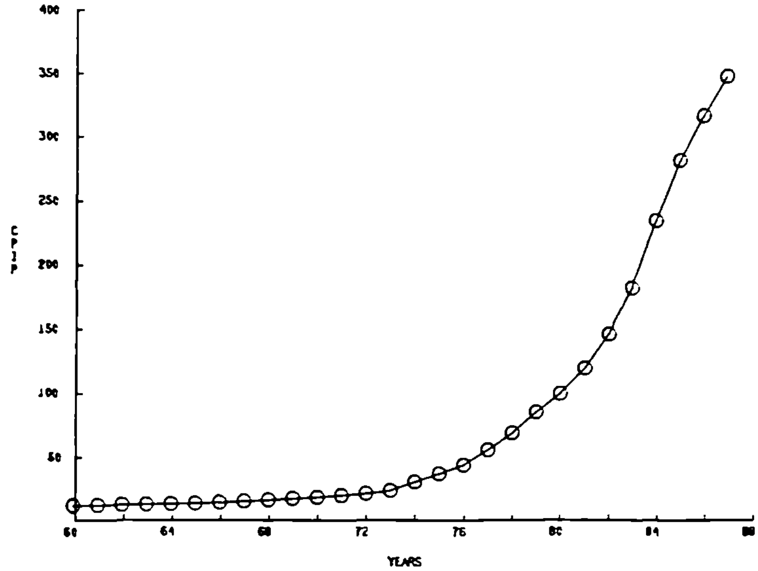
7.1.3.1 Overview

During the period 1985-89, Portugal experienced rapid economic growth. However, the two oil shocks and international recession had previously affected Portugal deeply, partly because of its weak economic structure and partly because of political instability at that time. In 1977-78 and 1983-85, therefore, the authorities applied stringent short-term corrective programmes, which contributed to the restoration of the balance of payments position and the adjustment of the economy. The economic programme during 1983-85, in particular, considerably improved the performance of the economy. Stronger growth reduced unemployment; inflation declined (partly due to terms of trade gains from lower oil prices and the dollar depreciation); and the current balance improved considerably (current account surplus of 4 per cent of GDP in 1986 from a deficit of 13.5 per cent of GDP in 1982). The measures that brought about these adjustments were based on monetary restriction and on appreciable devaluation of the escudo. Furthermore, Portugal's membership of the EC led to the inflow of substantial transfers of structural funds and financial aid during 1986-88, contributing considerably to the adjustment and modernisation of the economy.

7.1.3.2 Inflation

Inflation, as measured by the increase in consumer prices, fell to 10 per cent in 1988 from 25 per cent in 1983, reducing the inflation differential from the OECD-Europe average to 3.5 percentage points. However, the favourable international conditions gradually ceased and, in combination with domestic demand pressures and the adverse effects of bad weather on agriculture, prices started reaccelerating (as in most OECD countries). Figure 7.3a illustrates the upward trend in the consumer price index in Portugal for 1960-1987.

Figure 7.3a: CONSUMER PRICE INDEX IN PORTUGAL



In 1989, inflation was over 12.5 per cent, showing signs for a further upward trend.

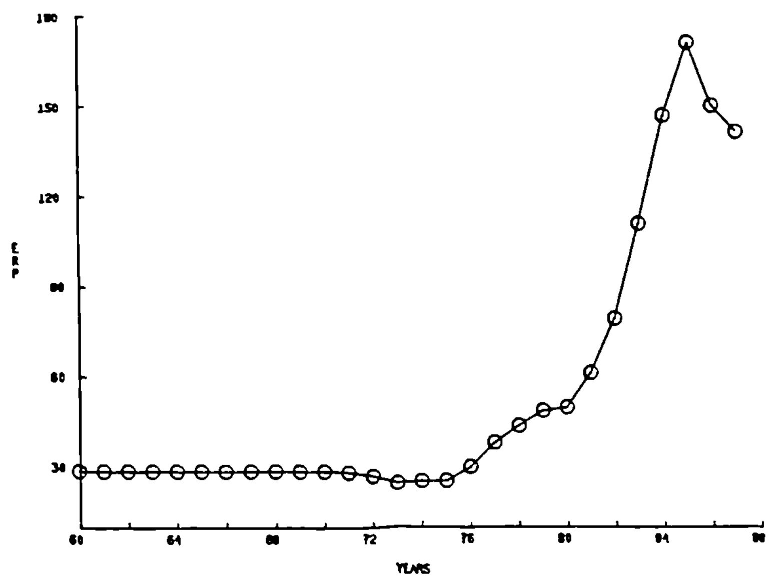
The factors affecting inflation have been partly related to strong demand pressures. Furthermore, in 1988, food price increases accelerated due to bad weather conditions. An adverse, though not major, impact on inflation was exerted by the increase in VAT, the trend in foreign prices, the effective depreciation of the escudo and the increase in controlled prices in line with the general price level, whereas relative import prices goods and services continued to fall against the GDP deflator (in 1988). Changes in the exchange rate eased the transmission of demand pressures into inflation. In export sectors, higher costs were not passed on foreign currency prices because of the escudo's real appreciation. The non-restrictive monetary policy also pushed inflationary pressures upwards.

With low productivity growth, unit labour costs rose rapidly (by more than 9.5 per cent in 1988), on account of the steep increase in industrial employment and exerted some upward pressure on inflation, despite low real wage growth. In 1988 (continuing the 1987 practice), contractual wage increases slowed down due to incomes policies. Because of labour market pressures, nevertheless, actual wages increased considerably compared with contractual wages. In 1989, wage negotiations were faced with difficulties partly on account of the fact that recorded inflation was above target in 1988. However, the government and some trade unions concluded an agreement, setting wage increases at around 9 per cent. The large and persistent public sector deficit has also contributed to upward inflationary trends as well as to the fragile condition of the overall economy. Whereas the government financial account was in equilibrium in 1973, it was in deficit (around 7.5 per cent of GDP) in 1989. The application of corrective measures between 1984-88 had contributed to the substantial reduction of the public sector borrowing requirement, mainly due to a fall in public expenditure and to the improved situation of public enterprises.

7.1.3.3 The Exchange Rate

Since the mid-1970s, exchange rate and monetary policy have played a major role in the short-term control of the economy, due to continuous growth and budget inflexibility. From 1977, Portugal adopted a policy of crawling-peg depreciation of the effective escudo exchange rate, which remains in force, setting a monthly rate of depreciation on the basis of the inflation differential between Portugal and its main trade partners. Although the system was suspended between November 1985 and April 1986 in order to control inflation, it was reintroduced with a rate of depreciation of 0.9 per cent per month, progressively cut in line with the inflation differentials between Portugal and its main trade partners; decreasing, thus, to an average of 0.5 per cent per month in 1987. Figure 7.3b describes the escudo/dollar nominal exchange rate for 1960-1987.

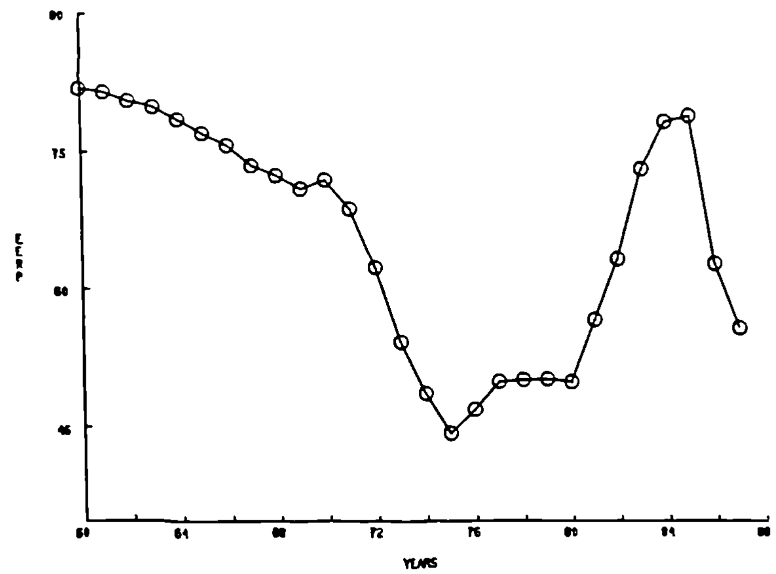
Figure 7.3b: PORTUGUESE ESCUDO/US DOLLAR NOMINAL EXCHANGE RATE



In 1988, the monthly rate of crawling-peg depreciation of the escudo was reduced (falling progressively from 0.4 to 0.25 during the year), and the annual effective rate of depreciation was reduced to 3.5 per cent (from 5.1 per cent in 1987). The authorities have maintained the monthly rate of depreciation of the escudo at 0.25 per cent, rate consistent with a 3 per cent annual rate for 1989 (which, though, would not prevent a slight worsening in competitiveness).

Between early 1986 and late 1987, the exchange rate for the escudo fell by a total of 12.3 per cent. Considering changes in the exchange rate of the dollar (against which the escudo appreciated on average by 7 per cent over the same period), the escudo's depreciation against other (particularly European) currencies was greater than the fall in the effective exchange rate; (between early 1986 and late 1987, the escudo depreciated by about 15.7 per cent against the ECU). However, the diverging performance of the European currencies and the dollar made the exchange rate policy less effective. Because of the weighting used to calculate the effective exchange rate, the sharp dollar appreciation during the second half of 1988 reduced the escudo's depreciation against the ECU, reducing, thus, Portuguese competitiveness in European markets. Figure 7.3c depicts the escudo/dollar real exchange rate for 1960-1987.

Figure 7.3c: PORTUGUESE ESCUDO/US DOLLAR REAL EXCHANGE RATE



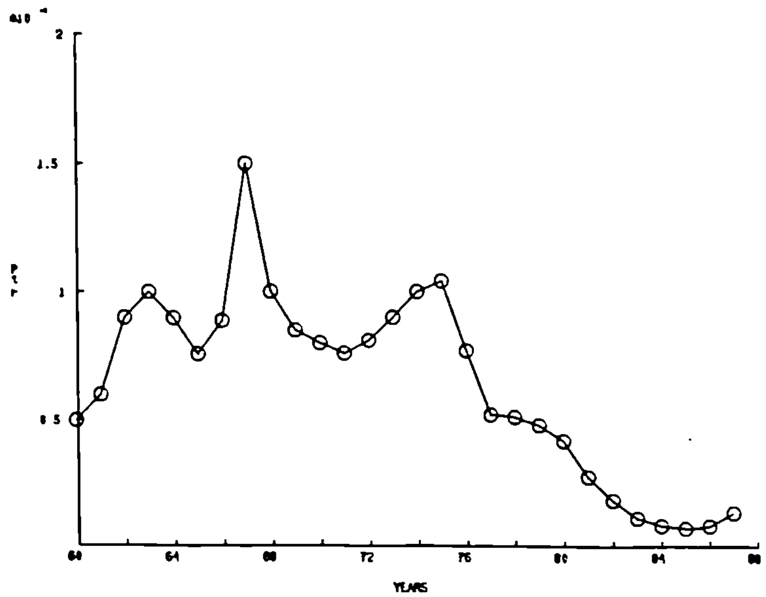
The policy of crawling-peg depreciation of the effective escudo exchange rate was also reinforced by three devaluations of the escudo (by 9.6 per cent in June 1982; 2 per cent in March 1983; 12 per cent in June 1983), directed towards restoration of competitiveness and substitution of domestic supply for imports. Exchange rate policy over the past ten years generally contributed to the improvement of competitiveness (measured in terms of relative prices). Nevertheless, given the sharp acceleration in inflation during 1988, a loss in competitiveness was experienced. Relative prices in Portugal, adjusted for exchange rate changes, have increased faster than in those countries which are members of the EMS exchange rate mechanism.

In this economic environment, the current balance deteriorated in 1988 (deficit of 1.5 per cent of GDP), after three years of surplus. This was due to a widening trade deficit (related partly to the slowdown in export growth but mainly to the continuing rapid increase in imports, induced by strong domestic demand and entry into the EC), despite continuing improvement in the invisibles account (related to tourism and substantial transfers). The balance of invisibles experienced a surplus in 1989 (up by 10 per cent on 1987). The increase in tourism receipts by 7 per cent in real terms was attributed to tourists with a higher spending propensity, since the number of tourist arrivals did not increase.

7.1.3.4 The Tourism Sector

Portugal has attempted to pursue a different direction of tourism development, compared with neighbouring Spain, intending to depart from mass towards luxury tourism. The earlier significant tourism developments were around thermal spas or the inland but the most significant phase of tourism expansion was experienced during 1963-1974, when growth rates exceeded the OECD average. The overall increase in tourism demand in Western Europe and the sharp growth of package holidays and charter flights exerted strong positive effects. Portuguese tourism, however, showed a disastrous decline in its growth rates in the mid-1970s, when the number of night spent in hotels and guest houses fell by 41 per cent in 1975. The 1973 US dollar devaluation, world recession due to the oil crises, increases in transport costs and domestic political instability resulted in sharp reductions in tourist flows to Portugal. The upward trends that followed were slow and Portugal did not share in the recovery which started in 1975, in contrast to Greece, Spain, Turkey and Yugoslavia. Instead, Portugal experienced another sharp decline. This was mainly related to increasing political instability and high hotel rates that rose in order to meet higher wage bills (International Tourism Quarterly, 1977; p. 21); some recovery, nevertheless, was seen in 1976. Figure 7.3d presents the fluctuations in real per capita Portuguese tourism receipts for 1960-1987.

Figure 7.3d: REAL PER CAPITA PORTUGUESE TOURISM RECEIPTS



Portuguese tourism had an extremely unusual feature after the 1974 domestic coup: the occupation of hotel accommodation by "retornados", Portuguese nationals (mainly soldiers) returning from ex-African colonies. This, in addition to the overall domestic economic and political instability, may have crucially affected the attitudes of international tour operators and foreign investors against the promotion of Portuguese tourism (International Tourism Quarterly, 1977; p. 25). After 1976, the orientation of Portuguese tourism started shifting towards the mass package holiday market but it was only in the mid-1980s that Portuguese tourism growth rates increased rapidly. A shift towards seaside tourism was also experienced and the Algarve and Madeira (attracting particularly British and Scandinavians) appeared as major tourist resorts. Despite promotion of winter sunshine, the problem of seasonality has not yet been tackled satisfactorily. During recent years, seaside mass tourism has acquired particular importance and a large share is absorbed in the Algarve, where problems of regional polarisation, congestion and environmental pollution have become apparent.

More recently, there has been an increase in the share of tourists originating from the United Kingdom and also of tourists from West Germany, the Netherlands and Scandinavia, whereas the US tourist shares have declined. A particularly large share of excursionists originates from Spain but their visits are usually of a shorter-term compared with the other nationalities. The tourist flows are concentrated around the major tourist centres, the Algarve, Lisbon, Madeira and Oporto, which cover on average 86 per cent of the market. Lisbon holds the largest stock of accommodation (a quarter of the total), of distinctly up-market level; the Algarve has one-fifth of accommodation of varying types while the island of Madeira represents the elite of Portuguese tourism with one-tenth of accommodation; the rest of Portugal has only a small-scale tourism industry. During 1965-84, there was a 35 per cent expansion in the number of higher quality hotels (Lewis and Williams, 1988). Although direct foreign investment has played a relatively minor role in developing tourist facilities, in the mid-1980s a significant amount of foreign investment was attracted into new forms of facilities, especially in the Algarve. In general, much of the Portuguese tourism industry is based on small-scale enterprises.

The economic contribution of tourism has consistently been important. Tourism receipts have grown steadily during the 1970s and 1980s (with the exception of the mid-1970s) and accounted on average for 5-7 per cent of GDP, covering approximately 13 per cent of total exports during recent years. In most years, tourism has contributed more to the balance of payments than the leading industrial sector, textiles. The Portuguese tourism industry is rather labour-intensive, due to its concentration on the upper end of the market. Although the impact of tourism on the employment has increased over time in absolute numbers, it has fallen relative to the number of tourists, reflecting a shift to self-catering holidays and self-service facilities in hotels. Employment densities appear considerably higher in Madeira, Faro and Lisbon than the rest of Portugal. Over 200,000 persons are currently employed in the tourism industry (Lewis and Williams, 1988). However, Portugal has a highly polarised regional economic structure and the economic benefits from tourism are highly concentrated in a few tourist zones.

Portuguese tourism authorities, more recently, have attempted to promote luxury tourism and keep a distance from the mass market, and priority has been given to attracting foreign tourist flows from the upper-end of the market, essentially Americans and Europeans. The role of the government has been directed towards the provision of the necessary infrastructure and towards offering substantial tax exemptions and subsidies for private investment in the sector. Among the major objectives in the 1986-89 Five Year National Plan have been the increase in foreign investment, the creation of priority zones for tourist development, the promotion of rural tourism and of tourism in historic buildings and optimum numbers of tourists have been specified for particular resorts, in order to protect them from environmental depreciation.

7.1.3.5 Short-Term Forecasts

In line with the short-term growth prospects, economic policy in Portugal is expected to be tightened and targeted towards the reduction of inflation and the public deficit. Domestic demand is anticipated to continue to exert some pressure on inflation, whereas labour cost increases may be dampened by substantial productivity gains. Changes in import prices should be moderate. As a result, increases in prices are expected to remain at around 12 per cent in 1990 and to slow to 11 per cent in 1991, despite wage increases (due to slowdown of food price increases and ease of domestic demand pressures). The main fiscal policy objective is to reduce the public deficit to 4.5 per cent of GDP (reduction in the PSBR to 3 per cent of GDP) in 1992. The current account balance is expected to show a deficit of about 2.5 per cent of GDP in 1991, although export markets should show some growth.

Monetary policy is expected to continue to be tight. Participation in the exchange rate mechanism of the EMS should provide a stable framework for monetary policy formulation. In order to maintain competitiveness, structural reforms and markets' liberalisations are expected to speed up, and may eventually reduce the excessive application of an exchange rate policy that would add to inflationary pressures. The present level of domestically-induced inflation (above the international average) requires a continued downward crawl of the escudo. The 0.25 per cent monthly rate of escudo depreciation in 1989 is anticipated to continue in 1990, although some erosion in competitiveness may still be experienced. On the basis of the economic developments discussed earlier, it is assumed that inflation will increase by 12 per cent in 1990 and by 11 per cent in 1991 (OECD Economic Outlook, Vol. 47, 1990, Table: Portugal, p. 105). The nominal exchange rate relative to the US dollar is anticipated to be at 150.2 in 1990 and at 154.8 in 1991 (OECD Economic Outlook, Vol. 47, 1990, Table 57, p. 140). The figures discussed above are summarised in Table 7.1, presented at the end of this section, and will be used subsequently for the calculation of the steady state values of tourism demand.

7.1.4 ITALY

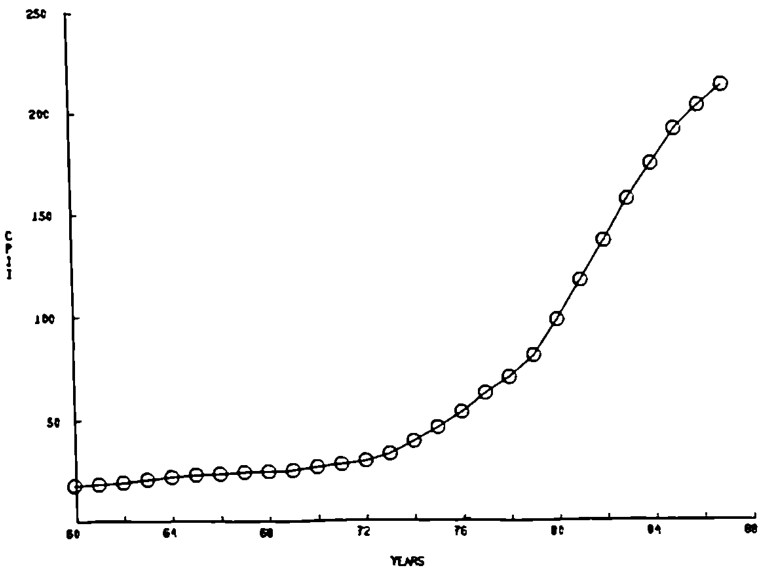
7.1.4.1 Overview

For the sixth consecutive year, in 1989, the Italian economy experienced economic growth rates around the highest in Europe (GDP growth around 3.5 to 4 per cent). However, despite the implementation of significant structural policy measures (related to labour and financial markets as well as to the public sector), imbalances still characterise the economy. The two major economic problems, large public sector deficits and severe regional discrepancies in economic performance, are still far from being alleviated. Furthermore, the inflation slowdown over the last years came to an end towards late 1987 with a rise in consumer prices of nearly 5 per cent. Similarly to other OECD countries, inflation accelerated between 1988 and 1989, rising to 6.5 per cent. Moreover, the current account deficit increased sharply to 1.3 per cent of GDP.

7.1.4.2 Inflation

An eight-year period of disinflation with average consumer price increases of 4.5 per cent came to an end towards late 1987. Figure 7.4a illustrates the upward trend in the consumer price index in Italy for 1960-1987.

Figure 7.4a: CONSUMER PRICE INDEX IN ITALY



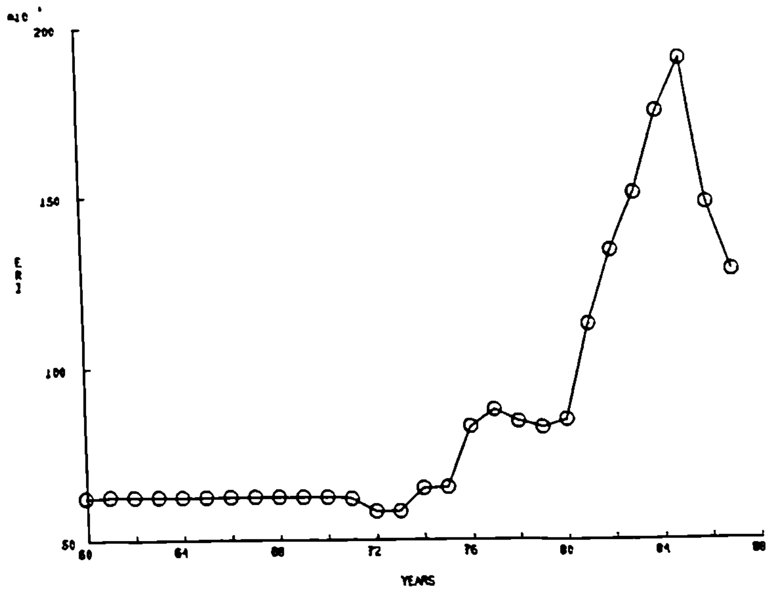
Consumer prices accelerated from 5 per cent in 1987 to 6.5 per cent in 1989 and, during late 1988 and early 1989, Italy experienced a further upward trend in inflation with price increases of 7 per cent, (in line with similar experience in other OECD countries, though occurring more sharply in Italy). This was the result of growing demand pressure, accelerating food and energy prices, the raising in VAT rates and increases of some public tariffs. The index of relative consumer prices expressed in common currency rose by 25 per cent in 1985-89, considerably worsening Italy's competitiveness. External factors also contributed to price increases. World non-energy industrial raw material prices rose by 25 per cent in 1988. The initial impact of imported inflation explains more than half of the acceleration in producer prices for 1988-89. Italy's competitiveness was also hampered by the real lira appreciation since 1985.

Labour costs accelerated from the mid-1988, partly due to an increase in employers' social insurance contributions. Wage bargaining procedures have changed in recent years (despite some inflexibility in the highly centralised wage formation mechanism) and industrial relations have improved; wage setting, though, was around inflation rates. The 1988 upward trend of real wages, however, slowed in 1989 as inflation accelerated. Rapid productivity gains slowed in early 1989 and this impeded their adjustment to contain unit labour cost increases (contrary to the 1982-88 practice). Although the performance of inflation has been largely attributable to external influences, the main source of structural causes of inflation remains the public sector deficit. The general government borrowing requirement declined from a peak of 12.5 per cent in 1985 to 10.5 per cent in 1989 but is showing an upward trend.

7.1.4.3 The Exchange Rate

During the second half of the 1970s, the depreciation of the lira allowed exports to maintain their international competitive position, in spite of sharp labour cost increases. The monetary authorities had pursued a flexible exchange rate policy, with the real effective rate declining by almost 15 per cent between 1973-78. From 1982 stricter exchange rate policy was targeted towards reducing inflationary pressures. Higher interest rates and the consequent real appreciation of the lira exerted downward pressure on inflation. Since then, monetary policy has been strongly influenced by exchange rate pressures. Figure 7.4b shows the lira/dollar nominal exchange rate for 1960-1987.

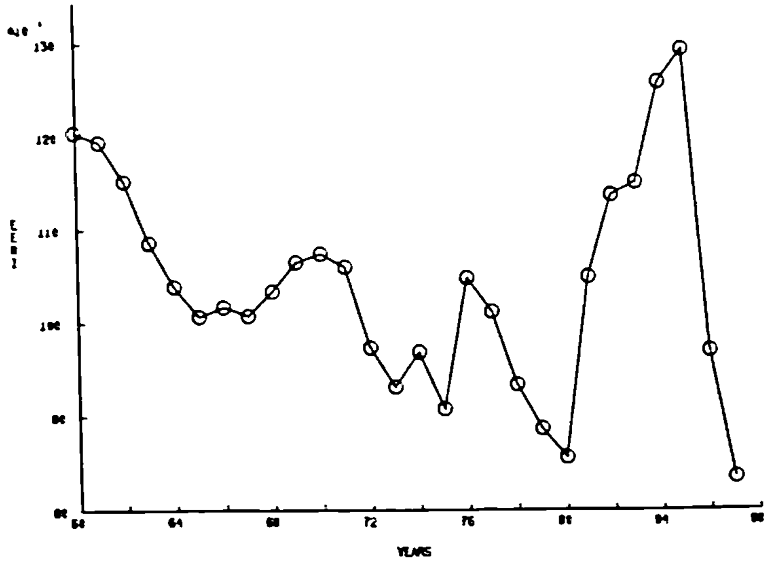
Figure 7.4b: ITALIAN LIRA/US DOLLAR NOMINAL EXCHANGE RATE



Periodic realignments within the exchange rate mechanism (ERM) of the EMS led to a significant nominal depreciation of the lira against the ECU but did not reverse the earlier real appreciation. Monetary and exchange rate policy objectives have remained consistent since the early 1980s, aiming to reduce inflation (narrowing the differential between Italy and its main trading partners) and to maintain exchange rate stability. The foreign exchange rate market volatility, however, in combination with frequent and sharp changes in expectations about the lira, induced capital movements. This led to considerable capital inflows after the January 1987 EMS realignment and the anticipation of a stable lira and high interest rates.

Overall, the effective exchange rate fell by 5.5 per cent in nominal terms between early 1987 and late 1988. The lira depreciated by 7.3 per cent against the dollar and 4.4 per cent against the deutschemark; the real effective lira exchange rate (deflated by consumer prices), though, was generally stable, until it started falling by 3.2 per cent in early 1988. Figure 7.4c illustrates the lira/dollar real exchange rate for 1960-1987.

Figure 7.4c: ITALIAN LIRA/US DOLLAR REAL EXCHANGE RATE



Exchange rate control relaxation was applied in 1988. In 1988 and 1989, the Bank of Italy's measures to control money creation (increase in interest rate differentials between Italy and its partners) induced significant short-term capital inflows, which exerted upward pressure on the lira. This development decreased inflation. Between 1988 and 1989, the lira appreciated steadily against the other European currencies, rising by 3.6 per cent against the ECU and the deutschemark; during the same period, however, the lira fluctuated considerably against the dollar, falling on average by 1 per cent. The lira's nominal effective exchange rate rose by 3.2 per cent over the same period, and the lira's real effective exchange rate rose by nearly 4 per cent, worsening Italy's competitiveness mainly relative to the European economies.

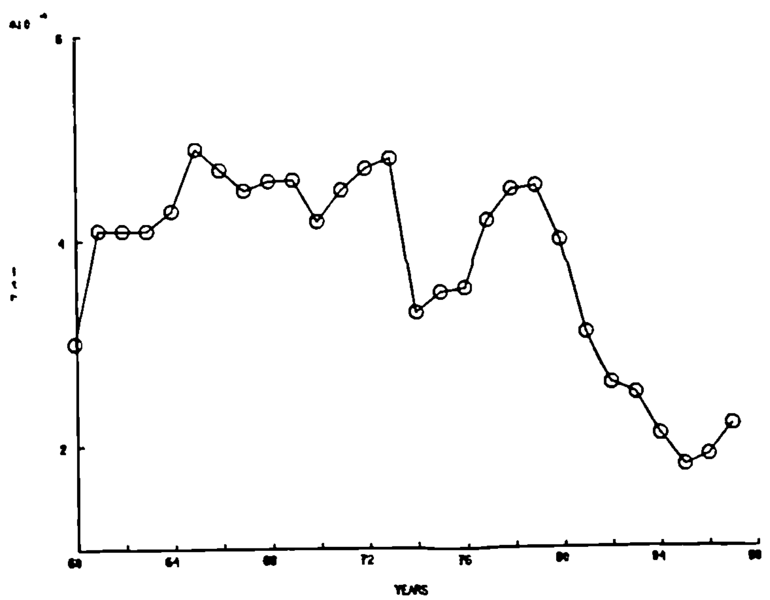
From late 1989, however, the upward trend of the lira in foreign exchange markets was reversed. Largely responsible for this development was the freezing of interest rates in Italy, contrary to the general upward trend in European interest rates. Between late 1989 (the lira's parity peak in the ERM) and early 1990, the lira decreased by 4.6 per cent against the deutschemark and other European currencies. When the lira's margin of fluctuation was reduced (in early 1990) from 6 to 2.2 per cent, the authorities confirmed the lira's earlier depreciation by adjusting its central rate downwards by 3.7 per cent. The fact that Italy joined the narrow exchange rate band of the ERM is an important step towards European integration and points towards a decrease in inflation differentials relative to the ERM member countries, a reduction in the public debt burden, a more stable lira and a more disciplined exchange rate policy, but, on the other hand, may induce more frequent adjustments of interest rates.

The appreciation of the lira in 1989 led to a loss in Italy's competitiveness relative to its European trading partners which, in combination with worsening terms of trade (a very steep rise in import prices, largely induced by energy price increases), resulted in a trade deficit increase of 0.1 per cent of GDP. The invisibles balance has been worsening steadily since 1983 and moved into a deficit in 1986 that reached 1 per cent of GDP in 1989. It was mainly tourism earnings (but also government transfers and investment earnings) that were adversely affected. The tourism account deterioration was due to constant tourism earnings between 1985-89 and to more than doubled spending by Italians abroad. The combined effect of the worsening trade and invisibles balance induced a widening current deficit that was around 1.3 per cent of GDP in 1989.

7.1.4.4 The Tourism Sector

Italy is one of the oldest and most well established tourist destinations internationally. Despite the fact that, in the past, only the elite or tourists interested in culture were attracted to Italy, over recent years the mass tourism market has also discovered the variety of Italian touristic attributes. It is a distinctive fact, however, that Italian tourism has been developed and expanded in a way that has not become counter-productive. Italy experienced rapid increases in tourism growth rates during the 1950s. Nevertheless, an adverse impact was apparent during the domestic inflationary problems in 1963 and between the two oil crises; in all cases, however, recovery came rather fast and an overall upward trend in the growth of tourism flows was seen. Italy was generally attractive until the late 1970s. In the 1980s, signs of stagnation were experienced and this may have been partly related to issues such as the rising value of the Italian lira, the increasing cost of living, industrial strikes, urban terrorism and increasing competition from other Mediterranean destinations. Diversification of the Italian economy towards industrialisation and rather away from tourism has been attempted. Figure 7.4d presents real per capita Italian tourism receipts for 1960-1987.

Figure 7.4d: REAL RER CAPITA ITALIAN TOURISM RECEIPTS



Tourism, however, has remained a crucial sector of the Italian economy. The contribution of receipts from foreign tourism has covered between half and two-thirds of the visible trade deficit in recent years. Direct and indirect employment in tourism accounted for 5.8 per cent of the total national labour force in 1984 (King, 1988). The diverse nature of Italian tourism results in widespread economic effects which are of benefit not only to the coastal resorts. The importance of tourism induces indirect effects on certain categories of manufactured goods, such as power boats, beach apparatus and ski equipment. As King (1988; p. 75) notes, the fragmented structure of the Italian tourism industry and the low degree of foreign capital involvement results to tourism being well integrated with local and regional economies. However, the policy-makers' intention to promote tourism in the South, in order to advance Italy's regional economic development, has not been followed by particularly satisfactory results. Domestic tourism still plays a greater role in the South than in the country as a whole.

The largest part of tourist attractions and tourist supply is concentrated in the northern part of Italy while the South is much less developed for tourism, creating, thus, spatial dualism in the economic geography of Italy (the North being economically more advanced). The most popular destinations are in the Ligurian Riviera and Adriatic Riviera. The Neapolitan and Amalfitan coasts of Campania, the north-east corner of Sicily and the Sardinian Costa Smeralda also attract dense tourist flows. Among the most famous historic sites, Venice, Florence, Rome, Turin, Parma and Pisa are included (King, 1988). The region of Trentino-Alto Adige is most popular with Germans; the French prefer Lombardy, Venetia and Tuscany and also Piedmont, Aosta Valley, Sicily and Umbria; the Swiss concentrate more on Venetia, Tuscany, Lombardy and Emilia Romagna; Americans prefer Tuscany and Venetia (International Tourism Quarterly, 1978). The nationalities of tourists cover a wide range from Europe, North America, Australia and Japan. West Germany, however, is a major origin country, covering on average 31 per cent of tourist arrivals and 44 per cent of foreign overnights in the 1980s. The share of tourist flows originating from France and Switzerland are also important. Nevertheless, it is the US tourist flows that contribute even more than West Germany to Italian tourism receipts, underlining the high consumption propensity of Americans. During the 1966-75 period, the number of tourist overnight stays increased by 47 per cent but during 1976-85 by only 17 per cent. Some decline in the growth rates of bed-nights spent by Danish, Swedes and Americans was experienced. Northern European tourists show, on average, longer stays than Southern European tourists.

The supply of tourist accommodation in Italy is the most extensive and developed compared with other European countries and is classified into two broad sectors: hotel and non-hotel accommodation (King, 1988). In general, the accommodation sector is characterised by medium-sized and small family-run hotels and only recently have some hotel chains emerged. Mass tourism in Italy has always been less important, compared with Spain, and heavy foreign investment in large hotels, filled with tourists arriving on cheap charter flights, have always been kept within reasonable limits. It is basically on the Adriatic coast and on the Ligurian Riviera that infrastructure for the mass market appears. Nevertheless, there is regional variation in the growth of tourism accommodation. Despite the stronger growth trends in the South and weaker in the North-West and Central Italy, the supply of accommodation in the former region has concentrated on campsite accommodation but overall supply lags behind demand. The most serious problem in the accommodation sector is the low utilisation indices, due to seasonality and despite strong growth trends in winter (skiing, mountaining) tourism. For the future, it is unlikely that high tourism growth rates will be experienced but rather that stability will continue.

7.1.4.5 Short-Term Forecasts

Economic growth during 1990-92 is anticipated to be robust. Although nominal exchange rates are expected to be generally unchanged relative to the level prevailing at the end of 1989, inflation is expected to slow down. The differential relative to other European countries may not narrow considerably, taking into account current economic policies and price and wage developments. Private consumption is likely to increase, due to the upward, though limited, trend in private and public sector wages (following the renewal of the collective wage agreements). The increased budgetisation of social insurance contributions will restrain wage costs. Furthermore, considering the slowdown of prices at the end of 1989 and start of 1990, consumer price inflation is anticipated to be around 6.0 per cent in 1990 and just over 5.5 per cent in 1991, this development being in accordance with the import price slowing. The terms of trade should cease worsening in 1990 and the current account deficit is anticipated to be less than 1 per cent of GDP in 1990 and 1991.

The general government deficit may be held at about 10.4 per cent of GDP in 1990 (with a reduction of general government borrowing requirements to 7.4 per cent of GDP in 1992). Fiscal policy is anticipated to be restrictive following the decision, which accompanied the lira depreciation, to temporarily freeze expenditures. Regarding monetary policy, the introduction of a narrow fluctuation band for the lira in the ERM may result in a slight decrease in interest rates, corresponding to the reduction in exchange rate risk. Considering the above economic developments, it is assumed that inflation (as measured by consumer prices) will increase by 6.1 per cent in 1990 and by 5.6 per cent in 1991 (OECD Economic Outlook, Vol. 47, 1990, Table: Italy, p. 76). The nominal exchange rate relative to the US dollar is anticipated to be at 1241 in 1990 and at 1237 in 1991 (OECD, Economic Outlook, Vol. 47, 1990, Table 57, p. 140). These figures are summarised in Table 7.1, at the end of this section, and will be used subsequently for the calculation of the steady state values of tourism demand.

7.1.5 TURKEY

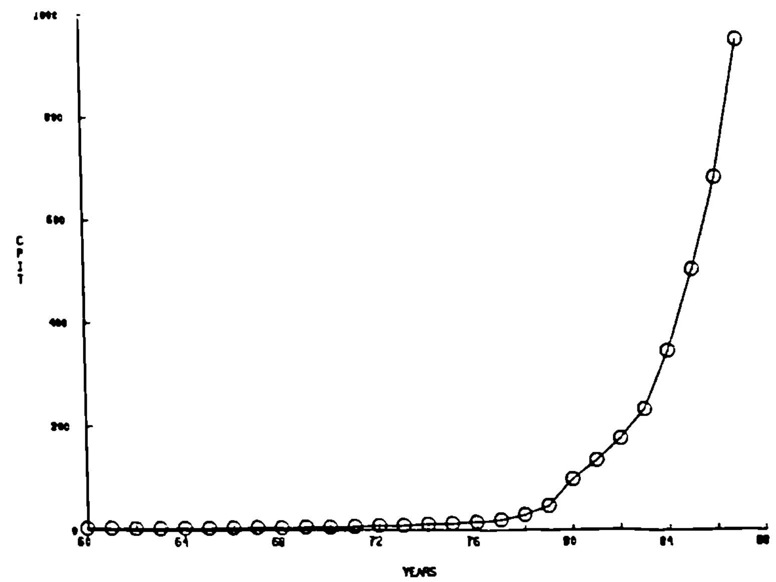
7.1.5.1 Overview

For nearly the last twenty years, Turkey pursued its economic development following inward-looking policies. In the mid-1970s, after the second oil crisis, Turkish economic programmes continued to be expansionary but were clearly unsuitable to the rapidly changing external environment. In 1977, foreign debt service could no longer be assured and Turkey experienced a balance of payments crisis accompanied by recession. At the beginning of 1980, Turkey adopted a comprehensive economic adjustment programme, which focused on the structural reform of the economy and particular attention was given to the trade system, financial markets and the public sector. The economic policies departed considerably from market intervention, import substitution and heavy dependence on the public sector, towards a market-oriented approach. The measures undertaken were related to improving the performance of public enterprises, reforming the tax system, decentralising decision-making and setting realistic interest rates and a competitive exchange rate.

7.1.5.2 Inflation

Despite the fact that the economic policies adopted in the 1980s contributed to a successful transformation of the economy, failure to control inflation over the years has been one of the major weaknesses of Turkish economic strategy. Despite the sharp decline of inflation from three-digit rates in the early 1980s (from 110 per cent in 1980 to about 30 per cent in 1985), inflation has shown an increasing trend throughout most of the decade. Following the "broker crisis" in 1982 (which was related to a liquidity crisis experienced by the financial system), authorities attempted to dampen inflation by manipulating the term structure of interest rates. However, inflation increased sharply at the end of 1987, owing to a sharp increase in public sector prices and the impact of strongly expansionary monetary and fiscal policies. Figure 7.5a illustrates the consumer price index in Turkey for 1960-1987 and depicts the steep increase it experienced after the second oil crisis.

Figure 7.5a: CONSUMER PRICE INDEX IN TURKEY



Wholesale and consumer prices continued to increase during 1988 (due to higher costs of credit and higher indirect taxes), despite the tightening of monetary and fiscal policies (aiming to reduce the public sector deficit and to control the more liquid component of money supply), and inflation peaked at the end of 1988. The slowdown of domestic demand, due to the tight policies applied, had a dampening effect on price rises, resulting in a decline of inflation in the first half of 1989. However, public enterprise prices and agricultural support prices were increased sharply in mid-1989 and (in combination with the sharp rise in food prices caused by the drought, and the strong increase in unit labour costs following high wage increases), inflation reached around 75 per cent at the end of 1989.

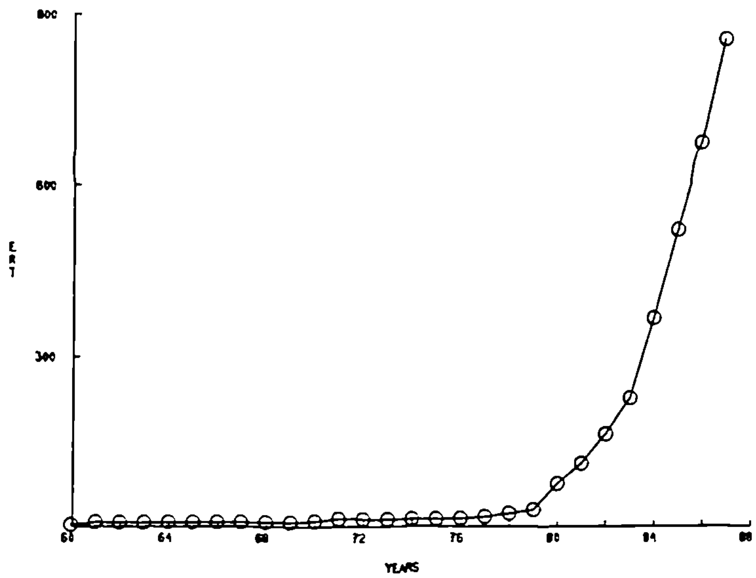
Public sector deficits (6.5 per cent of GNP in 1989) have been particularly important in sustaining high inflation. The PSBR was reduced to around 5 per cent in 1989 (due to a reduction of the central government deficit, savings from the abolition of most export subsidies and increased tax receipts through improved tax collection). Regarding the impact of wages on inflation, whereas the policy of wage restraint in the 1980s contributed to the improvement of cost-competitiveness and to the increase in exports, it does not seem to have prevented upward inflationary trends. (The real wage losses of the 1980s can be attributed to the weakened bargaining power of trade unions). In Turkey, collective wage agreements usually run for two years, providing a predetermined adjustment of wages at the beginning of the second year for anticipated inflation. In 1989, wage negotiations resulted in strong nominal wage rises.

The impact of import prices on inflation was demonstrated vividly in 1986, when a fall in import prices led to considerable domestic disinflation. The exchange rate policy of managed floating of the Turkish lira, applied until late 1988 in order to maintain price competitiveness of exports, indicated the difficulties of domestic price stabilisation via the exchange rate mechanism. More than one half of the average change of the current supply price inflation may be related to changes in non-wage incomes; one fifth to higher import prices (due to the nominal depreciation of the lira) and one-tenth to indirect taxes; finally, one-tenth of overall inflation can be related to the impact of wage costs (OECD, National Economic Surveys: Turkey, 1989/90).

7.1.5.3 The Exchange Rate

Significant real currency depreciation, in combination with incentives for exports, have frequently been used as measures to encourage export promotion over recent years. In 1980, the Turkish lira was devalued by 33 per cent and, from 1981 onwards, daily adjustment of the nominal exchange rate was introduced. Figure 7.5b shows the lira/dollar nominal exchange rate for 1960-1987.

Figure 7.5b: TURKISH LIRA/US DOLLAR NOMINAL EXCHANGE RATE

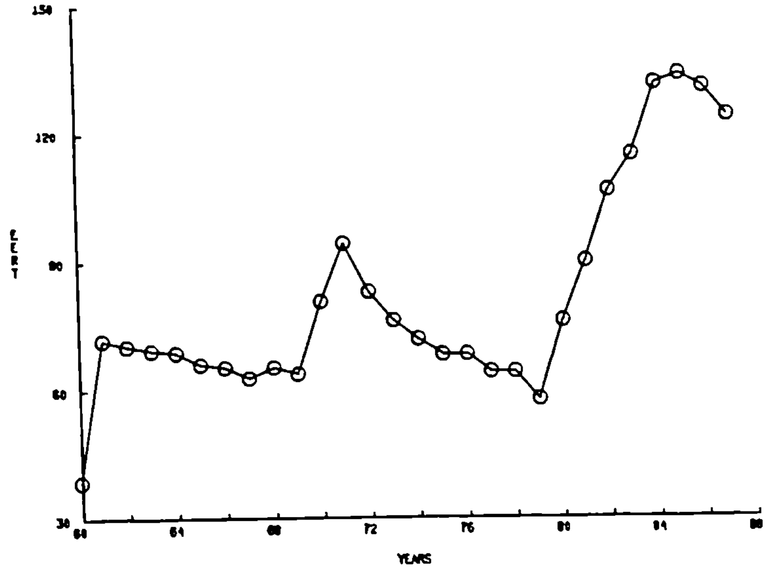


The managed floating of the Turkish lira led to gradual depreciation of the real effective exchange rate by 6 per cent annually on average during 1982-87. Exchange rate policy was given primary importance for trade promotion and export subsidies were reduced in 1984. Price competitiveness improved substantially whenever the real effective exchange rate (the trade-weighted relative consumer price index in common currency) depreciated (by 16 per cent in 1986 and by 5.5 per cent in 1987).

The liberalisation of the currency markets, however, has been affected by high government financing requirements and consequent inflation. Removal of controls on capital movements during periods of high inflation and negative real interest rates induced capital outflows. The outcome of efforts to limit these outflows was that the level of interest rates was significantly higher than that in international markets. However, when interest rates on domestic assets exceeded those on foreign assets, capital inflows led to the appreciation of the exchange rate. Generally, the stability of the real effective Turkish lira remains the main target of monetary policy. The exchange rate regime has been reformed recently and in the mid-1988 a system of partial market setting of the official exchange rate was introduced. The exchange rate was made freely negotiable between authorised parties for transactions above US dol. 50,000. Commercial banks were authorised to engage in overseas trading of the national currency in selected countries. All these developments represent, according to the Turkish authorities, one step before the achievement of full convertibility of the Turkish lira. The partial freeing of the exchange rate has led to a slowdown in the depreciation of the Turkish lira, and this has also been related to robust foreign exchange inflows, as a result of political developments in the Middle East[1] and the tourism boom.

In 1989, the improved balance of payments performance and the high positive interest rate differentials of Turkish lira time deposits relative to foreign exchange deposits put upward pressure on the lira exchange rate. This contributed to a considerable real effective appreciation of the lira in the first half of 1989 (up by 8.8 per cent year-on-year in the second quarter) and resulted in the intervention of the Central Bank in foreign exchange markets. Despite the fact that the recent easing of exchange controls may amplify exchange rate movements in the short-run, it is anticipated to reduce the overshooting of the real exchange rate over time. Figure 7.5c illustrates the lira/dollar real exchange rate for 1960-1987.

Figure 7.5c: TURKISH LIRA/US DOLLAR REAL EXCHANGE RATE



[1] At the time of writing the Golf crisis had not occurred yet and, therefore, has not been included in the discussion.

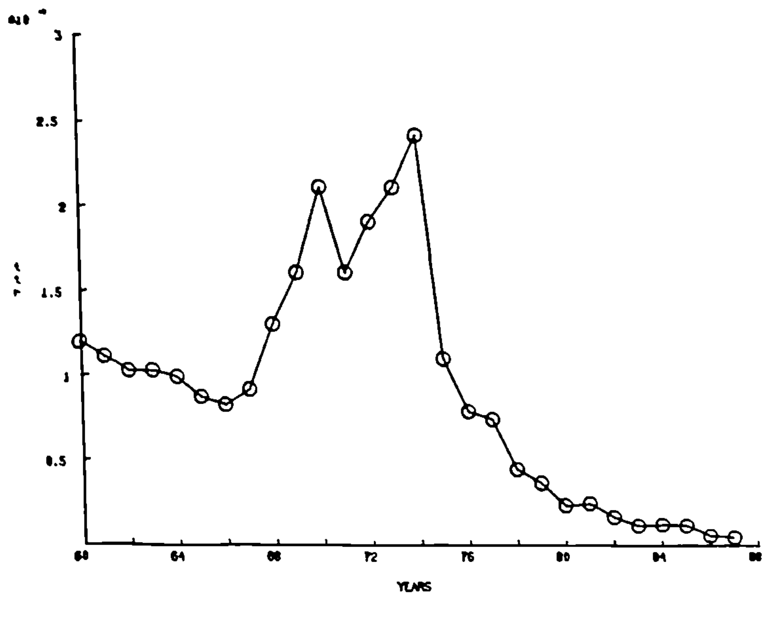
In the first half of 1990, the lira depreciated by 14.5 per cent against the dollar (according to official rates).

The negative effect on price competitiveness of the real effective appreciation of the Turkish lira, the abolition of export subsidies, the faster growth of imports than domestic demand and special factors (drought and Iraq's payments problems) resulted in a negative real foreign balance in 1989. Nevertheless, due to robust activity in the service sector, the current account surplus remained at 1.2 per cent of GNP. The considerable surplus of the services balance, after continuous deficit for twelve years, was due primarily to substantial tourism receipts, although some fluctuation of tourism receipts was experienced in the first half of 1989 (despite increases in tourist arrivals).

7.1.5.4 The Tourism Sector

Turkey has most recently entered the range of popular destinations in the Mediterranean starting, however, from a low initial level of tourism development. High transport costs and lack of publicity have been obstacles to Turkish tourism promotion in the past. Moreover, long periods of political instability, national economic difficulties and mistaken investment priorities have delayed the growth of the tourism sector (International Tourism Quarterly, 1977). International tourist arrivals grew at a rate of 15.7 per cent in 1981-85, whereas tourist nights spent in all accommodation grew at a rate of 34.7 per cent in the same period, far surpassing the growth rates of the other Mediterranean destinations. Figure 7.5d presents the fluctuations in real per capita Turkish tourism receipts for 1960-1987.

Figure 7.5d: REAL PER CAPITA TURKISH TOURISM RECEIPTS



Considering intra-Mediterranean tourism flows shifts, Turkey nearly doubled its share of tourist arrivals between 1980 and 1985 from 7.0 to 12.0 per cent of total foreign tourist arrivals in the Mediterranean (WTO, 1988). This eastward shift was mainly at the expense of Spain and Italy. Foreign tourists to Turkey originate mainly from West Germany, the United Kingdom, France and the USA but also from the neighbouring Balkan and Arab countries. According to the Turkish tourism authorities, foreign tourists to Turkey can be geographically divided into four main categories: OECD countries, other European countries (eg. Bulgaria, Poland), the Middle East (eg. Iraq, Iran, Syria) and Latin America. The first category, however, holds a share of 60 per cent of the total (Uysal and Crompton, 1984). Tourists originating from Europe increased their average length of stay in Turkey from 2.8 nights in 1985 to 3.3 nights in 1987 but tourists from North America showed a downward trend from 3.0 nights in 1985 to 2.8 nights in 1987 (OECD, 1989).

The contribution of tourism to the economy has been considerable. The growth of tourism receipts, for 1959-70, has been greater on average than for the world as a whole but these increases started from an initially low level. Throughout most of the period, the growth in receipts was lower than the growth in arrivals. Substantial exchange leakages into a large black market were excluded, however. The growth rate of tourism receipts in real prices in 1975-85 was on average 13.8 per cent. The contribution of receipts from international tourism to both the GDP and export earnings of Turkey has been substantial, growing steadily over the past fifteen years. While in 1970 international tourism receipts accounted for 0.4 per cent of GDP, their share rose to 1.6 per cent of GDP in 1986. Tourism receipts more than quadrupled their share of total Turkish exports of goods and services over the period 1965-1986, from 2.1 per cent (1965) to 8.8 per cent (1986) (OECD, 1988). As regards employment creation, the effects of tourism have not been as satisfactory as had been anticipated and this is reflected in the relatively low labour-capital ratio of the industry (Diamond, 1977), though serious statistical inadequacies should also be taken into account. The high numbers of unqualified personnel as well as the high seasonality of the sector are major problems for Turkish tourism.

The 1960s and 1970s Five-Year National Plans have been criticised as placing too much emphasis on the development of a sector servicing the mass market; mass tourism development had not attained the level anticipated and investment had been over-ambitious (International Tourism Quarterly, 1977; p. 37). The 1974 Cyprus affair adversely affected the relations of Turkey with Cyprus and Greece and created severe tension and instability in the Aegean Pelagos. Communications between the Turkish mainland and the Greek islands have been hindered and prevented Turkey from benefiting from the growing tourist flows to neighbouring Greece. Apart from this, since 1970, Turkey had a serious internal political crisis, with periods of military government and martial law and long-lasting social and political unrest. This unstable environment adversely affected not only international tourism demand but also the attitudes of foreign investors and tour operators. In the late 1970s, tourism was paid increasing attention in economic policy (following an increasing trade deficit and a fall in world demand for Turkey's traditional commodity exports). Nevertheless, tourism growth rates declined as prices increased sharply due to high inflation and strikes. This resulted in the closure of hotels and other tourist amenities in the late 1970s. In the 1980s, some internal economic and political stability was imposed and the tourism industry was revitalised (Uysal and Crompton, 1984; p. 289), although hotel and consumer prices increased at growth rates of 61.5 and 52.4 per cent respectively for 1980-85 on average (OECD, 1988).

In recent years, the Turkish government has invested significant funds in promoting international tourism. Measures, including substantial incentives, were introduced to attract foreign investment and credit of up to 60 per cent of the investment for priority areas was offered to tourism projects. Areas of major touristic interest were the coastline from Canakkale-Balikesir on the Sea of Marmara, along the Aegean and Mediterranean coast to the border between the provinces of Antalya and Mersin. Five priority centres were designated: Antalya, the coastline of Mugla Province, Kusadasi, the Eastern Turkish locations Adiyaman and Van and some inland national parks (International Tourism Quarterly, 1977). However, with the explosion of tourist flows to Turkey during the 1980s, severe pressure was placed on the inadequate infrastructure. Another problem of Turkey is not so much the lack of hotel beds as the low standard of much of the accommodation as well as unqualified personnel. For the future, the high growth rates that Turkish tourism has experienced during recent years are expected to continue, since the country is rich in tourism resources to be developed. Turkish tourism authorities, however, show some caution as regards the expansion of the sector towards large-scale development of mass tourism, in order to avoid potential problems (as, for example, in the case of Spain).

7.1.5.5 Short-Term Forecasts

Economic policy objectives are anticipated to be unchanged in the short-term. The main target of monetary policy remains the stability of the Turkish lira in real effective terms. Inflation may decline somewhat in 1990 and 1991, following the slowdown of the economic activity, the import tariff reduction and the recent real appreciation of the lira, although positive real wage growth may be experienced. The average inflation rate for 1990 is expected to surpass the 60 per cent level. The Sixth Five-Year Plan, for the 1990-94 period, is characterised by the continuation of the outward-oriented development strategy introduced in 1980 and the liberalisation of the economy by increasing reliance on market forces. Major objectives include the reduction of inflation to around 30 per cent in 1994; the reduction of the PSBR to 2 per cent of GNP in 1994; and, a sustained current external surplus for the whole period, increasing to 4 per cent of GNP in 1994. Tourism receipts are to continue to grow over the short-term (contributing to a current account surplus of around 1/4 per cent of GNP in 1990). Based on the economic developments discussed earlier, it is assumed that inflation will increase by 62 per cent in 1990 and by 52 per cent in 1991 (OECD, Economic Outlook, Vol. 47, Table: Turkey, p. 111). The nominal exchange rate relative to the US dollar is anticipated to decrease and be at 2971 in 1990 but at 4150 in 1991 (OECD Economic Outlook, Vol. 47, Table 57, p. 140). These figures are included in Table 7.1, at the end of this section, and will be used subsequently for the calculation of the steady state values of tourism demand.

7.2 THE TOURIST ORIGIN ECONOMIES

In this section, a brief background of the tourist origin economies considered in this thesis (the UK, West Germany, the USA, France and Sweden) is discussed. Emphasis is placed on recent (1987-1989) economic trends regarding disposable incomes and inflation and recent changes in exchange rates. The analysis will provide a useful framework for the forecasts of these variables, in the context of recent economic developments. These forecast values, in combination with the forecast values obtained in the preceding section (about the Mediterranean economies), will subsequently be used to calculate the steady state predictions of tourism demand.

7.2.1 THE UNITED KINGDOM

The balance between demand and output improved in 1989. GDP growth, however, slowed to a rate around 2 per cent. Slow increase of GDP growth is anticipated in 1990 but it is likely to remain considerably below the growth of potential output in 1991 due to current fears of recession. Disposable income increased at a rate of 10.6 per cent in 1989 and is anticipated to increase by 6.6 per cent in 1990 and by 6.9 per cent in 1991 (OECD Economic Outlook, Vol. 47, 1990, Table: United Kingdom, p. 84) (Table 7.1).

Inflationary pressures persisted and followed an upward trend in 1989, stabilising at high levels and rising even further in recent months. The tightening in labour market conditions put upward pressure on wages and the rise in unit labour costs accelerated. With the growth in unit labour costs picking up and import prices higher as a result of the lower exchange rate, inflation is likely to remain high in the short-term (higher than that in trade partner countries). Inflation is anticipated to increase by 4.5 per cent in 1990 and by 5.3 per cent in 1991 (OECD Economic Outlook, Vol. 47, 1990, Table: United Kingdom, p. 81) (Table 7.1).

Sterling was characterised by vulnerability in 1989. The slow pace of external adjustment induced downward pressure on the sterling exchange rate. However, although partly reflecting the renewed strength of the US dollar, the speed and scale of the fall in sterling in mid-1989 were such as to threaten the government's anti-inflationary policy, and provoked an increase in interest rates;

subsequent downward pressure on the exchange rate was countered by official intervention. More recent developments in 1990, such as the indications of the authorities' intention to participate eventually in the EMS exchange rate mechanism (March 1990 Budget), induced some upward pressure on sterling. Although initially the nominal exchange rate relative to the US dollar was anticipated to be at 0.608 in 1990 and at 0.609 in 1991 (OECD, Economic Outlook, Vol. 47, 1990, Table 57, p. 140), it may ultimately be the case that the nominal exchange rate relative to the US dollar may be somewhere around 1.800 in 1990 and 1.700 in 1991 (Table 7.1).

7.2.2 WEST GERMANY

West Germany has entered a phase of output growth markedly higher than that of potential. The economy expanded rapidly in 1989 and GDP growth was at 2 to 2.5 per cent in the first quarter of 1990. It is expected to continue upwards, although some slowdown may be experienced in 1991. Disposable income increased at a rate of 4.5 per cent in 1989 and is anticipated to increase by 7.7 per cent in 1990 and by 6.3 per cent in 1991 (OECD Economic Outlook, Vol. 47, 1990, Table: Germany, p. 66) (Table 7.1).

Inflation was moderate in 1989, increasing slightly due to indirect tax increases and a temporary boost in import prices. Consumer price increases were at a rate of around 3 per cent. Despite its upward trend, inflation is expected to stabilise in the short-term. Moderate acceleration of wages is expected in 1990; movements in unit labour costs, however, signal an end to a period of two years of low domestic cost pressure. On the prediction of some slowdown in import price increases, and with no further increases in indirect taxes, inflation is anticipated to increase by 2.6 per cent in 1990 and by 3.3 per cent in 1991 (OECD Economic Outlook, Vol. 47, 1990, Table: Germany, p. 64) (Table 7.1).

The depreciation of the deutschemark effective exchange rate, started in 1988, reached its lowest point in October 1989. The weakening of the deutschemark was considerable, especially relative to the US dollar (owing partly to high interest rates in the US), affecting domestic inflation. However, changes took place at the end of 1989, related to events in Central and Eastern Europe as well as to alterations in interest differentials relative to the US and the dollar also weakened. Influenced by these developments, exchange rate fluctuations against EMS currencies took place, dampened by intervention; by April 1990, the deutschemark had appreciated on average by 1 per cent since September 1989. Despite the slight appreciation of the deutschemark in early 1990, a stable exchange rate is anticipated to prevail in 1991. The nominal exchange rate relative to the US dollar is anticipated to be at 1.688 in 1990 and at 1.687 in 1991 (OECD Economic Outlook, Vol. 47, 1990, Table 57, p. 140) (Table 7.1). On the whole, it should be noted that the predictions on West Germany must be treated with caution, owing to economic and monetary union with the German Democratic Republic; the overall impact of this union is rather difficult to assess.

7.2.3 THE UNITED STATES

Economic growth in the US slowed to 2.5 per cent in 1989, partly due to the gradual tightening of monetary policy which started in mid-1988. In the first half of 1990, the economy grew at around 2 per cent and the expansion is expected to continue. On the prediction that fiscal and monetary policy will continue to be restrictive, economic growth in 1990 and 1991 is likely to be moderate at around to 2 to 2.5 per cent. Disposable income increased at a rate of 8.8 per cent in 1989 and is anticipated to increase by 7.0 per cent in 1990 and by 6.6 per cent in 1991 (OECD Economic Outlook, Vol. 47, 1990, Table: United States, p. 56) (Table 7.1).

Inflation increased by a rate of 4.5 per cent in 1989. Wage inflation accelerated through 1988 but in 1989 the upward trend moderated, since labour market pressures eased. Unit labour costs increased in 1989 at a rate of 4.5 per cent. Price inflation was rather volatile and inflation was pushed upwards by increases in food and energy prices. Nevertheless, inflation is expected to stabilise and increase by 4.8 in 1990 and by 4.6 in 1991 (OECD Economic Outlook, Vol. 47, 1990, Table: United States, p. 53) (Table 7.1).

Tight monetary policy in 1989 has contributed to the general firmness of the dollar, which indicated financial markets' confidence that inflation will be contained. Since appreciation of the currency could undermine external adjustment, considerable intervention occurred during most of 1989 to control the dollar's rise. Further upward pressure on the dollar may induce relaxation of monetary policy, which could adversely affect inflation.

7.2.4 FRANCE

The economic performance of France improved in 1989, continuing the satisfactory performance since 1987. Real output grew rapidly and real GDP growth was at 3.0 per cent. Current economic conditions indicate sustained growth at around 3 per cent in 1991. Disposable income increased at a rate of 6.8 per cent in 1989 and is anticipated to increase by 6.5 per cent in 1990 and by 5.7 per cent in 1991 (OECD Economic Outlook, Vol. 47, 1990, Table: France, p. 72) (Table 7.1).

The favourable differential in consumer price inflation between France and its EC partners ("competitive disinflation") continued to increase in 1989. Due to labour market tightening, wage increases accelerated moderately to 4 per cent. Some acceleration was also seen in food prices. However, the annual increase in the consumer price index was at around 3.5 per cent, because of falling prices for energy and public services and reductions indirect taxes; as a result, inflation stabilised in 1989. Consumer price inflation should maintain a slowly declining trend, due to declining import prices (effective appreciation of the franc) and further reductions in indirect tax rates and unit labour costs. Inflation is anticipated to increase by 3 per cent in 1990 and by 2.8 per cent in 1991 (OECD Economic Outlook, Vol. 47, 1990, Table: France, p. 71) (Table 7.1).

Further reduction of inflation will partly depend on maintaining a stable exchange rate within the ERM of the EMS. Monetary policy has been firmly directed at the nominal stability of the franc within the ERM and should bring about a reduction in inflation expectations. The commitment to a strong and stable franc policy has also served to restrain wage and price setting. In 1989, the franc was broadly stable, whereas, at the beginning of 1990, growing pressure on the franc led to monetary policy tightening. The nominal exchange rate relative to the US dollar is anticipated to be at 5.676 in 1990 and at 5.656 in 1991 (OECD Economic Outlook, Vol. 47, 1990, Table 57, p. 140) (Table 7.1).

7.2.5 SWEDEN

Real GDP growth in Sweden was around 2.5 per cent in 1989. Some slowdown is expected in the short-term, since low growth of production and productivity and above-average inflation indicate structural problems in the economy. Disposable income increased at a rate of 6.0 per cent in 1989 and is expected to grow by 5 per cent in 1990 and by 4.5 per cent in 1991 (OECD Economic Outlook, Vol. 47, 1990, Table: Sweden, p. 108) (Table 7.1).

Consumer inflation decelerated until 1987, reflecting falling oil prices and a weakening US dollar. Nevertheless, in 1989, inflation has been higher than in most other OECD countries, partly reflecting strong demand pressures. More specifically, consumer prices accelerated in response to stronger wage growth (weak productivity), higher import prices and higher indirect taxes. Since fiscal policy is expected to become expansionary and wages to continue to rise faster than in competitor countries, in combination with a government crisis in early 1990, upward pressures on inflation are expected to continue in 1990. Some stability may prevail in 1991; wage rises may be reduced, imported inflation may be lower and domestic demand weaker, although a further increase in indirect taxation may take place. Inflation is anticipated to increase sharply by 10.6 per cent in 1990 but by 9.3 per cent in 1991 (OECD Economic Outlook, Vol. 47, 1990, Table: Sweden, p. 108) (Table 7.1).

The exchange rate policy has been directed towards support of a stable exchange rate and the authorities are determined to maintain this policy. The nominal exchange rate relative to the US dollar is anticipated to be at 6.116 in 1990 and at 6.105 in 1991 (OECD Economic Outlook, Vol. 7, 1990, Table 57, p. 140) (Table 7.1).

An important point, which is relevant for the forecasts of all countries considered in the study, should be made as regards the very recent developments in the oil markets due to the Gulf crisis (Kuwait's invasion by Iraq). These developments may affect economic predictions considerably; the projection results, therefore, should be interpreted with extreme caution. As yet, it cannot be precisely estimated what the overall impact of this crisis will eventually be. The forecast values of the variables included here for the subsequent predictions of tourism demand are the most recently available figures at the time of writing, based on the economic developments discussed earlier. In the light of different economic conditions in the future, the flexibility of the methodology, explained in a subsequent section, would permit easy recalculation of the predicted figures.

Table 7.1

FORECAST VALUES OF INFLATION, EXCHANGE RATES AND DISPOSABLE INCOME

FOR 1990 AND 1991

Table 7.1a: INFLATION OF TOURIST DESTINATIONS
(% change over previous year)

DESTINATION	GREECE	SPAIN	PORTUGAL	ITALY	TURKEY
1989	15.6	6.6	12.7	6.0	71.7
1990	20.5	6.8	12.0	6.1	62.0
1991	19.0	6.4	11.0	5.6	52.0

Source: OECD Economic Outlook, Vol. 47, 1990;
p. 97; p. 107; p. 105; p. 76; p. 111.
The values for 1989 have been included for reference.

Table 7.1b: INFLATION OF TOURIST ORIGINS
(% change over previous year)

ORIGIN	UK	GERMANY	USA	FRANCE	SWEDEN
1989	5.5	3.1	4.4	3.3	6.5
1990	4.5	2.6	4.8	3.0	10.6
1991	5.3	3.3	4.6	2.8	9.3

Source: OECD Economic Outlook, Vol. 47, 1990;
p. 81; p. 64; p. 53; p. 71; p. 108.
The values for 1989 have been included for reference.

Table 7.1c: NOMINAL EXCHANGE RATES OF TOURIST DESTINATIONS
(national currencies per US dollar)

DESTINATION	GREECE	SPAIN	PORTUGAL	ITALY	TURKEY
1989	162.1	118.4	157.1	1372	2120
1990	166.3	106.9	150.2	1241	2971
1991	189.0	106.1	154.8	1237	4150

Source: OECD Economic Outlook, Vol. 47, 1990; p. 140.
The values for 1989 have been included for reference.

Table 7.1d: NOMINAL EXCHANGE RATES OF TOURIST ORIGINS
(national currencies per US dollar)

ORIGIN	UK	GERMANY	USA	FRANCE	SWEDEN
1989	0.611	1.880	1.000	6.380	6.446
1990	0.608	1.688	1.000	5.676	6.116
1991	0.609	1.687	1.000	5.656	6.105

Source: OECD Economic Outlook, Vol. 47, 1990; p. 140.
The values for 1989 have been included for reference.

Table 7.1e: DISPOSABLE INCOME OF TOURIST ORIGINS
(% change over previous year)

ORIGIN	UK	GERMANY	USA	FRANCE	SWEDEN
1989	10.6	4.5	8.8	6.8	6.0
1990	6.6	7.7	7.0	6.8	5.0
1991	6.9	6.3	6.6	5.7	4.5

Source: OECD Economic Outlook, Vol. 47, 1990;
p. 84; p. 66; p. 56; p. 72; p. 108.
The values for 1989 have been included for reference.

7.3 PROJECTIONS OF TOURISM DEMAND AND POLICY IMPLICATIONS

7.3.1 Projections of Tourism Demand

The previous section was concerned with the study of the trends in the inflation and exchange rates of each origin and Mediterranean destination country and in the income of each origin country. The discussion led to the forecast values of these variables for 1990 and 1991 (Table 7.1). This section discusses the predictions of tourism demand for 1990 and 1991. These predictions are based on the steady-state equilibrium path of tourism demand, as has been determined by the dynamic single equation models estimated earlier (Chapter 4). The aim is to assess the path that tourism demand (as measured by tourism receipts) is likely to follow in the near future, in the context of the economic developments analysed earlier, in order to subsequently formulate policy implications for tourism.

The predictions of tourism demand are to be attained by incorporating in the steady state equilibrium equation for tourism demand, (determined by the dynamic single equation models), in combination: a) the empirical results provided by the dynamic single equation models (the long-run elasticity values given in Tables 4.5c, 4.6c, 4.7c, 4.8c, 4.9c), based on historical data; and, b) the ex-ante information about the variables of interest (the forecast values for inflation and exchange rates of tourist origin and Mediterranean destination countries and income of tourist origin countries included in Tables 7.1a, 7.1b, 7.1c, 7.1d, 7.1e), based on assumptions that stem from the examination of economic developments over the last fifteen years, and especially between 1987 and 1989, in the countries under study.

It should be borne in mind that the (second order) dynamic specification of the single equation models (discussed in Chapters 3 and 4) led to the estimation of error correction mechanism models. These models were based on the acceptance of a non-stochastic steady-state theory, in the long-run, which took the following form:

$$D = K\, Y^{\lambda_1}\, RP_i^{\lambda_2}$$

where, D=Tourism Demand (Tourism Consumption); K=Constant on any given growth path but may vary with the growth rate (and/or effective price rate); Y=Disposable Income; RP_i=Effective

Relative Prices (i=1,2); λ_i=Long-Run Elasticity (i=1,2); 1=Destination to Origin, 2=Destination to Competitors. Furthermore, a stochastic disequilibrium relationship between D, Y, P and E (P=Nominal Relative Prices, E=Relative Exchange Rates) in the short-run, which is consistent with the long-run, was postulated. This way, the reconciliation of short and long-run tourism consumption behaviour was attained. The error correction mechanism was thus viewed as a "ratchet" to the short-run relationship which will operate in either direction for any sustained change in the growth rate and/or effective price rate (Davidson et al., 1978).

While the change terms of the models capture short-run fluctuations of the respective variables, which induce divergences of tourism demand from its long-run equilibrium path, it is the long-run steady state equilibrium that is of particular importance for consistent tourism policy implications. Policy implications based on the short-run changes, therefore, may be misleading; as the previous analysis explained, the short-run terms in the models describe shocks in the variables of interest that may be temporary, inducing divergence from their long-run path; after their temporary disturbance, the variables are expected to return to the path of their long-run behaviour. In a long-run steady state static equilibrium (when all variables are unchanging and the change terms equal zero), $\Delta d_t=\Delta y_t=\Delta rp_{it}=0$. Then, the long-run static relationship is of the form described above or, equally, in logs:

$$d = k + \lambda_1 \, g + \lambda_2 \, \mu_i \tag{1}$$

where, d, g and μ_i are the values of D, Y and RP_i in logs respectively. By substituting in the above steady state equilibrium equation: a) the values of λ_is (i=1, 2) for the respective long-run elasticities, estimated from the single equation models, as well as, b) the values of g and μ_is for the respective forecast values, estimated on the basis of recent economic developments in the countries under study, the steady state equilibrium path of tourism demand can be predicted.

It is worth emphasising that the approach proposed here provides a particularly straightforward and flexible framework for forecasting tourism demand. In the light of new information, regarding economic developments relevant to the variables and/or the countries under study, it is sufficient to adjust the forecast values of the individual variables of interest and include the adjusted values in the steady state equilibrium equation of the models, to obtain predictions of the steady state equilibrium path of tourism demand in the context of the altered economic conditions.

The examination of the combined effects of disposable income, inflation and exchange rate changes on the steady state equilibrium path of tourism demand, linking together ex-post and ex-ante information, can, therefore, provide tourism demand forecasts which form the basis for useful tourism policy implications. The determination of appropriate policy measures can affect the steady state equilibrium path of tourism demand towards a direction that benefits the Mediterranean destination under study. The usefulness of a framework that combines ex-ante and ex-post information on tourism demand can be seen by considering the example of Greece. High elasticity values with respect to inflation in Greece relative to its Mediterranean competitors, combined with high forecast values of inflation rates may lead to a considerable loss in competitiveness and to decreases in Greek tourism receipts. The policy implications, therefore, can lead to the adoption of economic measures (eg. anti-inflationary measures) that benefit Greece. Thus, disaggregated analysis involving separate consideration of the impact of the individual variables on the steady state equilibrium of tourism demand can also be useful in identifying related policy implications.

The steady state predictions of tourism demand are presented in Table 7.2[1]. These figures indicate the percentage change in tourism demand (receipts) over the previous year. As an illustrative example, Greek tourism receipts generated by British tourists are predicted to increase by 12 per cent in 1990 relative to 1989 and by 14 per cent in 1991 relative to 1990, provided the anticipated economic conditions (discussed in the previous section) prevail. If different economic conditions from those considered earlier were to prevail, then the predictions of tourism demand would have been different. However, if the latter was the case, the flexibility of the approach

[1] The figures in Table 7.2 were calculated by including the values of the long-run elasticities, presented in Tables 4.5c-4.9c, as well as the values of the forecast variables of interest, given in Table 7.1, in the steady state equilibrium equation of the form shown in Equation (1) earlier, determined by the estimation of the dynamic single equation models in Tables 4.5a-4.9a.

would permit easy recalculation of the predicted figures.

Table 7.2

PREDICTED VALUES OF DEMAND FOR MEDITERRANEAN TOURISM

IN STEADY STATE EQUILIBRIUM

(% changes over the previous year)

Table 7.2a: GREECE

ORIGIN	UK	GERMANY	USA	FRANCE	SWEDEN
1990	12	7.4	6.4	16.7	9.9
1991	14	6.1	6.5	14.9	8.9

Table 7.2b: SPAIN

ORIGIN	UK	GERMANY	USA	FRANCE	SWEDEN
1990	5.6	12	12	6.4	9.7
1991	6.7	10	11	5.6	8.7

Table 7.2c: PORTUGAL

ORIGIN	UK	GERMANY	USA	FRANCE	SWEDEN
1990	13	21	22	11.6	8.8
1991	18	17	20	9.8	7.8

Table 7.2d: ITALY

ORIGIN	UK	GERMANY	USA	FRANCE	SWEDEN
1990	12	7.6	12.7	14.7	10.5
1991	15	6.1	11.9	12.8	9.5

Table 7.2e: TURKEY

ORIGIN	UK	GERMANY	USA	FRANCE	SWEDEN
1990	17	20	6.1	6.1	7.6
1991	18	16	6 3	5.5	6.9

The steady state predictions in the tables above provide interesting and useful insights regarding changes in demand for tourism induced by changes in disposable income, inflation and exchange rates. Provided the long-run elasticities (estimated by the dynamic single equation models) hold, it appears that the majority of the Mediterranean destinations may experience declining trends in the rate of growth of demand for their tourism products in the future by most of the tourist origin countries considered. On the basis of the economic developments discussed earlier, and comparing them with the respective values for 1989, these predicted values of the demand for Mediterranean tourism seem to be realistic.

Despite the fact that income elasticities for Mediterranean tourism regarding some origin countries (eg. the UK, Sweden and West Germany) have been found to be high and/or the price elasticities to be moderate (eg. for Sweden and the USA), the actual economic developments in these countries may have led to such income, inflation and/or exchange rate growth rates that their combined effect is predicted to ultimately induce an adverse impact on tourism demand. Hence, the magnitude of the elasticity values by itself may not be an adequate indicator to draw consistent policy conclusions. Rather, in combination with the elasticity values, the actual economic developments of the countries under study should also be taken into account, in order to attain more realistic policy conclusions. Forecasting, therefore, of the trends in variables important for tourism, such as income of origin countries, inflation differentials and exchange rate changes, is also crucial. (It is worth noting that the relative inflation and exchange rate differentials rather than the absolute rates are of major policy importance). In fact, the recent (1988-89) slowdown of economic growth in some of the origin countries (eg. in the UK, Sweden and, to a lesser extent, in the US) may be responsible for the declining trends that the earlier predictions of tourism demand seem to indicate for the near future, despite some favourable developments in the exchange rates of some destinations (eg. depreciation of exchange rates in Greece, Portugal and Turkey). Furthermore, since 1988 and 1989, most Mediterranean destinations have experienced reaccelerating inflationary pressures; their lagged impact on tourism demand is expected to appear during 1990 and 1991.

Of the projection findings, some of the most important appear to be the high and upward growth rates of British expenditure on Greek, Portuguese, Italian and Turkish tourism; the high growth rates, though on a slightly declining trend, of German and French expenditure on Mediterranean tourism; the high and increasing growth rates of American expenditure on Greek and Turkish tourism as well as the high, though decreasing, growth rates on Spanish, Portuguese, and Italian tourism; and, finally, the generally downward trend in the growth rates of Swedish expenditure on Mediterranean tourism. As the projection results indicate, although some Mediterranean destinations may experience slowdown in the growth rate of their tourism receipts, others may see still further increases in the growth rate of their tourism receipts. The latter seems to be the case particularly for Greece, Portugal and Turkey, which may benefit from tourism flows originating from the UK, Germany and the USA.

The anticipated upward growth trends in British demand for most Mediterranean destinations (some stagnation is expected for Spanish tourism) may be related to the high British income elasticities for Mediterranean tourism and to favourable developments in the relative exchange rates (strengthening of the sterling and depreciation of the drachma, escudo and Turkish lira), developments which are expected to continue and which seem to compensate partially for the adverse impact exerted by high inflation rates in most Mediterranean countries. Furthermore, some acceleration of growth in the US economy for 1991 may be responsible for the anticipated upward growth of American demand for Mediterranean tourism; in addition to this, the relatively high income elasticities of the US, combined with moderate price elasticities, also play a considerable role in this increase in American tourism demand. It is also worth mentioning the role of carefully designed and organised marketing and promotion programmes of some Mediterranean destinations (eg. of Greece and Turkey), in the British and American markets in particular, during 1988-90.

As was mentioned earlier, the predictions of demand for Mediterranean tourism by countries such as Germany and France still seem to be characterised by high growth rates, indicating their importance for Mediterranean tourism yet, although the growth rates appear to be following a declining trend. This outcome may reflect, on the one hand, the robust economic growth, strong national currencies and relatively moderate inflation rates that have prevailed in these countries, and which are expected to continue, but, on the other hand, may show some saturation in the preferences of these tourists for Mediterranean tourism. Although not directly seen from the empirical results here, it may be the case that German and French tourists switch their preferences towards alternative tourism destinations that compete successfully with the Mediterranean countries, such as Kenya, the Pacific region or the Far East. The limited empirical evidence indicates (taking account of the relevant tourism demand elasticities) that this may be the case (eg. Onunga, 1988).

7.3.2 Policy Implications for Tourism Demand

Since a national economic policy applied by any Mediterranean destination may not have a direct impact on the income growth rate of an origin country, the implementation of policies directed towards controlling domestic inflation rates and reducing unfavourable exchange rate differentials becomes crucial. Among the direct policy implications, that stem from the empirical results on the elasticity values as well as on the projections of tourism demand, it appears that the Mediterranean destinations with high inflation rates (particularly Greece, Portugal and Turkey) should apply anti-inflationary policies, in order to reduce the inflation differentials with their competitors as well as with the tourist origin countries. This policy proposition seems particularly important if related to the fact that these Mediterranean countries were found to be characterised by highly unfavourable price elasticities, and when also seen in the context of most recent economic developments which point to severe reaccelerating inflationary pressures.

Unfavourable inflation rates have a direct adverse impact on the price of the tourist product and subsequently on the competitiveness of the tourism destination. They also influence the reputation about the cost of a tourism destination, which in turn will have a feedback effect on the tourism flows towards that destination. Moreover, as has been shown earlier (Chapters 4 and 6), effective prices have a strong impact on tourism demand and severe competition among the Mediterranean tourism destinations, as indicated by the impact of substitute price changes, could lead to a switch of foreign tourists towards other Mediterranean destinations and possibly even away from the Mediterranean region.

As the diversified range in the estimated price elasticity values indicated, despite their similar touristic attributes, the Mediterranean destinations can be considered as differentiated "products". Furthermore, the projected values of tourism demand show that the economic developments anticipated earlier will not affect Mediterranean tourism receipts to the same extent, or in a uniform way for all tourist origins. With a view to these points, therefore, promotion of specific touristic attributes which a destination possesses (eg. cultural tourism in Italy, cruising in Greece, yachting in Turkey), in combination with a careful pricing policy of the tourism product set in an anti-inflationary environment, could enable that destination to gain a comparative advantage over its competitors. Empirical evidence (Jenkins, 1980; p. 23) indicates that "wanderlust" tourism (visiting tourist destinations for their touristic attributes other than "sunlust", eg. cultural, exhibitional, educational etc.; Gray, 1970) seems to be more income and less price sensitive. Hence, this type of tourism appears to be an attractive path for promotion, given an inflationary climate. This could be a particularly useful policy alternative for those countries which have most problems in controlling inflation, such as Greece and Turkey. Moreover, differentiation of their tourism products would help the Mediterranean destinations to prevent the adverse repercussions that a "mass-tourism" model of tourism development, such as that applied in Spain, for example, can induce.

An appropriate exchange rate policy should be directed towards reducing the adverse exchange rate differentials between the tourism destinations and the origin countries as well as between the tourism destinations and their competitors, aiming at convergence towards a common path and a more stable currency. The recent strong effective appreciation of the Spanish peseta and the Italian lira, for example, combined with high effective price elasticities (particularly for Italy) may be partly responsible for some switch of tourist flows towards other Mediterranean destinations with more attractive exchange rates, such as Turkey and Greece. Furthermore, the upward growth trend predicted for the British and American demand for Greek and Turkish tourism may be related to favourable exchange rate developments (which are perceived to continue) (depreciation of drachma and Turkish lira relative to sterling and the dollar), in combination with moderate effective price elasticities (particularly for the US).

In relation to the earlier arguments, it is important that the inflation and exchange rate policies should be carefully integrated in order to avoid retaliation. An exchange rate policy of devaluation, for example, in order to sustain a favourable exchange rate, should not be counterbalanced by adverse inflation rate developments. Large devaluations usually either follow or cause a surge of inflation greater than that taking place in competitor countries; the ultimate positive change in real exchange rates, therefore, may be dampened (Thirlwall, 1986). The 1985 Greek drachma devaluation, for instance, resulted in only temporary relief from the pressures on the economy but its impact eventually faded due to high inflation. However, recent experience in countries such as Turkey and Portugal has indicated low efficiency in controlling inflation and sustaining a competitive exchange rate due to conflicting economic policies (OECD, National Economic Surveys, 1989/90).

It should be noted, nevertheless, that devaluation of the currency, for countries like Greece, Portugal and Turkey, may not be an effective policy choice. These countries are characterised by high foreign debt, strong price-wage interactions and weak export capacity. A devaluation would reduce the value of GDP in foreign currency and hence increase the debt/GDP ratio and the interest burden. It would exert an upward pressure on the price-wage spiral via its effects on import prices and, although the initial benefits may improve competitiveness temporarily, they can be counterbalanced by more rapid domestic inflation. Moreover, with limited export supply potential and rather low price elasticities of demand for exports and imports, a favourable impact on the balance of payments may be rather limited (Thirlwall, 1986).

As the high substitute effective exchange rates estimated earlier (Chapter 4) have implied, in order to compete, each Mediterranean destination may have to respond to the others' effective exchange rates. Assuming, for instance, that a tourism destination devalues its national currency relative to its competitors' currency with a view to attracting higher shares of tourism demand (taking advantage of the high intra-regional substitution), this may lead to rounds of competitive devaluations, which could be detrimental for the region as a whole, if substitution is low against other regions. If substitution is high only within the region, then the Mediterranean destinations could maximise their total tourism receipts by acting jointly to maintain high prices through a common exchange rate pegged to a highly valued currency like the D-Mark (Rosensweig, 1986; p. 57). In all cases, it appears that policy-makers should take into account competitors' exchange rate policies and respond accordingly.

The exchange rate policy should be paid particular attention when viewed in the context of European integration. The participation of major European currencies in the Exchange Rate Mechanism (ERM) of the European Monetary System (EMS), and the more recent introduction of others (eg. the Italian lira in 1987 and the Spanish peseta in 1989) indicate narrower bands for exchange rate fluctuations. Although devaluation, as a policy measure for the countries participating in the ERM, will generally be limited between strict margins, membership of the ERM points towards a decrease in inflation differentials relative to the other ERM member countries and a disciplined exchange rate policy. This is likely to result in increasing stability in the exchange rates between the ERM member countries. Monetary policy will pay attention to the maintenance of a stable exchange rate within the arranged bounds via adjustments of interest rates; it is fiscal policy (changes in taxation and public expenditure) that becomes of primary importance. Overall, economic policies applied by the Mediterranean destinations should be directed towards alleviating the structural weaknesses of their economies and, in the specific context of this study, of the tourism sector -eg. eliminating supply bottlenecks or rigidities. Hence, policy implementation should aim to control factors that contribute to domestic cost increases, induce inflationary pressures and erode competitiveness.

It is crucial to note that tourism policies should be carefully integrated in the overall economic policies applied by a tourist destination. The growth rates of tourism in a destination and the success of its tourism policies are greatly influenced by the overall political, economic and social environment of the destination. As the estimation results have indicated (Chapter 4), international tourism demand is very sensitive to political instability, social upheaval and terrorist activities, that create an unfavourable environment for tourism consumption. Tourists prefer politically and socially stable tourist destinations. It appears, nevertheless, that the fluctuations in tourism demand due to political factors do not bear any specific relevance to the political regime under question (Kushman, Groth and Childs, 1980). Overall, economic policies should take into account the fact that high inflation rates and exchange rate uncertainty can create an unfavourable environment that adversely affects business investment and capital attraction. Moreover, this unfavourable environment can further deteriorate, and economic policies become inefficient, if set in a climate of political and social instability. As an example, due to an unstable political climate, accompanied by inefficient economic policies and a deterioration in investors' confidence, Turkish tourism suffered a severe slowdown during the mid-1970s and early 1980s, despite considerable tourist potential (Uysal and Crompton, 1984).

As was discussed earlier (Chapters 4 and 6), and also seen in the projected values, the demand for tourism and the choice of tourist destinations may be susceptible to large fluctuations (due to a number of reasons, including variations in income and exchange rates as well as special events, such as political changes). The findings have indicated that tourists originating from different countries can exhibit diversified patterns of demand over time which, in turn, may become a source of fluctuations for the tourism receipts of a tourist destination. Since the tourism authorities are interested in minimising fluctuations in tourism receipts, particularly if the country is heavily dependent upon international tourism, they may wish to target their marketing strategies towards those tourist origin markets that indicate less volatile tourism revenue. Of particular importance are the origin countries found to be characterised by high income and low price elasticity as well as were predicted to show an increase in tourism demand in the future, considering the current economic environment in these countries.

Particular attention should be given to the origin countries with higher income elasticities and/or lower relative price elasticities, as indicated by the estimated models. The empirical findings suggest that the UK, Sweden and West Germany appear to be the most income elastic tourist origins. The single equation estimation results, more specifically, suggest that higher tourism returns should be anticipated from the UK, German and Swedish tourist markets for Greece; from the American, German and Swedish tourist markets for Spain; from the UK and American tourist markets for Portugal; from the UK, French, German and American tourist market for Italy; and, from the UK, German and Swedish tourist markets for Turkey. Given, however, the most recent economic developments in the origin countries (eg. slowdown of economic growth in Sweden, robust economic conditions in Germany and a strong currency, renewed touristic interest of Americans in Mediterranean tourism and prospects for economic growth), and the resulting projections of tourism demand, it appears beneficial for the Mediterranean destinations to focus their promotion strategy on the UK, German and the US markets. These tourist markets seem of major importance particularly for Greece, Portugal and Turkey, since the projections indicated high and/or increasing tourism demand growth rates from these origins. As a result, intensified marketing and promotion programmes could be targeted to these tourist markets in order to attract higher shares.

An interesting marketing issue could be combined marketing and promotion strategies. These strategies could be designed *in common* by the destinations that share some similar touristic attributes, in order for the destinations to maximise together their revenue from tourism, minimising the marketing and promotion costs. The strategies could be based on a certain degree of complementarity between tourist destinations such as Greece and Turkey, Italy and Greece and Spain and Portugal (obtained from the system of equations model; Chapter 6) and could be further justified on grounds of preference by tourists to blend sea-side with cultural tourism, for instance, or even due to geographical proximity of certain tourist destinations.

Nevertheless, it could be argued that the same marketing strategy may not apply uniformly to each origin-destination pair. Each destination could aim to promote its tourism product in those origin markets that were found, on the one hand, to have high income and low price elasticities with respect to tourism demand and, on the other hand, with the objective of increasing their tourism demand in the future, taking into account the current economic conditions prevailing in those countries. Consideration of issues related to the current "image" of a tourist destination in a tourist origin market as well as to market segmentation and to whom the "tourism product" is targeted are also relevant. The appropriate marketing strategy should have identified the different touristic needs and motivations of different demographic and social groups, their spending capacity and future intentions and the changing patterns of consumer behaviour as well as the strengths and weaknesses of the tourist resort under promotion. Study of the tourism products supplied by competitors would also indicate gaps where new tourism product opportunities could be supplied.

Marketing policies may also be designed in a way that could affect income and/or price elasticities of the tourist markets under consideration to the destination's benefit. New "tourism product" development may be related to these policy issues, although it is a complex issue owing to the multi-facet nature of tourism. The idea of new "tourism product" promotion should be viewed in a broad context, including promotion of new tourist resorts, new types of accommodation, new types of transport or a combination of touristic activities offered in a tourist resort; promotion can also refer to adaptation of an established "tourism product" for new target markets. As a final word, the single (internal) market of the European Community of 1992 will have important implications for tourism promotion, since it is expected to contribute to the abolition of inter-country barriers, the facilitation of tourist movements among the member-states and an increase in tourism demand.

CHAPTER 8

OVERALL SUMMARY AND CONCLUSIONS

The present chapter concludes the thesis with a summary of the main issues put forward and investigated, the empirical findings obtained and the related policy implications and provides suggestions for future research on tourism demand.

8.1 A SUMMARY OF THE FINDINGS FROM THE RESEARCH

The thesis has undertaken the modelling of tourism demand and has contributed to the rigorous study of variables that affect the demand for Mediterranean tourism. The Mediterranean region has, paradoxically, been paid little attention by past tourism demand studies, despite its important position in international tourism flows. The first chapter studied the contribution of tourism to the Mediterranean economies (Greece, Spain, Portugal, Italy, Turkey). Tourism was seen as a valuable means of alleviating balance of payments constraints and of income, employment and tax revenue generation. Nevertheless, tourism receipts may be characterised by fluctuations, since tourism is particularly sensitive to shocks in the international economic and political environment, and this can induce undesirable repercussions for the economy as a whole.

The examination of tourism indicators, such as tourist arrivals, tourist nights spent and tourism receipts, which describe the trends in tourism demand, as well as the contribution of tourism receipts to GDP and exports, indicated the important role of tourism in the Mediterranean economies. It was argued, however, that tourist flows in the Mediterranean region appear to have shifted eastwards (from Spain, Italy towards Greece, Turkey) and strong competition between the Mediterranean destinations (related mainly to cost factors) is experienced. These issues pointed to the increasing difficulties for the Mediterranean countries in safeguarding and expanding their tourism shares in an environment of international competition. European countries, mainly the

UK, West Germany, France and Sweden as well as the USA were found to be among the major tourist origin markets, contributing significant tourism receipts to the Mediterranean destinations; they were these origin markets that were studied in the thesis. It was seen that, despite their high shares of expenditure on Mediterranean tourism relative to their total private consumption expenditures, some of these countries show a declining trend in their already high demand growth rates for Mediterranean tourism.

A review of the literature on past studies of tourism demand provided a background for the approach that has been followed in the thesis. It discussed the various quantitative and qualitative approaches to the topic but emphasis was placed on relevant past studies referring to econometric approaches to the modelling of tourism demand, based on the single equation and the system of equation models. The studies using single equation models were categorised according to the alternative definitions adopted for the dependent variable as well as according to the independent variables used to explain tourism demand; the studies using system of equation models were distinguished by the functional form which was chosen to represent consumer preferences in demand functions. The discussion critically analysed the advantages and limitations of past studies. It was concluded that much past research has paid little or no attention to the provision of a theoretical framework for the proposed models, directly linked to the economic theory of demand for tourism. Moreover, empirical inadequacies (eg. poor diagnostic testing, statistically unreliable results) seem to cast some doubt on the validity of many of these studies.

The approach to tourism demand followed in the thesis has been based on two alternative directions of theoretical and empirical analysis, the single equation and the system of equations approaches. In the single equation approach, a theoretical framework was provided in order to relate the role of the variables included in the models to the economic theory of tourism demand in particular. Subsequently, "error correction mechanism" econometric models were estimated, disaggregated by origin-to-destination pairs, in order to account for features specific to the countries considered. The theoretical framework proposed and the econometric approach applied appear to be another contribution of the thesis. The models were concerned with tourism receipts changes in major Mediterranean destinations (Greece, Spain, Portugal, Italy, and Turkey) from major tourist generating countries (the UK, West Germany, France, Sweden and the USA). They provided a flexible framework for the study of the role and impact on tourism demand of variables such as income, prices, exchange rates and political events, in the short and long-run. The dynamic single equation models followed the well established "general to simple" econometric methodology and were found to provide a satisfactory description of changes in tourism demand, reconciling short and long-run tourism consumption behaviour. A note on the supply of tourism discussed potential problems in estimating demand functions -identification and/or simultaneity- and explained the circumstances under which identification and simultaneity are not likely to pose problems for the estimation of demand equations, as in the case of the Mediterranean countries considered.

The specification and estimation of a complete system of equations model, founded on recent developments in consumer behaviour theory, provided an alternative approach to the single equation models and reinforced the validity of some of the findings from the latter models. The system of equations model described an expenditure allocation process, where the tourist spends (in a multi-stage procedure) a predetermined budget on goods and services in order to maximise utility. The model paid attention to the stage of budget allocation of expenditure on Mediterranean tourism. Furthermore, properties implied by the consumer theory were tested in order to examine the validity of the theoretical framework applied (the homogeneity restriction was accepted in some cases, symmetry, however, had to be rejected; this outcome is in accordance with that provided by relevant past studies). The functional form used to represent tourist preferences was the Almost Ideal Demand System (AIDS), which is currently the most advanced and flexible functional form in applied demand analysis.

The empirical findings from both models indicated that tourism receipts can provide significant foreign exchange earnings. There are, however, variations in the demand patterns of tourists originating from different countries, and the Mediterranean destinations will not be affected to the same extent by demand fluctuations. Variations in tourism receipts over time were shown to be related to changes in income, inflation rates and exchange rate differentials as well as social and political factors. The elasticity values of the demand for tourism differ between tourists of different nationalities and exert divergent impacts on different Mediterranean destinations.

The possibility of separate price and exchange rate effects in the short-run but of combined effects in the long-run was also investigated in the dynamic single equation models. Exchange rates were found to be an important variable in explaining tourism demand changes in the short-run, while it was the effective exchange rates that were more relevant in the long-run. Fluctuations in tourism demand (receipts) were argued to raise some scepticism as to the reliability of the sector in providing a stable source of foreign exchange earnings. The argument was particularly related to the high substitute price elasticities of tourism demand, which indicated that price changes in any of the Mediterranean destinations would lead to a switch of tourists towards the others and possibly even away from the Mediterranean region. Both models indicated that price differences appear to be a crucial factor to which tourists are sensitive when choosing holidays. Political instability, moreover, was shown (in the single equation model) to have adverse effects on tourism demand. Tourists were found to prefer politically and socially stable tourist destinations.

In both models, the UK, and Sweden (in addition to West Germany in the single equation model) appeared to be highly income (expenditure) elastic origin markets with respect to the Mediterranean destinations. The more price sensitive tourists, however, were found to be the Germans and the Americans. From the destination's viewpoint, price increases would affect Greece, Portugal and Spain more adversely. Italy and Turkey appeared to be in a favourable position compared with the other destinations, since they were generally characterised by high income but moderate price elasticity values. As regards their competitiveness in relation to the other Mediterranean destinations, the single equation model indicated that Greece and Portugal were most affected by unfavourable price differentials. The severe competition experienced generally among the Mediterranean destinations indicated that it will be increasingly burdensome for the Mediterranean destinations to safeguard their market shares, particularly in the context of an expanding international tourism market and the rise of new, long-haul destinations.

The final part of the thesis was concerned with policy implications for tourism demand. Prior to the discussion of policy implications, a framework about the background of the Mediterranean destination and tourist origin economies was provided, focusing on the trends in inflation, exchange rates, income (of the tourist origins) and the tourism sector (of the destination countries). The analysis contributed to providing and explaining forecast values of income, inflation and exchange rates of the tourist origin and destination countries considered. The forecast values obtained, combined with the estimated elasticity values from the dynamic single equation models, were included in the long-run steady state equations derived from the single equation models, in order to predict steady state equilibrium paths of tourism demand (in the context of the previously discussed economic developments in the tourist origin and destination countries). The consideration of predictions of tourism demand, based on realistic assumptions rather than on hypothetical simulation values about the levels of income, inflation and exchange rates in the origin and destination countries, appears to be another contribution of the thesis in the field of tourism demand.

The predictions indicated that high inflation, unfavourable exchange rates and increasing competition would have severe contractionary effects on tourism demand in the future for most Mediterranean destinations. Destination economic policies may wish to focus, therefore, on diminishing inflation differentials with respect to competitors and on sustaining favourable and stable exchange rates. Furthermore, marketing and promotion programmes would be useful in aiming to attract higher shares of tourism earnings from markets with higher income and lower price elasticity values in order to increase the growth of receipts and decrease the associated risk.

The diversified range in the estimated price elasticity values indicated that, despite some similar touristic attributes, the Mediterranean destinations can be considered as differentiated "products". A marketing and promotion strategy underlining specific "sunlust" as well as "wanderlust" attributes that a destination possesses seems to be appropriate. It would enable the destination to gain a comparative advantage over its competitors, especially if combined with a careful pricing policy of the "tourism product". Combined marketing and promotion strategies which could be designed in common by destinations that share similar or even diversified touristic attributes could be considered; they could be justified on the basis of the complementarity concept discussed in Chapter 6 of the thesis.

8.2 SUGGESTIONS FOR FUTURE RESEARCH

To conclude, both the single equation and system of equations approaches contribute important insights about the determinants of tourism demand, as well as useful related policy implications. Nevertheless, it would be interesting if this work was extended towards alternative directions. In the final section, some suggestions for future research are included.

One prospect for future research on tourism demand is the introduction of dynamics into the system of equations model. As was discussed earlier, some ambiguity in the empirical findings of the system of equations model may result from the fact that the static model does not incorporate dynamics and includes the same explanatory variables in all equations of the system. Furthermore, as most recent empirical evidence has indicated, the dynamic AIDS model can overcome some of the deficiencies of the static AIDS model (eg. rejection of the symmetry condition) and can provide more robust empirical results. While current research is aware of the specification and estimation approach to the dynamic AIDS model (eg. Anderson and Blundell, 1984a, 1984b, and Chapter 6 of the thesis), the procedure is rather complex and requires a large number of observations that, in the specific context of tourism, are not available yet.

An alternative approach to analysing tourism demand could be that put forward by discrete choice models (eg. McFadden, 1973; Hensher and Dalvi, 1978). A probabilistic framework, as to the discrete choice of a particular tourist destination among many alternatives, would be used in this case and this would contribute to overcoming some of the ambiguous findings about the complementarity-substitutability concept of tourism destinations. The limitation of these models is that they require disaggregated data on individual households (usually based on surveys) and, once more, such data for tourism demand are unfortunately not widely available.

Finally, it is the data inadequacy and the consequent impossibility of disaggregation that does not yet permit the study of tourism demand according to the purposes it serves (eg. pleasure or business tourism) or different sub-groups (eg. elderly or selective tourism). This thesis has contributed to theoretical and empirical research on tourism demand and, by using consumer theory, to bridging the gap between research at the micro and macro-levels. However, improved availability of disaggregated data would contribute to the expansion of research on tourism demand at the micro-level, since the studies up to now have used mostly macro-models, based on aggregate data including all tourism purposes. Disaggregated studies would permit examination of the motives underlying tourism demand and the divergent spending patterns of tourists and would have important policy implications for the tourism sectors of the countries concerned. It has been a major problem for all studies in the field of tourism that they have been severely constrained by the lack of adequate, reliable and consistent data and relevant national as well as international bodies should be seriously concerned with this issue.

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